

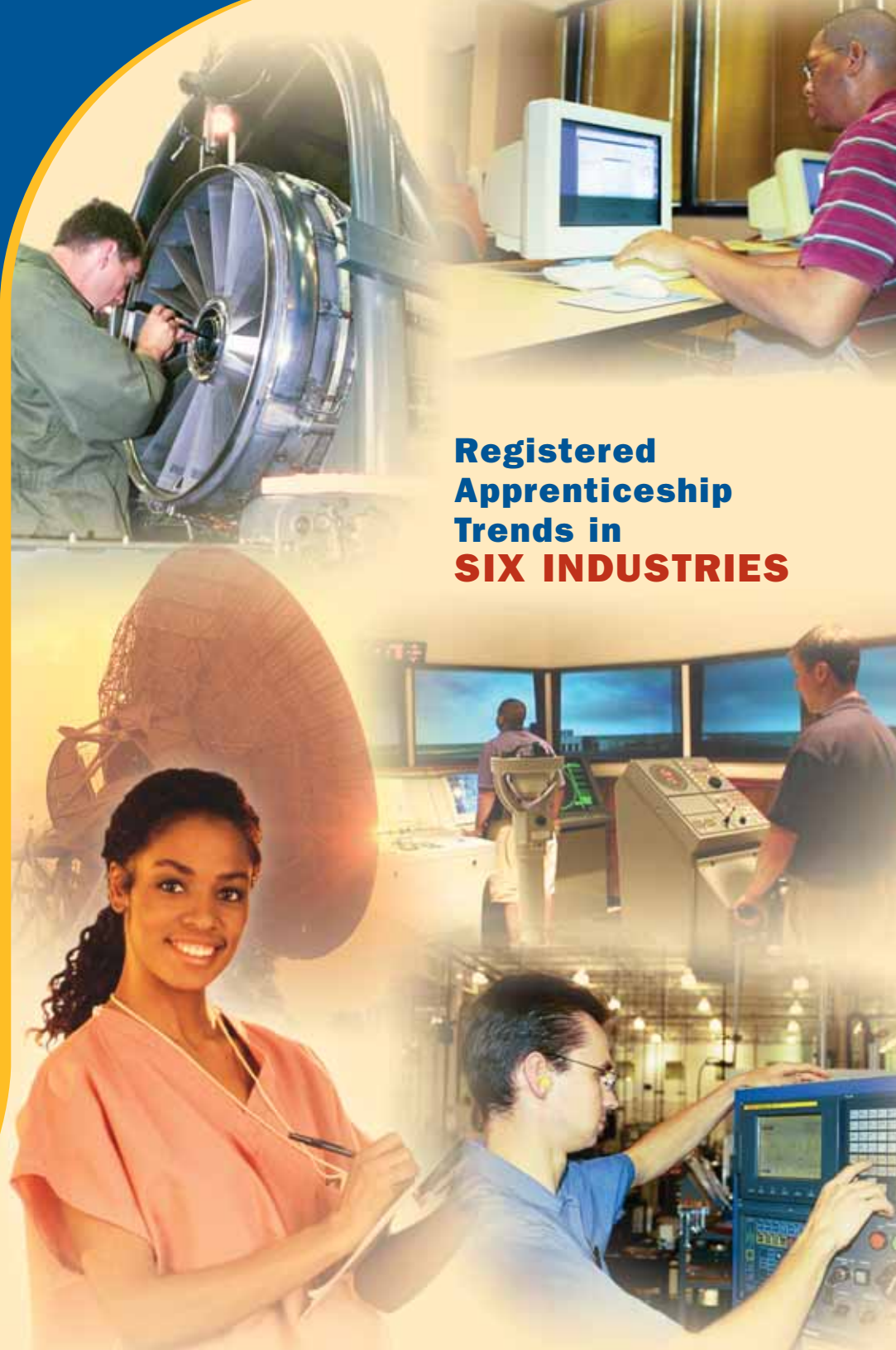
STRENGTHENING OUR NATION'S Workforce

with
Demand-Driven
Solutions



Office of Apprenticeship Training
Employer and Labor Services (OATELS)
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Employment and Training Administration
United States Department of Labor



**Registered
Apprenticeship
Trends in
SIX INDUSTRIES**

Apprenticeship Expands to Serve Industries' Shifting Needs

Registered Apprenticeship training plays an important role in developing skilled workers. With the combination of on-the-job learning, related instruction, and mentoring, the apprenticeship model is a potent tool for addressing the skill shortages that many industries face. It also provides the grounded expertise and knowledge individuals need to do their jobs well and advance in their careers.

