PM Competency Model Comparison

A comparison of skills for Program and Project managers in Government, Academia and Industry

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Introduction

The purpose of this paper is to develop a Program and Project Management competency model based on three different competence models that were studied. The fourth model will take the best part of each competency model that is studied and combine them into a proposed “ideal” competency model.

What is a competency model?

Simply put from google, “a competency model is a collection of competencies that together define successful performance in a particular work setting. Competency models are the foundation for important human resource functions such as recruiting and hiring, training and development, and performance management” [1]

Although the competency models that are compared vary, the fourth competency model is designed to fit the following layout:

- 3 to 5 behaviors
- 3 to 5 skills for each behavior
- 3 Responsibility classifications that cover three levels of people
- Details explaining what is expected at each level

Competency models were chosen from three different sectors to create an overarching competency model. The three sectors chosen were: Academia, DoD/Government and General Industry. A single sample of each sector’s competency model is detailed in the following section.
The National Institutes of Health, Office of Human Resources developed a competency model to help select the most applicable competencies to a position. The Competency model can be viewed at the following link [2].

The National Institutes of Health defines a Program/Management Analysis Competency Model which includes definitions and key behaviors of each competency. The definition is an expansion on the competency provided. The key behaviors are visible actions that demonstrate the competency.

The three Core Competencies that are defined are: Legislation, Policy and Procedure Research Competency, Management Analysis Competency and Process Management Competency. Of those three competencies, the two relating directly to Product/Project management are broken down below. There is also a section relating to general competencies that are required which can be found in the appendix. The entirety of the Competency Model can be found in the Appendix.

**Process Management Competency:**

Develops and monitors processes and organizes resources to achieve desired results.

The **Key Behaviors** are listed below:

- Evaluates efficiency and effectiveness of resource utilization and results accomplishment
- Establishes clear, well-defined processes necessary to achieve the desired outcomes
- Organizes people and activities to accomplish results
- Identifies and addresses process problems promptly
- Delineates complex processes into more simple tasks and functions
- Creates a work flow that effectively coordinates and integrates tasks and functions
- Identifies and takes advantage of opportunities to accomplish multiple objectives and obtain synergies through process development and management
- Effectively communicates and coordinates with other stakeholders in the process
Management Analysis Competency:

Conducts research and solves organizational inefficiencies to increase the effectiveness of the organization.

The Key Behaviors are listed below:

- Understands management and organizational principles pertaining to areas of responsibility (e.g., delegations of authority, administrative procedures) in order to plan and conduct complex studies to assess organizational operations
- Identifies sources of information/data for a wide variety of problems and needs
- Accurately interprets study results
- Identifies and gathers necessary and accurate information needed (via case studies, etc.) to clarify an issue or make a decision
- Assesses problems accurately, and arrives at solutions that improve the efficiency and effectiveness of resources and operations
- Conducts benchmarking and best practices research
The University of Florida, Human Resources Services division developed a competency model to help select the most applicable competencies to a position. The Competency model can be viewed at the following link [3].

This Competency model is represented in graphical form and includes four main competencies:

- Build Trust
- Cultivate Talent
- Generate Alignment
- Create & Communicate Vision

These competencies are then broken down into various key behaviors, totaling 20 key behaviors. The twenty key behaviors are listed as:

- Advocacy
- Emotional Intelligence
- Humility
- Role Model
- Integrity
- Transparency
- Communication
- Problem Solving
- Political Savvy
- Strategic thinking
- Execution
- Accountability
- Judgement
- Financial Management
- Fair and Legal Management
- Resolve
- Talent Selection
- Coaching/ Mentoring
- Collaboration
- Facilitative Decision Making
These key behaviors are then defined by necessary skills, which can be seen in the appendix. Finally, the competency model gives an explanation of what is expected for managers and what is expected for leaders for each key behavior.

Figure 1: University of Florida Competency Chart

All competencies are expected at every level; however, each competency has a different requirement depending on the Manager/Executive’s level. The entirety of the competency model can be found in the appendix as well.
APICS developed a competency model for supply chain managers to help select the most applicable competencies to a position. The Competency model can be viewed below and at the following link [4].

The Competency Model is broken down into Foundational Competencies and Professional-related Competencies. These competencies are the further broken down into Workplace and Leadership, Academic and Personal Effectiveness competencies for the Foundational section and Supply Chain Manager Knowledge Areas and Operations Management knowledge Areas for the professional related area.

The Core competencies listed under Fundamental are:

- Problem solving and decision making
- Teamwork and collaboration
- Accountability and responsibility
- Customer focus (internal and external)
- Planning and organizing
- Conflict management
- Enabling technology
- Math, statistics, and analytical thinking
- Reading and writing for comprehension
- Applied science and technology
- Supply chain fundamentals
- Foundations of business management
- Operations and enterprise economics
- Awareness of the needs of others
- Integrity
- Continuous learning
- Effective communication
- Interpersonal skills
- Creativity

While the Core competencies listed under Profession-related are:

- Strategy development and application
- Supply chain management
- Process improvement and six sigma
- Execution, planning, scheduling control
- Project management
• Lean management
• Enabling technology application
• Performance trade-offs
• Warehouse management
• Transportation management
• Supply chain synchronization
• Risk management
• Sustainability
• Location facilities
• Distribution
• Warehousing
• Logistics
• International regulations
• Strategic sourcing and supplier relationship
• Customer relationship management
• Applying lean and six sigma tools

Each bullet point is then broken down further and described, which can be seen by following reference [4].
Even though all of the competency models that were analyzed come from three different sectors, it turns out that they are mostly the same. The models all identify what I like to call umbrella terms to cover a broad area and then use one or two sentences to further explain that area in detail and how it relates specifically to that job or area. The interesting thing was that of all the competencies models, the University of Florida Competency Model was the one to differentiate depending on experience level. They used the same competency model but then under the description of the skills for a specific behavior, they had a separate definition for “Leaders” and “Managers”. One caveat to this is that the competency model often just wrote “same” under one of the sections meaning that the competency was actually the same regardless of position.

All of the competency models that were reviewed stated that they were used to create standards for human resources to measure how well a candidate would fill a position or how well a current employee was performing their job duties. The academic and Industry models both used a visual aid to describe the competencies and establish a hierarchy for them. The government competency model did not have a visual aid and was written in a step format.

