

How THE NATIONAL SKILL STANDARDS BOARD

**The National Skill Standards Board:
Building the Foundation for a Dynamic Workforce**

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Abstract

The National Skill Standards Board (NSSB) is building a voluntary system of skill standards, assessments, and certifications that will enhance the ability of the United States economy to compete effectively in a global economy. The purpose of this paper is to describe the history of the national skill standards effort and to explain in-depth the work of the National Skill Standards Board and its Voluntary Partnerships. This paper will also discuss the NSSB's functions and responsibilities in the development of the national system and describe the valuable online information resources, which serve to educate the public on this critical national workforce development strategy.

I. THE NATIONAL SKILL STANDARDS EFFORT: A HISTORY

Since the late 1980s, the United States has debated whether education is adequately serving the needs of future workers, and whether individuals entering the workforce possess the skills and knowledge required to perform well in the rapidly changing American workplace. This debate within government, business, and academic circles led to many studies, and a search for strategies to resolve this problem.

Possible solutions on how best to accommodate this emerging need began to revolve around performance-based education. It was believed that by clearly articulating the skills and knowledge required in American workplaces, education and employment training could be better customized, thereby serving the demands of business. This activity led to the development of several studies designed to find answers to these pressing needs.

A. Four Major Initiatives

Federal, state, and local governments took notice early on and put forth a series of initiatives to explore the concept further. One was a study by the National Governors' Association (NGA), which set out to understand how states were already using standards-based education. The NGA used the results of those efforts to create comprehensive strategies to make education more performance-based.

A second notable initiative was the “America’s Choice” study that aimed to determine key levers that would improve standards of living and drive the high-performance American economy. This study resulted in a number of major recommendations in the field of education and training, including the:

- Establishment of standards for all students requiring state accountability;
- Creation of a system of technical and professional certificates and associate degrees for students not pursuing traditional postsecondary education; and
- Creation of employer incentives for workforce education investment.

Another initiative that was launched to tackle the issue of performance-based education was the re-authorization of the Carl D. Perkins Vocational and Applied Technology Education Act in 1990. Perkins II, as the act was called, was the first major piece of federal legislation to shift the focus of federal vocational education towards standards-based education, by integrating academic and vocational education.

The fourth and perhaps most important initiative was the 1989 National Education Summit, the work of which resulted in a series of National Education Goals. These goals stated that by the year 2000, the United States should meet a number of far-reaching goals such as improving the high school graduation rate; high student achievement in critical subjects such as mathematics and science; and the goal that “every adult American will be literate and possess the knowledge and skills necessary to compete in a global economy.”¹

To achieve this, two commissions were formed: the National Advisory Commission on Work-Based Learning (NACWBL), which was expected to help determine the needs of American business and industry, and the Secretary's Commission on Achieving Necessary Skills (SCANS). The outcomes of the NACWBL confirmed that American business and industry needed a workforce with specialized sets of skills and knowledge, and warranted a framework for several skill standards pilot projects.

The second commission, the Secretary's Commission on Achieving Necessary Skills (SCANS), was charged with assessing the skills and knowledge required for the new American workforce. When completed in 1992, the SCANS report identified five major workplace components:

- Resources
- Interpersonal skills
- Information
- Systems and technology
- Foundations (basic skills, thinking skills, and personal qualities) ²

Based largely on the outcomes of the National Education Summit, President George Bush in 1991 announced his new education plan designed to improve the way education prepared future workers for the workplace. The matter took on greater significance given the fact that the economy at the time was rebounding from a recession in 1990 and business activity was accelerating. Known as *America 2000*, this plan was delivered to the U.S. Congress, but it did not make significant progress in the final year of the first Bush Administration.

However, using the principles outlined in *America 2000* in response to demands from business leaders to help close the existing skills gap in the nation's workforce, the new Administration of President Bill Clinton crafted *Goals 2000*. This bipartisan piece of legislation called for the creation of the National Skill Standards Board to oversee the development and implementation of a national skill standards system – an effort that would be both voluntary and industry-led.