I have met with thousands of employers who tell me about the workforce problems that plague their businesses and keep them from being more competitive nationally and globally: inability to recruit highly skilled employees, poor quality of work, low productivity, and high turnover rates.

The Registered Apprenticeship model has proven its ability to address these and other issues in the construction and other industries and should become part of the training strategy for many other sectors. The model offers an efficient, flexible training system, responsive to new technology to keep workers up-to-date on skills they need to do their jobs. As a result, we have made a strategic decision to introduce the model to high-growth industries with acute workforce issues.

"Advancing the Apprenticeship System" is one of our key initiatives, with investments of more than \$12 million to fund apprenticeship programs in high-growth industries. This report, **Strengthening Our Nation's Workforce with Demand-Driven Solutions**, presents findings of a study of the value of Registered Apprenticeship in several of those new areas. The industries highlighted here include:

- Health Care
- Maritime Trades - Transportation
- Advanced Manufacturing
- Military: Indiana National Guard
- Information Technology
- Geospatial Technology

Although the Registered Apprenticeship programs described here have all been in operation between one and four years, there are emerging trends that show the kind of impact apprenticeship is having:



- The various industries are embracing the career lattice apprenticeship model and finding high value in using the model to train their workforce.
- The competency-based approach is allowing apprentices to move through a program at his/her own pace, benchmark the achievement of each set of core competencies, and build a portfolio of skills and interim credentials validating the acquired skill levels.
- The related instruction offered in the programs is articulated with many two- and four-year colleges, allowing apprentices to work towards an Associate's or Bachelor's degree.
- Apprenticeship programs are successfully operating in a professional and technical environment.

We invite you to read about the advances we are making in these diverse industries and how Registered Apprenticeship is changing the way employers seek to build the workforce they need to compete in a global economy.

Sincerely,

Emily Stover DeRocco
Assistant Secretary for Employment and Training

INTRODUCTION

A Skilled Workforce for Our Evolving Economy

At the dawn of the 21st Century the United States confronts a fundamental change in its workforce needs.

In recent years, manufacturing has transformed to a lean and flexible industry requiring workers to update their skills. Meanwhile, new industries are emerging that require a new set of skills.

The computer and health-related industries, in particular, are experiencing the strain of having too few trained workers to meet their rapidly increasing, and changing, needs. Labor shortages are also expected in other industries where most jobs do not require a college education, but instead call for specific technical or trade skills.

These shifts in the workplace, propelled by rapidly changing technologies that demand a flexible training system to keep workers up-to-date, have meant that employers must find new and efficient ways to train their workers. Registered Apprenticeship, a flexible and efficient training model, holds great promise for employers who want to maintain a competitive edge in the emerging global economy.

Registered Apprenticeship System

Employment projections in the United States present important opportunities for the Registered Apprenticeship System, not only in construction and manufacturing, which have used the apprenticeship training model for more than 65 years, but also in the newer high-growth service-providing industries. The apprenticeship training model, which combines on-the-job learning with related instruction and mentoring, lends itself to these high-growth industries.

Since 2001, the U.S. Department of Labor's (DOL) Office of Apprenticeship Training, Employer and Labor Services (OATELS), in collaboration with the National Association of State and Territorial Apprenticeship Directors (NASTAD), has led efforts to expand Registered Apprenticeship into new areas.

The intention of this effort is to build the capacity of the nation's workforce and to respond to the needs of the increasingly competitive world economy.

As the graphic on the next page shows, the Registered Apprenticeship training model, which relies upon both technical and theoretical training, is an efficient way to train workers, perhaps more efficient than a training approach that depends solely upon instruction. In many cases, workers who participate in

2002 - 2012 JOB GROWTH PROJECTIONS

Job Growth/General

- Total Employment: 21.3 million *
- Replacement Jobs: 35.0 million

Job Growth/By Sector

- All Sectors: 14.8%
- Service-Producing Sectors: 18.0%
- Goods-Producing Sectors: 3.0%

Strongest Growth Areas in Service-Producing Sectors**

- Education and Health Services
- Professional and Business Services

* From 144.0 to 165.3 million jobs.

** Projected to grow twice as fast as the overall economy, accounting for 75% of new jobs.

Source: Bureau of Labor Statistics, 2004

Registered Apprenticeship gain expertise in performing their jobs more efficiently and become productive at a faster rate.