The most common terms used for competencies were more generic such as problem solving skills and effective communication. The skills that showed up across all three competencies are listed below:

- Communication
- Problem Solving
- Teamwork / Collaboration
- Decision Making

The reason these were the most common is likely due to them being the most generic and applicable across all fields. What caught my eye more than the generic listings were the unique competencies and skills that I found in each sector: Creativity, Humility, and Partnering.

The first of the unique skill was **Creativity**. Creativity was listed under the APICS Supply Chain Manager Competency Model and was defined as:

- Demonstrate intellectual curiosity about why things are the way they are.
- Challenge the status quo.
- Change, elaborate, adapt, and improve own ideas or those of others.
- Demonstrate a bias towards action; materialize thoughts into products or services.

It was interesting that they strongly valued the diversity that came with creativity and encouraged pursuing personal ideas and challenging the current corporate status quo. I thought this was a great competency because it helps a corporation continue to evolve as the nature of their business evolves. I
could understand why it was a portion of the industry competency and not the government competency since the government is stable and challenging it may result in treason.

The second of the unique competencies was **Humility**. Humility was listed under the University of Florida Competency Model under the Build Trust Competency area. It was defined in bullet points saying “Share credit and Admit Mistakes” and was further defined as “Is approachable; shares credit; admits mistakes; willing to sacrifice personal goals for organizational goals; realizes that personal success is connected to team success”. I believe humility should be listed in every competency model for managers. Someone who is a manager of other people should always practice humility so that they do not alienate the people around them.

The third of the unique competencies was **Partnering**. Partnering was listed under the NIH Government Competency Model as a “Skill Competency”. It was defined as “Develop networks and build alliances with customers, vendors, and other partners to meet mission requirements and provide services and products by collaborating across boundaries”. I bolded the across boundaries portion of the partnering competency because working across boundaries is what really develops a successful workforce in this day. Every industry is now cross discipline and it would be challenging to think of an industry that is not. Working across boundaries and partnering with people outside the normal network helps stimulate innovation and drive new ideas.
My Competency Model
The Intersection of Ideas towards Innovation

Going through multiple competency models in multiple sectors of business really gave a good perspective of what is important in a competency model. Some ideas were general and spread across every competency model, while some competency models had ideas that were unique to themselves. The goal of my competency model is to combine what I feel is the best of each model into a single competency model that is well rounded and applicable.

The contents of this competency model can be seen in the Appendix of this document or in the excel spreadsheet that was delivered with this document.

This model contains four behaviors and 13 skills. There are three levels of experience within the competency model as well. The first level is of a Subject matter Expert Project Manager. Their primary purpose is to manage the highly technical content of mainly research and development and product development areas. SME managers are a portion of a project group and work in conjunction with Project Managers. Project Managers are the second level of experience. Along with collaborating with the SME manager, they also manage the entirety of a product or process. The third level is executive level management. They manage the majority of the big business aspects of the company and answer to the shareholders and board of directors.

The Behaviors and skills in the competency model are listed below for convenience while the description for each level can be seen in the attached excel document and appendix:

1. Execution, Planning, Scheduling and Technical Control
   a. Organization
   b. Applicable Knowledge
   c. Control
2. Build Trust and Comradery
   a. Humility
   b. Integrity
   c. Interpersonal Communication
   d. Effective Listener
3. Cross Discipline Alignment and Partnering
   a. Network development
   b. Collaboration
   c. Teamwork
4. Breed Innovation
   a. Forward Thinking
   b. Challenge Status Quo
   c. Talent Selection
From this list of behaviors and skills, it is easy to see what I believe is important at the management level of a company. This competency model blends innate personal attributes with technical savvy. The managers who fulfill this competency model will know how to communicate with business and technical minded people. They are a blend of the best of both worlds; understanding the analytics and objectiveness of the engineering side and blending it with the interpersonal and subjective side of human interaction.

The list of competencies, behaviors and skills could become exhausting if they were all to be listed. The list above is to serve as an intrinsic and core set of ideas to distinguish the best fit for managers. As the manager’s position with the business increases, he or she becomes less technically oriented and more business oriented. An important note is that the best upper management will still maintain a solid grasp over the technical side of the business. As an example, look at Bechtel whose current President, Bill Dudley, who is a Civil Engineering grad from Purdue!
References

[1] – Competency Model Definition - https://www.google.com/search?sourceid=chrome-psyapi2&ion=1&espv=2&ie=UTF8&q=what%20is%20a%20competency%20model&oq=what%20is%20a%20competency%20model&aqs=chrome..69i57j0i5.3511j0j4


The Image on the Cover page was created by me (Michael Hall)
Suggested Program/Management Analysis (GS-343) Competency Model

[Note: This competency model framework allows for the development of a customized GS-0343 competency model using technical competencies suggested by the National Institutes of Health (NIH) and NOAA foundational competencies.]

This suggested competency model is designed to help you select the most applicable competencies to your position. Every position has unique requirements; most positions in a job series have similar technical competencies, but the general competencies will vary.

Each competency in this model includes a definition and key behaviors. The definition provides clarity about what is meant by the name of the competency. The key behaviors are examples of observable actions that one might demonstrate with this competency.

Step 1: Identify Technical Competencies Applicable to Your Position

The competencies listed below are the suggested competencies for individuals working in the Program/Management Analysis job function:

1. Legislation, Policy and Procedure Research Competency

Legislation, Policy and Procedure Research: understands, researches and analyzes legislation, regulations, policies, and/or processes in order to provide an organization with a consistent, well-defined infrastructure.

Key Behaviors:

- Researches current legislation/standards/policies/procedures, utilizing all available resources
- Gathers and benchmarks information with key stakeholders
- Writes and edits standards/policies/procedures documents and manuals
- Analyzes and implements standards/policies/procedures
- Demonstrates knowledge of the legislative process
- Plans, evaluates, analyzes, develops and recommends changes and revisions to organizational policies and procedures caused by new legislation
2. Management Analysis Competency
Conducts research and solves organizational inefficiencies to increase the effectiveness of the organization.