B. The National Skill Standards Act

The National Skill Standards Act became law on March 31, 1994 as Title V of the *Goals 2000: Education America Act*. The Act established the National Skill Standards Board (NSSB) to:

- 1) Identify occupational industry clusters or sectors;
- 2) Establish voluntary partnerships for each industry sector (voluntary partnerships include representatives from business, trade associations, labor, education, community, and state and local agencies);
- 3) Conduct research, dissemination, and coordination;
- 4) Establish a clearinghouse of skill standards information;
- 5) Endorse a system of skill standards; and
- 6) Assure system compliance with existing civil rights legislation.³

The major objectives of this Act were to:

- 1) Assist American businesses to compete more effectively in the global economy;
- 2) Help workers secure a firmer economic future and achieve higher standards of living;
and,
- 3) Assist educators to create better and more up-to-date tools and curricula to teach future workers what they need to know to succeed in the working world.

The NSSB is an unprecedented coalition of leaders from business, labor, employee, education, and community and civil rights organizations that is creating the framework for a voluntary national system of skill standards, assessment and certification systems to enhance the ability of the United States workforce to compete effectively in a global economy. These skills are being identified by industry representatives in full partnership with their counterparts from labor, education, civil rights and community-based organizations. These skill standards will be based on high performance work, portable across industry sectors, and developed in accordance with existing civil rights laws.

The NSSB Board provides strategic leadership in the development of the skill standards system. It is composed of 27 members, of which 24 comprise representatives from business, labor, education and training, and civil rights and community-based organizations. The U.S. Secretaries of Commerce, Education, and Labor are ex officio members.

To facilitate the development of skill standards and the system itself, the NSSB identified the following 15 industry sectors:

- Agriculture, Forestry, and Fishing
- Business and Administrative Services
- Construction
- Education and Training
- Finance and Insurance
- Health and Human Services
- Manufacturing, Installation and Repair
- Mining
- Public Administration, Legal and Protective Services
- Restaurants, Lodging, Hospitality and Tourism, and Amusement and Recreation
- Retail Trade, Wholesale Trade, Real Estate and Personal Services
- Scientific and Technical Services
- Telecommunications, Computers, Arts and Entertainment, and Information
- Transportation
- Utilities and Environmental and Waste Management

Representatives of the main stakeholder groups within each industry sector come together to form an industry coalition called a Voluntary Partnership. Each Voluntary Partnership is responsible for developing skill standards, assessments, and certifications within its industry sector.

II. THE SCOPE OF THE NATIONAL SKILL STANDARDS BOARD

The NSSB was established with a three-part mandate. *First*, the NSSB shall be the catalyst in stimulating the development and use of a voluntary national system of skill standards in the United States. This task is being carried out through the work of the Voluntary Partnerships and it involves the active participation of business and labor representatives, educators and trainers, and civil rights and community-based groups.

Second, the NSSB shall facilitate linkages among the various participants, such as vocational-technical educators and trainers, in the national strategy to enhance workforce skills. This task is being accomplished through activities such as the NSSB state engagement strategy, which involves policy analysis and development, technical assistance, applied technology, and skill standards system building.

Third, the NSSB is to be the arbitrator of quality for the emerging national system, ensuring that its standards, assessments, and certifications are benchmarked to high performance levels and administered in a fair and equitable way. Based on legislative requirements and best practice models, this task is being accomplished through NSSB leadership in the development and use of quality assurance processes for skill standards and certifications that are based on identified checkpoints for relevance, creditability, and management integrity.

As the full system of voluntary national skill standards, assessments, and certifications emerges, the NSSB – as catalyst, facilitator, and arbitrator – will continue to function as the principal

intermediary among system developers, deliverers, and users in order to maximize the potential benefits for all stakeholders.

III. SKILL STANDARDS DEVELOPMENT

The NSSB has identified an organizational framework for developing a voluntary national skill standards system. Similar to systems of labor competencies in use throughout the world, the NSSB system is set apart by a model that offers a comprehensive view of the knowledge, skills, and performance required for an individual to succeed in today's sophisticated, high performance workplace.

To date, the NSSB, together with its Voluntary Partnerships - industry coalitions charged with developing their respective sector-based skill standards systems - has completed and released industry skill standards in the manufacturing and sales and service industry sectors, and the public administration, legal and protective services sectors. Development work continues in the education and training, hospitality and tourism, and IT and telecommunications industry sectors. The following steps in the process are the development of assessment tools and, finally, certifications.