Registered Apprenticeship is a demand-driven training model that offers employers an important way to elevate the competencies of their workers and establish the standards of proficiency they need to compete. Registered Apprenticeship has several major components:

- **On-the-job Learning**

Apprentices benefit from real-world application of theory-based instruction as they work in their own job setting. The subject content and time requirements of an apprenticeship program depend on the occupation and the needs of the employer and are designed to ensure increased job competency over time.

- **Related Instruction**

Apprentices receive technical training in highly skilled occupations often provided at local community colleges and increasingly through distance learning. Related instruction, combined with concurrent on-the-job learning, is a unique feature of the Registered Apprenticeship training model.

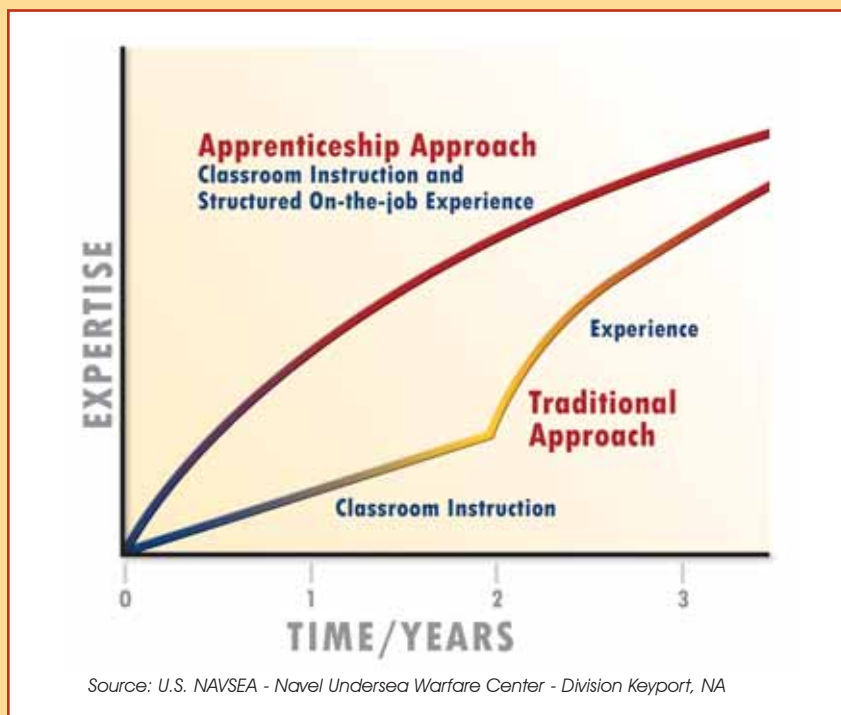


- **Mentoring**

Apprentices work and learn under the direction of qualified personnel, or mentors, who are experienced and proficient in their field. Mentors are not necessarily supervisors, but coaches who help apprentices learn skills they need to do their jobs successfully. Typically, apprentices achieve mentor-level status when they complete program requirements. They then are qualified to serve as mentors to apprentices.

- **Incremental Wage Increases**

Registered Apprenticeship aligns incremental wage increases of apprentices to their enhanced job proficiency. Proficiency, which is indicative of exhibited job competencies, results from on-the-job learning, mentoring and related instruction experienced by apprentices.



Purpose of the Report

This report, **Strengthening Our Nation's Workforce with Industry-Driven Solutions**, was commissioned by OATELS in fall 2004. OATELS tasked McNeil Research and Evaluation Associates (McNeil Research) to look at the status of the development of Registered Apprenticeship in five high-growth industries and the military. Four industries (health care, high-tech manufacturing, information technology, and geospatial technology), which had never used the apprenticeship training model, were given seed capital to develop programs. The other industry (maritime) and the military have operated apprenticeship programs for a number of years, but only recently adopted the Registered Apprenticeship model. Additionally, OATELS and NASTAD staff were trained to undertake outreach efforts in new industries. This

High Growth Job Training Initiative

The President's High Growth Job Training Initiative (HGJTI), implemented in fall 2003, provides national leadership for a demand-driven workforce system that ensures no worker is left behind.



The foundation of the initiative is partnerships that include the public workforce system, business and industry, education and training providers, and economic development entities working collaboratively to develop solutions to workforce challenges.