Key Behaviors:
• Understands management and organizational principles pertaining to areas of responsibility (e.g., delegations of authority, administrative procedures) in order to plan and conduct complex studies to assess organizational operations
• Identifies sources of information/data for a wide variety of problems and needs
• Accurately interprets study results
• Identifies and gathers necessary and accurate information needed (via case studies, etc.) to clarify an issue or make a decision
• Assesses problems accurately, and arrives at solutions that improve the efficiency and effectiveness of resources and operations
• Conducts benchmarking and best practices research

3. Process Management Competency
Process Management: develops and monitors processes and organizes resources to achieve desired results.

Key Behaviors:
• Evaluates efficiency and effectiveness of resource utilization and results accomplishment
• Establishes clear, well-defined processes necessary to achieve the desired outcomes
• Organizes people and activities to accomplish results
• Identifies and addresses process problems promptly
• Delineates complex processes into more simple tasks and functions
• Creates a work flow that effectively coordinates and integrates tasks and functions
• Identifies and takes advantage of opportunities to accomplish multiple objectives and obtain synergies through process development and management
• Effectively communicates and coordinates with other stakeholders in the process
Step 2: Identify Non-technical Competencies Applicable to Your Position

NOAA Foundational Competencies

Foundational competencies are the knowledge and skills important across all occupations in an organization.

Knowledges:
1. Bureau-specific mission, vision, goals and values – Knowledge of the mission, vision, goals, and values that drive the organization and influence all organizational decision-making processes.

2. Bureau-specific policies and procedures – Knowledge of the policies and procedures for conducting business, and developing products and services, considering stewardship of public resources.


Skills:
4. Coordination – Facilitate effective work processes by ensuring that roles and responsibilities are understood, synchronizing activities with others, and recommending process improvements.

5. Information Gathering – Gather information from all applicable sources, such as subject matter experts, organizational representatives, Standard Operating Procedures (SOPs), manuals, other employee guidance, books, and the Internet and intranet.

6. Judgment and Decision-Making – Make sound, well-informed, and objective decisions; perceive the impact and implications of decisions; commit to action to accomplish organizational goals.

7. Leveraging Diversity – Respect, understand, and value individual differences to achieve the vision and mission of the organization; hold self and others accountable for achieving results that embody the principles of diversity; leverage the talents of all employees, customers, stakeholders, and other constituents to achieve business and maximum effectiveness.
8. Oral Communication – Express information to individuals or groups effectively, taking into account the audience and nature of the information; listen to others, attend to nonverbal cues, and respond appropriately.

9. Partnering – Develop networks and build alliances with customers, vendors, and other partners to meet mission requirements and provide services and products by collaborating across boundaries.

10. Problem Solving – Identify problems; determine the relevance and usefulness of information for addressing problems; use sound judgment to generate and evaluate alternatives to make recommendations and take necessary action.

11. Quality Focus – Conduct timely reviews of products, services, or processes to evaluate quality or performance.

12. Teamwork – Work with others to achieve goals; facilitate cooperation, trust, and group identity; foster commitment and team spirit; manage and resolve conflicts.

13. Written Communication – Compose written materials in a succinct and organized manner; use correct English grammar, punctuation, and spelling; produce written information, which may include
University of Florida Competency Model:

**Human Resource Services**

UNIVERSITY of FLORIDA

[Contact Us](http://hr.ufl.edu)

**UF Leadership Competency Model**

Please click on the terms listed along the perimeter of the model to learn more about each competency.

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**GENERATE ALIGNMENT**

(Accountability)

Articulate high standards
Follow up

Manager: Accepts personal responsibility; expects personal responsibility from "slaves", peers, and employees; articulates standards; ensures people execute at a high standard of work; is consistent, willing to have difficult conversations when needed.

Leader: Creates a culture of a high standard of work; fosters culture of responsibility between work units.
Execution

Get and measure results
Outcomes, not activities

Manager: Able to determine appropriate processes to get things done; knows how to organize people and activities to ensure favorable outcomes; understands how to separate and combine tasks into efficient work flow; finds or creates ways to measure performance against goals; establishes efficient structures, processes, and teams to meet objectives; maintains commitment to goals; seeks out and implements organizational techniques for optimal performance; follows tasks through to completion and takes responsibility for results; completes projects within specified time and budget parameters; meets deadlines; measures results to stated goals; integrates technology to improve efficiency or effectiveness

Leader: Mobilizes appropriate resources to achieve goals; considers return on investment prior to starting new project; takes calculated risks; uses best practices to apply specialized knowledge to organizational problems; works across organizational boundaries to achieve desired results; concentrates on outcomes rather than activities

Fair and Legal Management

Fair and legal work environment

Manager: Maintains a fair and legal work environment by understanding and complying with university, state, and federal requirements such as the Fair Labor Standards Act, Family and Medical Leave Act, and anti-discrimination policies and legislation; supports U of I’s EEO principles

Leader: same

Financial Management

Understand and manage budget

Manager: Understands funding and budgeting model and applies this to balance competing demands for resources; understands key financial indicators; uses cost-benefit thinking to set priorities; establishes and implements sound financial management practices and controls; manages budget within set parameters

Leader: same

Judgment

Discretion
Timely and sound decisions

Manager: Learns from mistakes; knows when to speak and when to listen; uses discretion when called for; can perceive climate and respond accordingly; understands the impact and implications of decisions; weighs costs, benefits, risks, and possible rewards when assessing a situation; makes timely and sound decisions

Leader: same

Build Trust

Advocacy

Support facility, staff, and organizational interests
Champion an idea or position

Manager: Conveys confidence in employees’ ability to be successful, especially at challenging new tasks; supports and promotes faculty and staff interests; understands and facilitates the tenure, promotion, and permanent status process

Leader: Speaks out on issues of concern to the organization in order to exert influence on decisions affecting the organization; supports and promotes organizational interests; takes the lead and champions an idea or position
(Emotional intelligence
Know self
Manage relationships
Manager: Knows self; recognizes and considers the impact of own mood, biases, convictions, and behavior on others; senses others’ feelings and perspectives, and responds accordingly; builds rapport with others; controls and filters emotions in a positive way; effectively manages relationships
Leader: same

(Humble
Share credit
Admit mistakes
Manager: Is approachable; shares credit; admits mistakes; willing to sacrifice personal goals for organizational goals; realizes that personal success is connected to team success
Leader: same