A. Identifying the Components of a Skill Standard

An NSSB skill standard is composed of a **work-oriented component** and a **worker-oriented component**. The work-oriented component describes what needs to be achieved on the job and

how well it needs to be done, focusing on the requirements of the work involved. The worker-oriented component describes the knowledge and skills an individual needs to possess in order to perform the work competently. (Go to www.nssb.org/mssc/MSSCSkillStandards.htm to download the complete set of skill standards for the manufacturing industry sector)

The work-oriented component is composed of three distinct elements: critical work functions, key activities, and performance indicators. (See Table I) Critical work functions (CWF) are major responsibilities of work covered by a concentration. A concentration is defined as a major area of work within an industry sector. Typically, an industry concentration contains no more than six critical work functions. These functions serve as the primary building blocks in the development of the other aspects of the standards. Key activities (KA) are major duties or tasks that are involved in carrying out the critical work functions. Most CWFs contain between three and six key activities. The last element in the work-oriented component is the set of performance indicators (PI), which contain information on determining the performance level for each key activity. Typically, three to six performance indicators are developed for each key activity.

The worker-oriented component of a skill standard identifies the knowledge and skills that an individual needs to know to successfully perform the elements outlined in the work-oriented component. These knowledge and skills are divided into three categories: academic, employability, and occupational and technical. (See Table II)

To facilitate the development of the worker-oriented component, the NSSB identified a *common language* for describing 17 distinct academic and employability knowledge and skills. Experience by the Voluntary Partnerships and others to date has shown that using this common language has dramatically reduced the amount of research involved in identifying this skill standard component. These skills cut across all industry sectors. (See Table III)

Occupational and technical knowledge and skills vary according to industry requirements. Members of each Voluntary Partnership are responsible for identifying these particular knowledge and skills. With the help of skill scales, each knowledge and skill is assigned a level of complexity.

The NSSB common language of academic and employability knowledge and skills has become a useful tool in the development of the standards. These knowledge and skills provide measurements of work that transcend industry and geographical boundaries as well.

Each of the 17 knowledge and skills is divided into subcategories that define both the skill's complexity and its context. For example, one of the six critical work functions in the "production" concentration within the manufacturing industry sector calls for workers to "maintain quality and implement continuous improvement processes." This particular critical work function employs "listening" as one of the employability skills. Listening entails 1) understanding the complexity of communications and 2) any barriers to communications. These two dimensions are divided further to take into account content complexity, demands on

attention, communication indirectness, limitations on interaction, and distractions. Each complexity dimension and sub-dimension is then given a complexity rating on a 1-5 scale.

Occupational and technical knowledge and skills are industry-specific and pertain to specific key activities. Typically, employers can measure an individual's competency in this type of skill through a hands-on examination (such as repairing a piece of machinery). By using the academic, employability, and occupational and technical skills together, Voluntary Partnerships are able to develop comprehensive assessment tools.

B. Identifying the Work- and Worker-Oriented Components

The NSSB's Voluntary Partnerships employ the use of separate rounds of focus groups to identify the skill standards for each industry concentration. The focus groups are composed of subject matter experts and front line workers, which meet demographic and industry requirements. Rounds One and Two of the focus groups identify critical work functions, key activities, and performance indicators – in other words, the work-oriented component of the skill standard. Round Three of the focus groups identifies the three sets of knowledge and skills that comprise the worker-oriented component.

Each round of focus groups involves the participation of different sets of workers and subject matter experts. For example, approximately 45 workers participate in identifying the knowledge and skills necessary for each concentration. Once they are identified, between 10 and 15 subject matter experts (such as trainers, supervisors, and worker team leaders) review the data to ensure

its reliability. As the third and final step, approximately 30-45 different subject matter experts review the information to level the skills for different appropriate uses. The critical work functions, key activities, and performance indicators are validated through a national survey of thousands of workers.

Once all the research is completed, the information collected during the development of the skill standards is forwarded for technical review to an independent panel composed of industrial psychologists and industrial workforce experts called the Endorsement Review Panel (ERP). Upon the review's completion, the recommendations of the ERP are forwarded to the NSSB Board for consideration in deciding the standards' approval.

IV. SKILL STANDARDS DEVELOPMENT UPDATE

As of July 1, 2002, skill standards development is underway at differing levels of progress in six industry sectors – manufacturing, installation, and repair; retail and wholesale trade, real estate, and personal services; education and training; restaurants, lodging, hospitality and tourism, and amusement and recreation; public administration, legal and protective services; and information technology and communications. These industry sectors cover nearly 65% of the total U.S. workforce.