The HGJTI targets the following 12 high-growth industries:

- Health Care Services
- Information Technology
- Biotechnology
- Geospatial Technology
- Automotive
- Retail Trade
- Advanced Manufacturing
- Construction
- Transportation
- Hospitality
- Financial Services
- Energy

report looks at early results of those investments and marketing efforts by the Department of Labor and provides a snapshot in time of each project as it gets underway. Even though the projects are young, there are some promising trends that point to the value of Registered Apprenticeship in six very diverse industries. The industries and sponsoring organizations include:

- **Health Care:** Council for Adult and Experiential Learning (CAEL)
- **Advanced Manufacturing:** National Institute for Metalworking Skills, Inc. (NIMS)
- **Information Technology:** The Computing Technology Industry Association Educational Foundation, Inc. (COMPTIA) and the National Information Technology Apprenticeship System (NITAS)
- **Maritime (Transportation):** Seafarers International Union and partner employers
- **Military:** Indiana National Guard
- **Geospatial Technology:** The University of Southern Mississippi

Approach

Personnel from McNeil Research visited three CAEL, two NIMS, and two CompTIA sites. In addition, members of the team visited one site each representing the maritime, military, and geospatial industries. Team members gathered data about the benefits and effectiveness of Registered Apprenticeship, as well as information about the process of program implementation.

The report is based on data gathered through document reviews; observations at selected industry sites; and informal interviews with project directors, site coordinators, mentors, apprentices, and representatives from employer sponsors, educational institutions, and the local workforce development system.

Inroads into Industries : Status at a Glance

	Preliminary Observations	Role of Registered Apprenticeship	Stage of Program Development	Next Steps
Health Care	RA helps defer turnover by offering advancement along a nursing career lattice. It also helps decrease recruitment costs; improve employee skills, confidence, and quality of patient care; and increase diversity.	RA is addressing workforce shortages by creating a pipeline of skilled workers. To aid retention, employers are training incumbent workers to become CNAs or attain competencies in specialty areas. Many will advance to LPNs and RNs.	CAEL established the nursing career lattice program, using RA, in five sites. Employers are continuing or expanding the program across their health care organizations.	RA is gaining acceptance in the health care industry. Local and national apprenticeship staff are recruiting health care partners to expand its use in the industry.
Advanced Manufacturing	The competency-based RA system standardizes skills across the industry, makes hiring practices more consistent, increases employers' return on investment, and motivates employees to gain competency.	A competency-based RA system is being developed to improve the way skilled workers are trained, which allows flexibility to employers and apprentices.	NIMS has developed curriculum guidelines for eight occupations and selected 24 sites to pilot the competency-based model.	Feedback from pilot sites will be utilized to complete the competency-based training system and broaden its use.
Information Technology	RA is an effective training model that provides a tracking system for worker skills, ensures employer needs are met, increases productivity, and helps attract and retain high-quality workers at lower costs.	As the IT apprenticeship program becomes fully operational and institutionalized, it will be important to connect apprentices and sponsors enrolled through the program with DOL's RA system.	CompTIA has developed and is implementing the National Information Technology Apprenticeship System (NITAS) for IT professionals. OATELS and CompTIA are educating firms about this program.	Technical assistance will facilitate the process of connecting the IT apprenticeship program with DOL's RA system, as well as train staff at One-Stop centers in methods to channel potential IT workers into the IT apprenticeship program.
Maritime	Apprenticeship is a training model with a track record for producing a skilled workforce of unlicensed merchant marines. RA adds value to the model and helps improve retention, reduce recruitment costs, and produce well-trained and efficient employees.	National RA standards encompass the skills apprentices are expected to attain as well as policies in areas such as recruitment, supervision, and program administration. RA opportunities can be systematically publicized to a broad audience of prospective workers.	The Seafarers International Union signed the national standards of apprenticeship with DOL in May 2003. They are recruiting seafarers from the workforce system nationwide.	New coursework is added, as needed, to ensure that the RA program continues to meet the latest training requirements of the U.S. Coast Guard and the Standards of Training, Certification, and Watchkeeping.
Military Indiana National Guard	RA facilitates turning military training into civilian credentials earned while completing a military obligation. It aids retention, reduces recruitment costs, and meets employer demands for dedicated and qualified workers.	RA offers great potential through the public workforce system to help re-train many deployed members of Indiana's National Guard for the civilian workforce.	The Indiana National Guard is implementing a three-stage RA strategy. Over 250 full-time Guard members have completed the program (68 more are enrolled). Plans exist to include part-time and high school Guard members.	The Guard and OATELS have created a RA program with great national potential. Guard and OATELS representatives believe the Indiana model can be replicated in other states (52,000 Guard and active duty members).
Geospatial Technology	The geospatial technology RA program provides a model for training geospatial apprentices based on industry needs and employee performance gaps. RA also provides a standardized job specialty that is nationally recognized.	RA has been adopted to meet industry growth requirements and to offer alternatives to traditional recruitment and retention.	A Geospatial Specialist Certificate has been established to meet the needs of employers in the industry. A competency-based system has been created for both the employer and apprentice to monitor progress and measure the economic impact of the program.	The program will continue to build a prototype-training model for national replication to enable industries to integrate geospatial technology throughout their organizations and meet the need for skilled workers.