(Integrity
Ethics
Trust
Manager: Maintains and fosters ethical behavior in all business activities and decisions; gives consideration to the rights and viewpoints of others; strives to do the right thing without prompting; acts in an honest and forthright manner; keeps confidences; models and reinforces ethical behavior in self and others; builds trust at all levels of the organization; follows through on commitments; carries his/her share of the workload; perceived as responsible, reliable, and trustworthy; reliably maintains confidential and sensitive information
Leader: same

(Role model
Expertise
Resource for others
Lead by example
Manager: Exemplifies professional behavior and image; maintains consistency between words and actions; honors commitments; admits mistakes; possesses and applies technical knowledge and skills needed to make decisions and perform at a high level; stays current on precedents and trends in area of expertise and plans/responds accordingly
Leader: Sets and demonstrates high professional standards; is sought out as a resource to provide advice or solutions; leads by example

(Transparency
Explains decisions
No hidden agendas
Manager: Admits and fixes mistakes promptly; provides accurate information in a timely manner; makes decisions publicly when possible to instill trust; facilitates access to information, explains decisions; ensures that motives are clear (no hidden agendas)
Leader: same

(Cultivate Talent
(Coaching/Mentoring
Develop others
Delegate
Open, honest feedback
Manager: Committed to the development of others; delegates responsibility and authority to the lowest appropriate level; identifies and nurtures talents in others on a cross-functional basis; provides open, honest feedback and accurate information; addresses performance issues promptly; provides direction and meaning to people’s work; reinforces/nurtures behaviors as needed; develops and fosters faculty and staff; encourages continuous learning; removes barriers by providing the appropriate tools and resources to achieve goals.

Leader: same

Collaboration
- Cultivate teamwork
- Solicit input from others

Manager: Fosters interdisciplinary/intellectual departmental cooperation; encourages teamwork; provides opportunities to work across work units; solicits input from others; shares knowledge and information; obtains cooperation from others

Leader: Creates culture that encourages sharing between work units

Facilitative decision-making
- Build consensus
- Leverage shared governance
- Assess authority

Manager: Manages group interaction effectively; builds consensus; manages meetings effectively; manages self during conversations; doesn’t personalize disagreement; reacts appropriately — doesn’t over- or under-react to a situation; knows when to close a discussion and move to a decision

Leader: Willing to assert authority when necessary to facilitate change, face issues, overcome an impasse, or ensure a resolution; creates a culture and processes that encourage shared governance; fosters climate that supports consensus; seeks and values input from diverse groups when making decisions

Resolve
- Address difficult situations and conversations

Manager: Willing to state an opinion, have a conversation, or take charge of a situation despite potential opposition; willing to make decisions in difficult or ambiguous situations, especially when time is critical; approaches challenging tasks with a willing attitude

Leader: same

Talent Selection
- Recruit, interview, and select qualified, diverse staff

Manager: Assesses current and future staffing needs based on organizational goals and budget realities; understands and uses effective interviewing questions and techniques; creates and facilitates a process to recruit, interview, and select qualified staff; values diversity in applicant pools and hires

Leader: same

Create and Communicate Vision

Communication
- Listen
- Persuasive and proactive
- Visibility

Manager: Clearly and effectively expresses thoughts, information, views, and ideas using both formal and informal methods; actively listens to others; maintains an open-door policy; adjusts style and format based on audience; invites dialogue with others; masters multiple methods to convey information (e.g., oral, email); ensures key issues are addressed; delivers information quickly and effectively up, down, and throughout the organization
Manager: Committed to the development of others; delegates responsibility and authority to the lowest appropriate level; identifies and nurtures talents in others on a one-on-one basis; provides open, honest feedback and accurate information; addresses performance issues promptly; provides direction and meaning to people's work; reinforces redirects behaviors as needed; develops and fosters faculty and staff; encourages continuous learning; removes barriers by providing the appropriate tools and resources to achieve goals.

Leader: same

Collaboration

Cultivate teamwork

Seek input from others

Manager: Fosters interdisciplinary/interdepartmental cooperation; encourages collaboration; provides opportunities to work across work units; solicits input from others; shares knowledge and information; obtains cooperation from others

Leader: Creates culture that encourages sharing between work units

Facilitative decisionmaking

Build consensus

Leverage shared governance

Assert authority

Manager: Manages group interaction effectively; builds consensus; manages meetings effectively; manages self during conversations; doesn’t personalize disagreement; reacts appropriately - doesn’t over- or under-react to a situation; knows when to close a discussion and move to a decision

Leader: Willing to assert authority when necessary to facilitate change, face issues, overcome an impasse, or ensure a resolution; creates a culture and processes that encourage shared governance; fosters climate that supports consensus; seeks and values input from diverse groups when making decisions

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Manager: Willing to state an opinion, have a conversation, or take charge of a situation despite potential opposition; willing to make decisions in difficult or ambiguous situations, especially when time is critical; approaches challenging tasks with a willing attitude

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Manager: Assesses current and future staffing needs based on organizational goals and budget realities; understands and uses effective interviewing questions and techniques; creates and facilitates a process to recruit, interview, and select qualified staff; values diversity in applicant pools and hires

Leader: same

CREATE AND COMMUNICATE VISION

Communication

Listen

Persuasive and proactive

Visibility

Manager: Clearly and effectively expresses thoughts, information, views, and ideas using both formal and informal methods; actively listens to others; maintains an open-door policy; adjusts style and format based on audience; invites dialogue with others, masters multiple methods to convey information, (e.g., oral, email); ensures key issues are addressed; delivers information quickly and effectively up, down, and throughout the organization
APICS Supply Chain Management Competency Model:

SUPPLY CHAIN MANAGER COMPETENCY MODEL
INTRODUCTION

Supply chain managers are crucial to the global economy. They represent a unique discipline responsible for supporting the global network of delivering products and services across the entire supply chain, from raw materials to end customers. Specifically, supply chain managers engage in the design, planning, execution, control, and supervision of supply chain activities with the objectives of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand, and measuring performance globally.