The NSSB, through the work of its Voluntary Partnerships, has spent the past several years researching and developing skill standards, which are the foundation for developing assessments and certifications. Skill standards development is complete in the manufacturing and the sales

and service industry sectors. These sectors are represented by the Manufacturing Skill Standards Council (MSSC – www.msscusa.org) and the Sales & Service Voluntary Partnership (S&SVP – www.salesandservice.org), respectively. In addition, the NSSB assisted the Transportation Security Administration in creating skill standards and assessments for the position of airport security screener, as mandated by the Aviation and Transportation Security Act (*P.L. 107-71*). These standards are considered part of the public administration, legal and protective services industry sector.

On May 11, 2001, the MSSC became the first Voluntary Partnership to complete and release skill standards for its industry sector, which employs nearly 15% of the country's workforce and accounts for nearly one-fifth of the nation's Gross Domestic Product. The release of these standards marked the end of more than three years of intensive research involving over 700 companies, 3700 workers, 250 subject matter experts, and 30 facilitating organizations. The MSSC is currently undertaking the process of developing comprehensive assessment tools.

On October 19, 2001, the S&SVP became the second Voluntary Partnership to release skill standards for its vast industry sector, which employs approximately 1 in 5 workers and contributes nearly 30% of U.S. GDP. In that endeavor, more than 200 workers provided invaluable input into the development of skill standards, followed by another 2,600 who validated them. An additional 300 workers, supervisors, and subject matter experts convened expert panels to review the work.

The work of both the MSSC and the S&SVP has been instrumental in guiding the development efforts of the existing Voluntary Partnerships. The Education and Training Voluntary Partnership (E&TVP - www.etvp.org), which began its work in October 1999, is nearly finished with its initial research, and it plans to release draft skill standards in late 2002. Representatives from more than 250 organizations are participating in this effort to create a skill standards system for an industry sector that employs nearly 13 million workers.

Hospitality and Tourism Futures (HTF), which was recognized in May 2000 as the fourth Voluntary Partnership, has begun the first round of focus groups to identify worker skills. Following all three rounds of focus groups, the Partnership plans to release skill standards in late 2002. Hospitality and tourism ranks among the top five largest industries in the United States, accounting for 10% of U.S. GDP.

Finally, Information and Communications Technology (ICT) was recognized as the fifth Voluntary Partnership in March 2002. The information and telecommunications industry sector covers more than 6 million workers and accounts for nearly 8% of U.S. GDP. The sector contains the following sub-industries: telephony, Internet service providers, system integrators, cable, wireless, satellite, software, and radio and television broadcasting. With much of the research already complete, the partnership is confident about releasing draft skill standards by the end of 2002.

V. QUALITY ASSURANCE OF THE SYSTEM

As part of its mandate, the NSSB has implemented a series of quality assurance measures to protect the integrity and usability of the skill standards, assessments, and certifications. These measures not only meet legal and professional guidelines, but also coordinate the work of the many outside organizations involved with skill standards to form a truly cohesive and comprehensive voluntary skill standards system.

The skill standards that are presented to the NSSB for approval must:

- Provide clear linkages and paths to training and curriculum development activities;
- Readily lend themselves to diagnostic and continuous improvement feedback;
- Provide clear signals regarding the types and levels of skills, knowledge, and performances valued and required in the workplace; and
- Provide for the commonality of understanding and language that will meet the stated requirement of promoting skills portability and worker mobility within and among industries.

The skill standards must be structured within a modular, progressive system that enables individuals to build upon blocks of skills and knowledge that will increase their career mobility. This system will maximize skills transferability and portability, promoting career paths within and among industry sectors and expanding employment opportunities for workers consistent with federal civil rights laws. In addition, the skill standards, assessments, and certifications are

to be continuously updated every three to five years to assure that the skill standards system keeps pace with the ever-changing American workplace, and that it remains forward looking.

VI. INFORMATION RESOURCES

In accordance with the National Skill Standards Act and in an effort to provide valuable information to the public, the NSSB has created the most comprehensive clearinghouse for skill standards related documents in America today. This clearinghouse, and its information management services and products, plays a vital role in support of the developing national system and is delivered through the organization's Web site at www.nssb.org.