ACRONYMS USED IN MATRIX:

RA: Registered Apprenticeship; **CAEL:** The Council for Adult and Experiential Learning;

CompTIA: The Computing Technology Industry Association Educational Foundation; **NIMS:** National Institute for Metalworking Skills

OVERVIEW OF THE PROJECTS

Industries Explore the Registered Apprenticeship Model

Health Care:

Council for Adult and Experiential Learning (CAEL)



CAEL, a national nonprofit organization, created a nursing career lattice to increase the number of Certified Nursing Assistants (CNAs), Licensed Practical Nurses (LPNs), and Registered Nurses (RNs). It combined the Registered Apprenticeship training model for the CNA and LPN with online instruction and clinical training for the Associate Degree in Nursing (ADN).

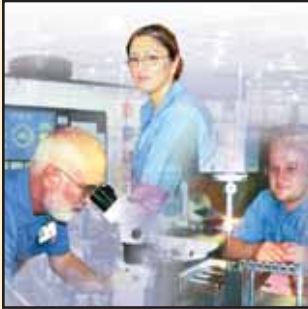
Registered Apprenticeship was a new training model for the health care industry; therefore, CAEL, OATELS, and State Apprentice Council (SAC) staff worked together to educate potential partners about its structure and benefits prior to recruiting employers. CAEL implemented the nursing career lattice program in five sites: Houston; Sioux Falls, South Dakota; Chicago; Washington State; and Maryland. Implementation efforts focused on building local partnerships with health care providers and associations, licensing agencies, educational institutions, and One-Stop career centers. Health care regulatory agencies, at both the state and national levels, were included in all phases of program development to address issues related to licensing requirements.

Among the partners involved in the development of the program were local OATELS and SAC staff, health care employers, community colleges, and the workforce development system. OATELS and SAC staff recruited employers, facilitated partnerships, and provided

technical support; employers provided the training to existing employees to increase retention and decrease recruiting costs; community colleges worked with employers and licensing agencies to design related instruction to meet state requirements, as well as the training needs and work schedules of apprentices; and One-Stop career centers and Workforce Investment Boards (WIBs) provided resources (e.g., funds for tuition reimbursement) and services to employers.

Registered Apprenticeship addresses the health care industry's workforce needs in several important ways. It helps with recruitment and retention. Job seekers who have a clear understanding of position requirements, and have an opportunity for advancement along a career lattice, are more likely to stay on the job once hired, as do incumbent employees when given the opportunity to advance in their careers. Registered Apprenticeship is seen as a cost-effective training method. By increasing retention, recruitment costs decrease. Employers prefer to train their own employees rather than recruit new hires. Employers also indicate that Registered Apprenticeship contributes to increased skill levels, confidence, and self-esteem in employees; this positively affects the quality of patient care. And, finally, the training model is helping to increase diversity in the health care workforce as employers seek to have the workforce approximate the composition of the patients they serve.

Advanced Manufacturing: **National Institute for Metalworking Skills, Inc. (NIMS)**



NIMS, based in Fairfax, VA, is a nonprofit organization created by the major metalworking trade associations with the mission of developing a set of industry-driven national skill standards that set a benchmark for competency in the industry. NIMS is developing a competency-based Registered Apprenticeship training model to help establish unified skill standards throughout the industry.

Thus far, NIMS has developed curriculum guides for eight occupations and has selected 24 sites to pilot test the competency-based system. The training system uses a career lattice that allows for lateral movement across occupations and skill sets, as well as for progression to higher levels of competency in the same occupation.

To implement the system, NIMS is working with OATELS and SAC staff, educational and training organizations in the pilot site locations, and with One-Stop career centers and WIBs across the country to identify new hires and gain assessments of the interests and abilities of potential employees. Educational and training organizations are providing instruction at flexible times and in convenient locations. They also are willing to grant college credit for Registered Apprenticeship related instruction.