APICS The Association for Operations Management is the premier membership organization providing education, certification, and career development opportunities to supply chain professionals worldwide. The APICS Certified Supply Chain Professional (CSCP) Learning System and corresponding certification gives professionals the knowledge and skills they need to be successful. Knowledge and skills combined with work experience create the competencies required for individuals to excel in their careers and distinguish themselves in their field. In recognition of this, APICS developed the Supply Chain Manager Competency Model to guide individuals considering careers in supply chain management, supply chain professionals seeking to advance their positions, and human resource managers who are hiring in this fast-growing field.
ABOUT THE MODEL
The structure of the APICS Supply Chain Manager Competency Model follows guidelines set by the Employment and Training Administration of the United States Department of Labor. The model is visually represented in a diagram for easy reference, as seen on the following page. The model is organized into tiers of competencies and includes descriptions of the activities and behaviors associated with each competency. The Competency Model Clearinghouse defines competency as "the capability to apply or use a set of related knowledge, skills, and abilities required to successfully perform 'critical work functions' or tasks in a defined work setting." In many cases, the competencies outlined in this model are adapted from the APICS Operations Management Body of Knowledge (OMBOK) Framework.

ACKNOWLEDGMENTS
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SUPPLY CHAIN MANAGER DIAGRAM

Materials Manager Specific Requirements
includes requirements such as certification, licensure, and specialized educational degrees, or physical and training requirements for supply chain managers.
- Bachelor’s or equivalent degree
- Supply chain industry association membership
- Supply chain-specific certifications

Supply Chain Manager Knowledge Areas and Technical Competencies
represent the knowledge, skills, and abilities needed by supply chain managers.
- Performance trade-offs
- Warehouse management
- Transportation management
- Supply chain synchronization
- Risk management
- Sustainability
- Location facilities

Supply Chain Manager Knowledge Areas and Technical Competencies
- Distribution
- Warehousing
- Logistics
- International regulations
- Strategic sourcing and supplier relationship
- Customer relationship management
- Applying lean and six sigma tools

Operations Management Knowledge Areas and Technical Competencies
represent the knowledge, skills, and abilities needed by all occupations within operations management, including supply chain managers.
- Strategy development and application
- Supply chain management
- Process improvement and six sigma
- Execution, planning, scheduling control

Operations Management Knowledge Areas and Technical Competencies
- Project management
- Lean management
- Enabling technology application

Workplace and Leadership Competencies
represent those skills and abilities that allow individuals to function in an organizational setting.
- Problem solving and decision making
- Teamwork and collaboration
- Accountability and responsibility
- Customer focus (internal and external)

Workplace and Leadership Competencies
- Planning and organizing
- Conflict management
- Enabling technology

Academic Competencies
are primarily learned in an academic setting, and include cognitive functions and thinking styles.
- Math, statistics, and analytical thinking
- Reading and writing for comprehension
- Applied science and technology

Academic Competencies
- Supply chain fundamentals
- Foundations of business management
- Operations and enterprise economics

Personal Effectiveness Competencies
represent motives and traits as well as interpersonal and self-management styles and generally are applicable to a number of industries at a national level.
- Awareness of the needs of others
- Integrity
- Continuous learning

Personal Effectiveness Competencies
- Effective communication
- Interpersonal skills
- Creativity
FOUNDATION COMPETENCIES

PERSONAL EFFECTIVENESS COMPETENCIES

Personal effectiveness competencies represent motives, traits, and interpersonal and self management styles, and are applicable in any number of industries.

Awareness of the needs of others
- Understand other business needs and goals.
- Have perspective into other points of view.
- Build rapport and credibility with colleagues.
- Anticipate needs and respond to concerns and conflicts.

Integrity
- Demonstrate trustworthiness and professionalism with clients, peers, and team members.
- Respond with consistency in situations that require honesty and candor.
- Avoid conflicts between work and personal interests or activities.

Continuous learning
- Demonstrate an interest in personal learning and development; seek feedback from multiple sources about how to improve and develop; modify behavior based on feedback or self-analysis of past mistakes.
- Take steps to develop and maintain the knowledge, skills, and expertise necessary to achieve positive results; participate fully in relevant training programs and actively pursue other opportunities to develop knowledge and skills.
- Anticipate changes in work demands and participate in assignments or training that address these changing demands; treat unexpected circumstances as opportunities to learn.
- Engage in career development by identifying occupational interests, strengths, options, and opportunities; make insightful career planning decisions based on integration and feedback; seek out additional training to pursue career goals.

Effective communication
- Express information to individuals or groups considering the audience and the nature of the information (e.g., technical or controversial); speak clearly and confidently; organize information in a logical manner; speak using common English conventions including proper grammar, tone and pace; track audience responses and react appropriately to those responses; effectively use eye contact and nonverbal expression.
- Receive, attend to, interpret, understand, and respond to verbal messages and other cues; pick out important information in verbal messages; understand complex instructions; appreciate feelings and concerns of verbal messages.
- Practice meaningful two-way communication by speaking clearly, paying close attention and seeking to understand others, listening attentively and clarifying information and attending to nonverbal cues and respond appropriately.
- Influence others; persuasively present thoughts and ideas; gain commitment and ensure support for proposed ideas.

Interpersonal skills
- Relate well to clients, colleagues, and team members.
- Maintain a positive, supportive, and appreciative attitude.
- Actively listen to others and demonstrate an understanding of their point of view.
- Create and open environment that encourages people to work together to solve problems and improve practices and services.
- Explore and resolve conflicts as they arise.
- Communicate clearly to avoid misunderstanding.

Creativity
Demonstrate intellectual curiosity about why things are the way they are. Challenge the status quo.
Change, elaborate, adapt, and improve own ideas or those of others.
Demonstrate a bias towards action; materialize thoughts into products or services.

ACADEMIC COMPETENCIES
Academic competencies are primarily achieved in an academic setting and include cognitive functions and thought processes.

Math, statistics, and analytical thinking
Practice applied mathematics in collecting and interpreting quantitative data.
Demonstrate the ability to scrutinize and break down facts and thoughts into their strengths and weaknesses.
Develop the capacity to think in a careful and discerning way, to solve problems, to analyze data, and to recall and apply information.

Reading and writing for comprehension
Understand what has been read; gather information from a text.
Demonstrate an understanding of material read by forming opinions and sharing personal experiences.
Apply the strategies of self-questioning, retelling, writing, summarizing, predicting and verifying, story mapping, role play and responsiveness.