The NSSB Clearinghouse is primarily Web-based and composed of a number of functional databases including the Certification and Apprenticeship Reports Database, the State Skill Standards Activities Reports Database, and the Skill Standards Literature Database. (The information provided is current as of July 1, 2002, unless otherwise noted)

A. Certification and Apprenticeship Reports Database

The Clearinghouse Certification and Apprenticeship Reports Database provides specific and useful information on existing industry and occupational skill standards and certification programs. Certification reports contain information from industry trade associations and vendors, while apprenticeship reports describe numerous programs registered with the U.S. Bureau of Apprenticeship Training. Also included in the Database are summaries of skill standards

specifications developed by state workforce entities and industry, labor, and education representatives and organizations.

To access this Database, go to the NSSB Web site at www.nssb.org, click on the Certifications and Apprenticeships tab on the upper tool bar, and then click Certification/Apprenticeship Program Descriptions in the following menu.

The reports are first categorized by NSSB industry sector and then by sub-sector or other subcategory. Thus, each report is identified according to a primary industry and occupation(s), the certification program sponsor, and program title.

The Database contains 835 certification summary reports categorized by NSSB industry sector. Nearly 1,600 existing industry-based certification programs and 85 separate apprenticeship programs are described in separate reports. Additionally, there are 10 reports describing skill standards specifications that were created by independent vendors and/or state entities, and information on 759 certifying organizations.

B. State Skill Standards Activities Reports and Contacts Database

This Clearinghouse Web-based Database contains critical information on skill standards and workforce training activities offered by state entities across the country. This resource comprises a simple database of state contacts and a series of detailed reports on state activities. In the near future, these will be merged into a single, comprehensive relational database

The State Skill Standards Activities Reports Database contains 37 completed state reports. The remaining thirteen reports are in production.

This Database may be accessed by going to the NSSB's Web site at www.nssb.org, clicking the Skill Standards and Initiatives tab located in the top tool bar, and then clicking the State Skill Standards Information and Detailed State Reports in the following menus,

The Activities Report Database serves to promote:

- Linkages among state policy leaders and practitioners;
- Networking opportunities for state skill standards practitioners;
- Exchanges among practitioners about approaches and techniques on a variety of skill standards issues;
- Coordination and collaborative problem solving among practitioners;
- Agreement around portability of skill standards and accompanying certifications across state lines; and,
- Collaboration with state representatives to establish a viable national system.

The State Skill Standards Information Database also contains the State Contacts Database that lists a contact person in each state from whom further state skill standards information is available. This Database is accessed by clicking this option under the State Skill Standards Information menu.

C. Skill Standards Literature Database

The NSSB Web site also continues to expand its extensive literature database on skill standards information and materials. At the close of 2001, more than 1,400 documents and reports on current national and international skill standards literature were housed in the Skill Standards Literature Database. This database contains a wide variety of information on the development and implementation of skill standards, including material on workforce competitiveness issues that might contribute to the creation of a voluntary system of national skill standards. Users can search this library by keyword, category, or topic. To access this Database, go to the NSSB's home page at www.nssb.org and click on the Clearinghouse tab located on the left side of the screen.

VII. NEXT STEPS

The NSSB is on its way to completing the nation's first voluntary, industry-recognized skill standards system. Its intensive research and development effort of the past eight years has yielded skill standards in two important industry sectors, with development work in three additional sectors scheduled for completion by the end of 2002. Though the five sectors combined cover nearly 65% of the U.S. workforce, the NSSB will continue its efforts to build out the system that will yield industry skill standards covering the entire civilian workforce.

Over the next year, the NSSB plans to develop and deploy the individual skill standards systems in each of the five existing industry sectors. Over the long term, the organization expects to

convene industry coalitions in the remaining 10 industry sectors and begin the process of skill standards development. In addition, the NSSB will continue to provide qualified and effective services to federal employers, such as the Transportation Security Administration (TSA), that seek to restructure their human resource processes.

In keeping with its legislative mandate, the NSSB will sustain and expand its role as the national quality assurance agency for skill standards, assessments, and certifications. The NSSB's team of distinguished technical experts has closely followed each individual Voluntary Partnership's skill standards development effort to ensure the work's validity and compliance with rigorous technical criteria. The NSSB will subject the work performed by future industry coalitions to the same level of technical scrutiny.