Employers reported that the Registered Apprenticeship model helps with recruitment and retention because new hires are attracted by the opportunity for faster advancement, quicker wage increases, national credentials, and the option of earning college credit. Employers also point to how the approach motivates employees to work harder to achieve competency level skills. This contributes to improved delivery schedules and increased productivity. Registered Apprenticeship is viewed by many manufacturers as a cost-effective training method because it takes apprentices less time to reach a level of competency.

Information Technology: **The Computing Technology Industry Association Educational Foundation, Inc. (CompTIA) and the National Information Technology Apprenticeship System (NITAS)**



CompTIA is a not-for-profit trade association based near Chicago that represents an international technology community of employers, workers, and trainers. CompTIA is building the National Information Technology Apprenticeship System (NITAS), a competency-based apprenticeship method that supports consistent and flexible credentialing of IT workers via an internet-based system that registers, tracks, and manages partici-

pants to ensure they attain skills and competencies. As part of the effort to institutionalize the IT apprenticeship, CompTIA is developing skill standards and work processes for several IT career tracks. When NITAS is fully operational (projected for 2007), it will be accessible throughout the nation—to both small and large employers—and will serve as a universally accepted competency-based IT workforce development and skill validation program.

According to CompTIA staff, the apprenticeship system holds great promise for small businesses that employ only a few IT professionals because it better connects them with the public workforce system. Employers will be able to use NITAS as a tool to manage their IT workers, especially ensuring that the competencies and skill levels are current and reflect national standards and IT trends.

CompTIA is working closely with OATELS, educational institutions, and the workforce development system to implement the project. OATELS is assisting with the marketing of NITAS throughout the country. Several colleges are serving as pilot sites for NITAS, testing how their IT curricula fit into the NITAS career tracks. CompTIA is preparing a set of tools for One-Stop career centers to use in assessing job seekers to determine their suitability for IT work and to help direct them to employers.

Although NITAS is still in the early stages of development, CompTIA has laid the foundation for a national apprenticeship program for the IT industry that appears to meet the needs of employers and workers. IT managers see the apprenticeship model as superior to the classroom-only approach to training IT workers. NITAS will allow for easy verification of the skills level of IT workers by creating a permanent online resume of the apprentices' education, certification, and skills validation. Ultimately, NITAS is expected to help employers increase productivity by readily identifying employee training needs that may hinder performance.

Maritime (Transportation): Seafarers International Union and Partner Employers



The Seafarers International Union (SIU) is the largest North American union representing merchant marines. Almost all unlicensed mariners with U.S. companies are recruited and trained through the companies' contractual agreements with SIU. Training is provided by the SIU Paul Hall Center for Maritime Training and Education in Piney Point, MD. Although SIU has operated an apprenticeship program since 1967, it was in May 2003 that

the program came into the U.S. Registered Apprenticeship system. The comprehensive training program includes highly structured classroom instruction and hands-on training. Training covers the duties and responsibilities in the three shipboard departments—deck, engine, and steward—and lasts about 11 months, including time at sea.

SIU is working in partnership with OATELS, employers, and the workforce development system to expand the apprenticeship program. Because of the nature of the maritime industry, the apprenticeship program is structured to recruit applicants from anywhere in the country and to provide employment on ships with SIU contracts that might sail from any U.S. port. As a result, program staff are developing relationships with state and local workforce development organizations across the country.

Preliminary observations point to advantages for establishing SIU's program in the Registered Apprenticeship system—most notably—help with recruitment. In particular, the use of OATELS' Registered Apprenticeship web site will allow the program to reach a larger audience and generate a larger applicant pool. Program managers believe that the length of the training will yield graduates that are more committed to the program and likely to stay in their jobs. Employers point to the cost-effectiveness of the program. It improves retention in the industry, which reduces the cost of recruiting and training new workers. Employers are able to pay the union-negotiated, incremental apprenticeship wage while the men and women are in training. And, program graduates are well prepared to work safely, which reduces the likelihood of costly accidents. In addition, the combination of training on shore, in the classroom, and on board vessels produces well-trained and knowledgeable graduates.

Military: Indiana National Guard



The Indiana National Guard operates the Indiana Military Apprenticeship Program (INMAP), which provides apprenticeship training and certification to both Army and Air Force Guard members. INMAP allows Guard members to earn certification for skills they learn through documented work experience (on-the-job learning) and related technical instruction. It offers participants an opportunity to turn military training into a civilian credential that can be earned while completing a military obligation—in many instances at little or no cost to service members or employers.