Applied science and technology
Demonstrate an understanding of the factors that are considered important to the branch of knowledge or technology.
Understand the use of technology and the interaction with life, society, and the environment, in conjunction with such subjects as industrial arts, engineering, applied science, and pure science.
Develop knowledge of specific tools and how they affect the ability to adapt to and control the environment.
Demonstrate the ability to apply knowledge or understanding to meet a specific, recognized need.
Possess knowledge that is sufficiently general, clearly conceptualized, carefully reasoned, systematically organized, critically examined, and empirically tested with regard to the specific science or technology.

Supply chain fundamentals
Understand that supply and logistics is a system of organizations, people, technology, activities, information, and resources involved in moving a product or service from supplier to customer.
Possess basic knowledge of supply chain activities, including transformation of natural resources, raw materials, and components into a finished product that is delivered to the end customer.
Recognize the ways that supply chains link value chains.

Foundations of business management
Understand all management activities carried out in the course of running an organization, including controlling, leading, monitoring, adjusting, organizing, and planning.
Analyze financial statements and explain the implications of standard financial ratios and all components of the balance sheet and income statement.
Create interactive decision support models that demonstrate the sensitivity of outcome to multiple independent variables.
Calculate project and organizational cash flow forecasts; present value investment comparisons and risk-adjusted return calculations.
Demonstrate knowledge of visual presentation techniques including charting, histograms, and flow sheets, and oral and written presentation techniques.
Practice basic business communications.
Understand fundamental organizational behavior.

Operations and enterprise economics
Understand the importance of and demonstrate the ability to take raw materials or knowledge and convert it into a product or service that has more value to the customer than the original material or data.

Determine the success or failure rate of a business using financial accounting, incorporating terms and techniques including income, expense, cost of goods sold, gross margin, balance sheet, return on assets, inventory turns, capital asset management, and cash management.

Employ the technique of break-even analysis, which finds the break-even point, the volume at which revenues exceed total costs.

Find the best operating level (BOL), the level of capacity a process was designed for.

This is also the volume of output at which average unit cost is minimized.

Use cost accounting systems to keep track of all costs of building products, labor, material, overhead, and variances. These systems include activity-based costing (ABC) and cost analysis and control.

WORKPLACE AND LEADERSHIP COMPETENCIES

Workplace competencies represent those skills and abilities that allow individuals to function in an organizational setting.

Problem solving and decision making
- Practice goal-directed thinking and action in situations for which no routine solutions exist.
- Understand a problem situation and its step-by-step transformation based on planning and reasoning.
- Demonstrate ability to choose between alternative courses of action using cognitive processes such as memory and evaluation.
- Demonstrate ability to map processes of possible consequences of decisions, to work out the importance of individual factors, and to choose the best course of action.

Teamwork
- Demonstrate a commitment to the mission and motivation to combine the team’s energy and expertise to achieve a common objective.
- Understand the dynamics of effective teamwork in order to attain higher levels of performance.
- Demonstrate ability to work as part of a tight-knit and competent group of people.
- Demonstrate a commitment to engage teams in other departments or divisions of the organization.

Accountability and responsibility
- Demonstrate a willingness to accept responsibility and accountability for one’s actions.
- Exhibit a moral, legal, or mental accountability in areas of responsibility.
- Understand that these two workplace competencies are intertwined.

Customer focus (internal and external)
- Understand this is an organizational orientation toward satisfying the needs of potential and actual customers.
- Ensure that the whole organization, not just frontline service staff, puts customers first.
- Ensure all activities, from the planning of a new product to production, marketing, and after-sales care, are built around the customer.
- Understand that every department and every employee should share the same customer-focused vision.
- Practice good customer relations management and maintain a customer relations program.
- Demonstrate ability to balance the needs of the organization and the needs of the customer.

Planning and organizing
- Effectively plan what is to be achieved and involve all relevant staff members.
- Anticipate important or critical events, identifying resource requirements and assigning responsibility for specific work, including deadlines and performance expectations.
- Demonstrate the use of information-gathering techniques, analyzing situation and identifying implications in order to make correct decisions.
- Demonstrate ability to monitor progress and to make changes as required.
Ensure that staff is aware they will be accountable for achieving the desired results through planned program evaluation and individual performance appraisal. Ensure that staff is provided with the necessary tools to succeed.

**Conflict management**
- Demonstrate ability to manage conflict by identifying and handling conflicts in a sensible, fair, and efficient manner.
- Demonstrate skill in effective communicating, problem solving, and negotiating with a focus on party interests.

**Enabling technology**
- Provide a means to generate giant leaps in performance and capabilities of the user using equipment and methodology.
- Possess knowledge of hardware and software components which, when properly integrated, enable a specific process to be realized.

**PROFESSIONAL-RELATED COMPETENCIES**

**OPERATIONS MANAGEMENT KNOWLEDGE AREAS AND TECHNICAL COMPETENCIES**

Operations management knowledge areas and technical competencies represent the knowledge, skills and abilities needed by all occupations within operations management, including supply chain managers.

**Strategy development and application**
- Answer the questions: "Where are we going?" and "How are we going to get there?", and create a specific and purposeful path when there are clear answers to these two questions.
- Create a strategy based on the company's core values, mission, and your vision.
- Determine core competencies, strategic challenges.
- Develop goals, objectives and specific strategies to accomplish those goals.
- Create priorities once objectives are determined.
- Deploy action plans throughout the organization.
- Establish a process for aligning day-to-day decisions to the strategic plan.

**Supply chain management**
- Demonstrate ability to manage the network of interconnected businesses involved in the ultimate provision of product and service packages required by end customers.
- Understand that supply chain management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption.

**Process improvement and six sigma**
- Understand the systematic approach to closing of process or system performance gaps through streamlining and cycle time reduction, and identify and eliminate causes of quality below specifications, process variation, and non-value-adding activities.
- Maintain company processes that afford optimum operation and enhance the company's quality management system.
- Demonstrate ability to visualize the total process and aid in locating problem areas using process mapping, quality improvement, and visualization tools to locate, quantify, and correct root causes of problems.
- Perform periodic evaluations to maintain processes by gathering pertinent information, such as problem symptoms from knowledgeable sources and carrying these through to the problems, potential causes, and root causes of the problem.
- Hold gains in process improvements by establishing key performance measurements, benchmarking metrics, and continuous process improvement initiatives to improve process quality on continual basis.