With respect to its information resources capabilities, the NSSB will continue to expand its online certification database and improve the site's navigability. The organization, which hosts the world's largest collections of skill standards and certification documentation, is committed to providing the public with valuable and up-to-date information.

Finally, the NSSB will soon begin efforts to benchmark its standards with labor competencies from other countries. In addition, it plans to explore the alignment of the NSSB skill standards system with similar international systems to explore the possibility of promoting the free movement of labor across national borders.

The work of the National Skill Standards is truly groundbreaking, promising to deliver a skilled workforce that will boost the U.S. economy. The NSSB's mission is a work in progress, relying on the commitment and participation of thousands of individuals from business, labor, education, and public interest organizations, to accomplish this enormous and important task. The NSSB's accomplishments of the past eight years, and more recently in the past 18 months, have positioned the organization well to fulfill its mission in the near future.

VII. REFERENCES

- Allum, J. R. (1998). *The National Skill Standards Board: A perspective of policymaking and policy implementation*.
- Bureau of Labor Statistics, U.S. Department of Labor. (2000). *Occupational Outlook Handbook, 2000-01 Edition*, Bulletin 2520. Washington, DC: U.S. Government Printing Office (GPO).
- Congressional Budget Office. (2001). *The Budget and Economic Outlook: Fiscal Years 2001-2011*. Washington, DC: GPO.
- Employment and Training Administration, U.S. Department of Labor. (2000). *Fiscal Year 2001 Budget: Employment and Training Administration*. Washington, DC: GPO; Retrieved March 7, 2001, from www.dol.gov/dol/sec/public/budget/eta2001.htm
- Immigration and Naturalization Service, U.S. Department of Justice. (2000). *Changes to the H-1B Program – Questions and Answers*. Washington, DC: GPO. Retrieved March 7, 2001, from www.ins.usdoj.gov/graphics/publicaffairs/questsans/H1BChang.htm.
- Larkins, D., et al. (2001). *Survey of Current Business- February 2001*. Washington, DC: GPO.
- National Education Goals [Public Law 103-227, Title I]* (1994). Retrieved July 15, 2002, from thomas.loc.gov.
- National Skill Standards Act [Public Law 103-227, Title V]* (1994). Retrieved July 15, 2002, from thomas.loc.gov.
- Office of Planning, Statistics Branch, U.S. Department of Justice. (1999). *Legal Immigration, Fiscal Year 1998, No. 2*. Washington, DC: GPO.
- (The) Secretary's Commission on Achieving Necessary Skills, U.S. Department of Labor.

(1992). *Skills and Tasks for JOBS: A SCANS Report for America 2000*. Washington, DC: GPO.

Swoboda, F. & Schafer, S. (March 1, 2001). "Bush's Budget Blueprint: Agency by Agency." *Washington Post*, A17.

United States Census Bureau, Population Division. (1991). "DP-1, General Population and Housing Characteristics: 1990." Washington, DC: GPO. Retrieved March 7, 2001, from factfinder.census.gov.

_____. (2001). "First Census 2000 Results – Resident Population and Apportionment Counts." Washington, DC: GPO. Retrieved March 7, 2001, from www.census.gov/main/www.cen2000.html.

_____. (2000). "NP-D1-A, Projections of the Resident Population by Age, Sex, Race, and Hispanic Origin: 1999-2011." Washington, DC: GPO. Retrieved March 7, 2001, from factfinder.census.gov.

VIII. Endnotes

¹ See *National Education Goals* (1994).

² See SCANS (1992) Chapter 2, pages 5-9 (Table 2-1).

³ See *National Skill Standards Act* (1994).