Employers who sponsor apprentices incur no cost for related instruction. Instead, the cost is paid through the G.I. Bill and other tuition assistance programs that are available to Guard members.

The Indiana National Guard has worked closely with OATELS since 2001 to develop and expand INMAP. OATELS serves as the registration agency. The Guard has established articulation agreements with several

colleges and universities, which enable apprentices to translate their time in training into college credits. As part of the effort to build and expand INMAP, the Guard has partnered with the Veterans Employment and Training Service, and the Indiana Department of Workforce Development, which includes the State's One-Stop delivery system. Thus, employers who are interested in sponsoring apprentices may contact either the training service or the One-Stop career centers.

Observations indicate that the Registered Apprenticeship training model and the military's training system are compatible. Guard supervisors and recruiters believe that Registered Apprenticeship will serve as an important recruitment tool for the Indiana Guard and will result in a lower turnover rate among Guard members. This will ease the costly task of recruiting and training large numbers of new Guard members. A major advantage of Registered Apprenticeship, Guard officials believe, is the opportunity to turn military training into a civilian credential and earn college credits in the process. They also believe that the program offers employers a source of workers with traits instilled by the military: high self-esteem, dedication, and pride in service.

Geospatial Technology: **The University of Southern Mississippi**



The University of Southern Mississippi's Workplace Learning and Performance Center is pilot testing the nation's first Geospatial Technology Apprenticeship Program (GTAP). Prior to initiating GTAP, the university developed the Geospatial Technology Competency Model as part of a NASA effort to help meet the need for a skilled workforce in the nascent field of geospatial technology. The GTAP pilot is designed to build capacity within com-

munity colleges to offer geospatial technology certificates and technology programs using the Registered Apprenticeship infrastructure. It provides a structured training program that gives participants the

opportunity to count apprenticeship course credits toward a two- or four-year degree. Apprentices who are not interested in pursuing a degree may be interested in the "geospatial specialist," a portable Registered Apprenticeship credential that demonstrates the skills they have acquired.

University staff are working with OATELS, community colleges, employers, and the workforce development system to implement the pilot. OATELS provides technical assistance and support to the effort. Three community colleges provide related instruction to GTAP apprentices using a curriculum consisting of 21 credit hours, five required courses, and two electives. Partnerships with NASA, Lockheed Martin, and regional economic development and technology organizations help ensure that the project is industry driven and guided by the industry's workforce needs.

Initial indications are that GTAP addresses the workforce needs of the geospatial industry in several key ways: recruitment, skills development, mentoring, and training. The current demand for skilled workers is mostly at the specialist level, which does not require advanced engineering degrees, but training at the post-secondary level. GTAP provides a model that allows for recruiting and training at the needed level. It also allows for developing skills based on a competency plan, resulting in trained workers with nationally recognized credentials.

EARLY TRENDS

Registered Apprenticeship: A Pathway to a Stronger Workforce

Registered Apprenticeship Is a Valid Training Model for High-Growth Industries

DOL's effort to initiate Registered Apprenticeship in the six industries has demonstrated the value of the Registered Apprenticeship model in meeting employer demands in high-growth industries. The training model, which teaches workers the practical and theoretical aspects of a skilled occupation, is a valid approach for expanding in new directions. The model encompasses competency-based skill attainment in almost all of the industries considered. Rather than base competency on passing a written test or time in training, advancement in the new apprenticeships are based on ability to master a skill. The early data points to the promise of the competency-based Registered Apprenticeship model as a flexible means to help employers in newer and growing industries prepare skilled workers to do their jobs.



Although the industries in this report are just beginning to integrate the Registered Apprenticeship model into their training strategies, the following are some of the early results showing that the model meets a number of workforce needs in diverse industries.

Recruitment and Retention A Top Priority for Employers

Employers across the six industries generally indicated that recruitment and retention are the main workforce challenges that their industries face. And for many industries, such as health care, these challenges come at a high cost. Implementation of apprenticeship programs has helped employers in these industries retain employees and save money. Investing in improving worker skills is less costly than recruitment. Apprentices appreciate the willingness of employers to invest in them by paying for training, providing incremental wage increases as skills improve, and offering opportunities for them to advance to higher positions.