**Execution, planning, scheduling, and control**
- Determine the need for material and capacity to address expected demand, execute the resulting plans, and update planning and financial information to reflect the results of execution.
Plan the management function by defining goals for future organizational performance and decide on the tasks and resources needed to attain those goals. Schedule a timetable of events and decide when and where certain events will occur. Control and check errors, taking any corrective action so that deviation from standards are minimized and the stated goals of the organization are achieved in a desired manner.

**Project management**
- Understand the discipline of planning, organizing, and managing resources to bring about the successful completion of specific project goals and objectives.
- Achieve project goals and objectives while honoring the project constraints, typically scope, time, and budget.
- Optimize the allocation and integration of inputs necessary to meet pre-defined objectives.
- Define the set of activities that use resources, such as money, people, materials, energy, space, provisions, communication, and motivation, to achieve the project goals and objectives.

**Lean management**
- Identify and reduce or eliminate waste in all areas of a supply chain.
- Calculate the total system cost of delivering a product or service to the customer.
- Develop systems that allow employees to produce perfect results by: Educating suppliers to create value for customers by streamlining processes in the value chain.
- Using suppliers whose methods and core competencies will align with lean requirements and developing long-term relationships with them.
- Reducing or entirely eliminating the cost of changing from one product or service to another.

**Enabling technology application**
- Recognize that continuous process improvement is an accepted way of life in business and that few companies lack a continuing quality or process improvement effort.
- Implement improvement methods, such as business process re-engineering, Total Quality Management (TQM), Six Sigma, lean manufacturing, and Theory of Constraints.
- Understand that technology and process functionality has an interconnected relationship and that each helps transform the other.
- Initiate process improvements that are enabled and supported by technology.

**SUPPLY CHAIN MANAGERS KNOWLEDGE AREAS AND TECHNICAL COMPETENCIES**

**Performance trade-offs**
- Design a responsive, agile and efficient supply chain that has the ability to: Meet the changing and diverse needs of customers.
- Manufacture and deliver a broad range of high-quality products and services in the shortest reliable lead times and in varying volumes to provide enhanced value to customer.
- Deliver high-quality products with short lead times at low cost.

**Warehouse management**
- Control the movement and storage of materials within a warehouse.
- Apply a total systems approach to designing and managing the entire flow of information, materials, and services — from raw materials, suppliers, through factories and warehouses, and finally to the customer.
- Monitor the movement of products through a warehouse.
- Provide and transform inputs into products and services, and link to the distribution network and local service providers that localize the product.

**Transportation management**
- Manage transportation operations.
Maximize freight loads while minimizing freight costs.
Ensure efficient use of transportation resources while meeting the needs of the customer.
Integrate movement demands with vehicle resources.

**Supply chain synchronization**
- Balance supply with demand, considering both lead time and demand variability created by supply patterns not matching demand patterns.
- Effectively collaborate and communicate with supply chain members.
- Integrate activities across organizations on the supply chain by ensuring information visibility in inventory levels, anticipated productions, and material-in-transit.
- Mitigate the bullwhip effect.

**Risk management**
- Accurately identify risks affecting supply, transformation, delivery, and customer demand.
- Develop strategies such as dual sourcing, buffering, and forward buying that minimize financial impact uncertainties such as yields, timing, pricing, and catastrophic events.
- Effectively analyze the probability, control, and impact of risks identified.

**Sustainability**
- Understand current industry and government regulations governing sustainability.
- Be able to calculate carbon footprint of business processes.
- Develop processes that strive to eliminate waste.
- Incorporate renewable raw materials.
- Assemble an effective reverse logistics program.
- Pursue transportation alternative to reduce energy and emissions.
- Utilize safe and reusable containerization.
- Pursue paperless documentation.
- Coordinate shipping and freight to use full truckloads.
- Convert outputs to inputs; recycle end-products and components when possible.

**Locating facilities**
- Apply qualitative techniques when quantifiable data are not available or when measures for different criteria relevant to the logistics decisions are used.
- Apply quantitative techniques when solving logistic problems, such as the designing of routes and the scheduling of vehicles.
- Incorporate the transportation model to find the optimal allocation of sources of supply, typically plants, to meet demand at destinations in the network, typically warehouses.
- Efficiently distribute products among suppliers, manufacturing facilities, distribution centers, warehouses, and customers through a logistics network.
- Reach optimal efficiency of all vehicle assets within a network through a vehicle routing process.

**Distribution**
- Move material, usually one organization’s finished goods or service parts, from the manufacturer or distributor downstream to the customer.
- Transfer goods and services from the raw materials suppliers and producers to the end users or consumers.
Choose shipping methods, considering the trade-offs between costs and benefits.
Apply the cross-docking technique when bringing items into a distribution center for immediate dispatch.
Divide truckloads of homogeneous items into smaller, more appropriate quantities for use by break-bulk handling.
Consolidate several items into larger units for fewer handlings, for example placing items in boxes loaded and wrapped as a pallet by unitization packaging.

Warehouse
Receive, store, and ship materials to and from production or distribution locations by incorporating warehousing activities.
Configure warehouses to have formal storage locations that identify the row, rack section, level, and shelf location, typically with an alphanumeric location bar code or label.
Place high-turn items closest to packing and shipping areas, which will reduce picking, put-away times, and transportation within the warehouse.
Select random locations when travel distances are not an important consideration and when overall utilization of warehouse space is important.

Logistics
Obtain, produce, and distribute materials and products in the proper places and in the proper quantities.
Apply logistics with the movement of personnel, as well as the design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of material.
Develop and implement a formal logistics strategy.

International regulations
Comply with international regulations in decision making in the distribution system, including customs regulations on what is restricted from entering a country; trade tariffs and duties on imported goods; security regulations, such as those contained in the 2007 SAFE Ports Act; and trade agreements, such as NAFTA or those of the European Union.
Ensure the competitiveness of a country or protect a country’s distribution and manufacturing systems by incorporating international regulations.
Effectively bring material into a free trade zone (FTZ).
Consider import and export taxes, relative currency valuation and volatility, and special agreements between cooperating countries when designing and operating a supply chain.