TABLE 1. FORMAT OF THE WORK-ORIENTED COMPONENT OF A SKILL STANDARD

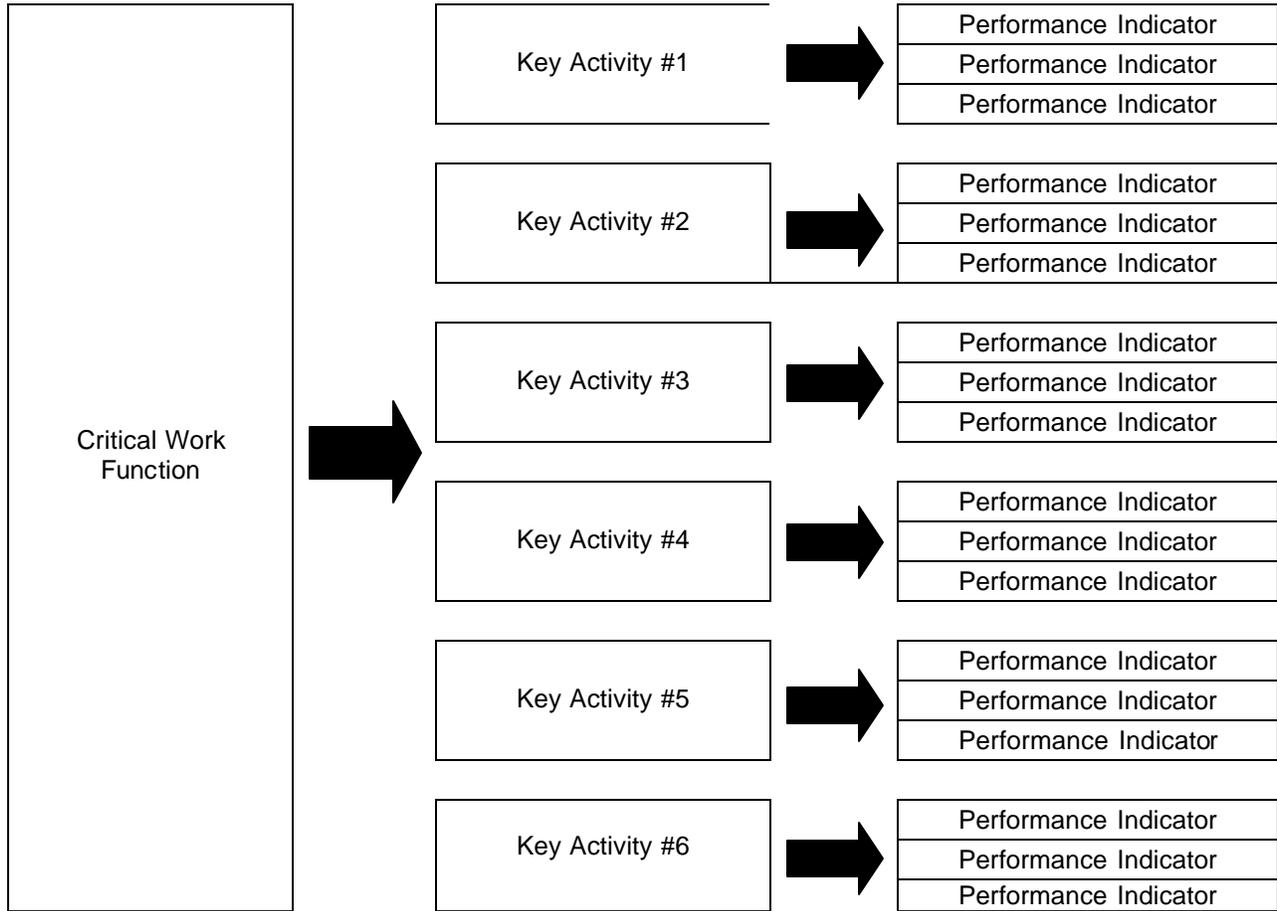


TABLE II TYPES OF KNOWLEDGE AND SKILLS

Academic	Knowledge and skills associated with the academic disciplines of reading, writing, mathematics, and science.
Employability	Applied knowledge and skills used to perform effectively across a broad range of occupations, such as teamwork, decision-making, and problem solving.
Occupational and Technical	Specific technical and occupational knowledge and skills needed for work, such as engine repair or database programming.

TABLE III. WORKER-ORIENTED KNOWLEDGE AND SKILLS

Academic Knowledge and Skills	Employability Knowledge and Skills
<ul style="list-style-type: none">• Reading• Writing• Mathematics• Science	<ul style="list-style-type: none">• Listening• Speaking• Using information and communications technology• Gathering and analyzing information• Analyzing and solving problems• Making decisions and judgments• Organizing and planning• Using social skills• Adaptability• Working in teams• Leading others• Building consensus• Self and career development