Strategic sourcing and supplier relationship management
Effectively locate and source key materials suppliers, while analyzing the total cost associated with procuring an item or service.
Focus on developing and maintaining long-term relationships with trading partners who can help the purchaser meet profitability and customer satisfaction goals.
Integrate automation of request for quote (RFQ), request for proposal (RFP), electronic auctioning, business-to-business commerce (B2B), and contract management processes when using a strategic sourcing approach.
Establish methods of meeting customer satisfaction goals.

Customer relationship management
Effectively collect and analyze sales and marketing information to understand and support existing and potential customer needs.
Effectively link delivery and service with customer needs in the design process.
Incorporate contract management and administration when holding suppliers and customers accountable for meeting the work specified in a contract.
Evaluate contract responsiveness, negotiate changes to a contract, and ensure that contractors are compensated for products or services provided.
Measure customer satisfaction and develop loyal customers by using performance metrics taken from the customer's perspective, with criteria such as on-time delivery, perception of quality, percentage of complaints, and length of wait times.

**Applying lean tools and six sigma**
- Establish improvement initiatives focused on the reduction or elimination of waste in all areas of the supply chain.
- Execute ways of eliminating unnecessary steps in product design, as well as aligning suppliers’ processes with the delivery schedules required for lean manufacturing.
- Demonstrate an understanding of unit acquisition cost by examining the total cost of ownership (TCO).
- Demonstrate the knowledge and experience to actively participate in Lean teams using tools such as: Just-in-Time
  - Kaizen events
  - Kanban
  - Value Stream Mapping

- Demonstrate the knowledge and experience to actively participate in Six Sigma teams to define, measure, analyze, improve, and control processes (DMAIC).

**APICS SUPPLY CHAIN M ANAGERS CAREER PACK**

**OCCUPATION-RELATED COMPETENCIES**

**SUPPLY CHAIN MANAGER SPECIFIC REQUIREMENTS**
Supply chain manager specific requirements such as certification, licensure, and specialized educational degrees, or physical and training requirements for supply chain managers.

**Post-secondary education**
- The majority of supply chain management professionals hold post secondary degrees — a bachelor’s or equivalent.
- While a number of supply chain management professionals have degrees related to supply chain or operations management, the majority hold degrees in other fields including but not limited to, business, economics, engineering, or liberal arts studies.

**Association membership**
Professional association membership ensures that the supply chain professional is able to link into a network of practitioners to share best practices, develop their careers, and continue their professional education. There are a number of supply chain associations related to specific industries, including but not limited to:
- APICS The Association for Operations Management (APICS)
- Institute of Supply Management (ISM)
- Supply Chain Council (SCC)
- Council of Supply Chain Management Professionals (CSCMP)
- American Society for Transportation and Logistics (ASTL)
- Warehousing Education and Research Council (WERC)

**Certifications**
Once the professional is in the workplace, it is desirable to obtain a supply chain specific certification. While there are a number of supply chain managers certifications related to specific industries, general certifications include:
- Certified Supply Chain Professional (CSCP) – APICS The Association for Operations Management
- Certified in Production and Inventory Management (CPIM) – APICS The Association for Operations Management
- Certified Professional in Supply Management (CPSM) – Institute of Supply Management
- SCOR/P – Supply Chain Council
- Certification in Transportation and Logistics (CTL) – American Society for Transportation and Logistics
ABOUT APICS

APICS is the leading professional association for supply chain and operations management and the premier provider of research, education and certification programs that elevate end-to-end supply chain excellence, innovation and resilience. APICS Certified in Production and Inventory Management (CPIM) and APICS Certified Supply Chain Professional (CSCP) designations set the industry standard. With over 37,000 members and more than 250 international partners, APICS is transforming the way people do business, drive growth and reach global customers.
<table>
<thead>
<tr>
<th>Level</th>
<th>Position</th>
<th>Experience Level</th>
<th>Technology Knowledge</th>
<th>Behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>Subject Matter Expert Manager</td>
<td>3+ Years Field Experience</td>
<td>Advanced</td>
<td>Identify, analyze, and articulate technical problems; identify and articulate solutions to technical challenges; identify, articulate, and apply new ideas and technologies</td>
</tr>
<tr>
<td>Level 2</td>
<td>Project Manager</td>
<td>6+ Years of Related Experience</td>
<td>Advanced</td>
<td>Verify technical aptitude of new hires; Create contacts and networks; Build Trust and Comradery; Cross Discipline Alignment and Partnering</td>
</tr>
<tr>
<td>Level 3</td>
<td>Executive Manager</td>
<td>8+ Years of Related Experience</td>
<td>Advanced</td>
<td>Manage emerging areas, both at home and abroad; Forecast emerging markets; Create consistent and repeatable methods to deliver messages; Appropriate verbal and written communication; Develop and maintain rapport with all levels of management; Influence others with Robert-assertive techniques; Influence others in the decision-making process</td>
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### Knowledge

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<tr>
<th>Area</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
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</thead>
<tbody>
<tr>
<td>Technical Savvy and Collaborative Behaviour</td>
<td>Basic</td>
<td>Advanced</td>
<td>Advanced</td>
</tr>
<tr>
<td>Business Knowledge</td>
<td>Basic</td>
<td>Advanced</td>
<td>Advanced</td>
</tr>
<tr>
<td>Soft Skills</td>
<td>Basic</td>
<td>Advanced</td>
<td>Advanced</td>
</tr>
</tbody>
</table>

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### Behaviors

- **Effective Listener:** Listen and ask others for possible issues and work on resolution. Listen closely to others and understand their point of view. Demonstrate empathy and understanding through active listening.
- **Innovative and Creative:** Think outside the box; identify and articulate new ideas and technologies; find innovative solutions to technical challenges; and apply new ideas and technologies to existing processes.
- **Collaborative:** Demonstrate the ability to work collaboratively; identify and articulate potential solutions to technical challenges; and apply new ideas and technologies to existing processes.
- **Forward Thinking:** Study the leading edges and emerging technology; continuously adapt the team's technical capability to stay ahead of the curve; and effectively use technology to enhance the team's performance.
- **Challenge-Negative:** Demonstrate an interest in personal learning and development; develop new skills and knowledge; and apply new ideas and technologies to existing processes.
- **Team挺身:** Verify technical aptitude of new hires; Create contacts through technical conferences and events; and effectively use technology to enhance the team's performance.