Additionally, employers cited reduction in employee turnover rates due to the apprenticeship programs. Reduced turnover means that employers experience cost savings; they do not have to constantly recruit and train new employees. Human resources personnel said they anticipate that the use of skill standards, such as credentials from the National Institute for Metalworking Skills (NIMS), will help streamline the recruitment process. Hiring the right employee for the right job saves money and ensures recruitment is cost effective.

The Indiana National Guard, for example, not only uses apprenticeship as a recruitment tool, but also as a method to help full-time members receive college credit toward a degree. The Guard is using apprenticeship as a means to transition unemployed and under-employed Guard members back to civilian life after serving on active duty and help keep them in local Guard units. This is critical, considering that the Guard is facing difficulties recruiting and retaining members.

Skills Development Essential to Building Competence

Having skilled workers requires employer access to a flexible training system that helps them continually update worker skills and maintain a competitive edge. The lack of skilled workers is a major challenge and cuts across most of the industries discussed in this report.

As Registered Apprenticeship gains acceptance in new industries, it is rapidly becoming a training system based upon competency development, rather than solely time spent in a job. Each industry develops skill sets that are needed to perform jobs. Using this model, apprentices must show their mastery of tasks to move on to the next level. This approach is proving highly effective.



- In the health care industry, Certified Nursing Assistants (CNA) are being trained through the Registered Apprenticeship model with high-level, competency-based specialties. The CNA is a practical entry point for individuals who never thought they could enter the health care field. It gives them a path to become a Registered Nurse, a Radiology Technician, or a Surgical Technician.

- Apprenticeship training is helping employees quickly update and learn new skills in the information technology industry. Studies by the Navy show that IT specialists reached competency faster using the apprenticeship approach. NITAS, the web-based apprenticeship tracking system, makes it easier for apprentices and journeyworkers to share their credentials with prospective employers. Employers who are NITAS members can access information, such as transcripts, certifications, and skill levels to verify that potential employees meet their needs and are qualified to hold specific jobs.
- The advanced manufacturing industry is developing a series of competency-based curriculum guides and credentials to ensure that workers are better trained and meet the demands of employers.
- The Seafarer's International Union is replacing its informal apprenticeship with Registered Apprenticeship to ensure that workers meet U.S. Coast Guard training requirements, such as those involving safety issues.

Benefits to Employers

- Greater competence of employees
- Reduced turnover rates
- Greater employee retention
- Lower investment in recruitment
- Higher productivity
- Improved quality of patient care
- Improved quality of products/services
- More diverse workforce

Benefits to Apprentices/Employees

- Nationally recognized and portable certificates
- Improved skills and competencies
- Increased wages as a result of mastered competencies
- Ability to advance in career
- Higher self-esteem based on enhanced skills and certifications

Productivity **Enhanced by a Skilled and Competent Workforce**

The projects reported here are in early stages of implementation. Several employers have reported improved productivity resulting from higher effectiveness and efficiency. Studies produced by the Navy, for example, show that IT specialists reach competency faster using the apprenticeship approach, which combines classroom instruction and structured on-the-job experience, than through a more traditional approach that provides classroom instruction only. These performance indicators will be closely tracked as the programs mature.

Improvement in Quality of Care

The apprenticeship model is a strategy to help health care providers deliver the best possible care to patients and residents. Employees are given better training, which directly affects patient care. Additionally, employers are making investments in apprentices by paying increased wages as their skills improve and, thus, providing concrete pathways to advance in their careers. All of these elements contribute to better employees who provide better care to patients.



Improvements in Products/Services

After the first year of implementing the Registered Apprenticeship program, product improvements have been reported in the high-tech manufacturing program with the lowest number of product defects and lowest number of returns, and the best on-time delivery. Likewise, customer satisfaction is expected to increase.

Outreach and Education **A Key to Raising Awareness and Facilitating Expansion**

The success of the Registered Apprenticeship training model depends upon the ability of programs to build partnerships among their various stakeholders, especially employers, educational organizations, and the workforce development system. Registered Apprenticeship is a new training model for most high-growth industries and educating partners about its structure and benefits, as well as the role they play in implementing the program, is critical. Involving all partners in the design, development, and implementation of an apprenticeship program ensures their needs are addressed.

Partnerships between employers and educational institutions benefit both; employers

need the support of local colleges or technical institutions to provide the related instruction, while colleges benefit from having skill standards as guides for instruction and students who are committed to learning.

Capacity Building **Depends on Collaboration** **Among Apprenticeship Partners**

Health care employers reported that local educational and training organizations design related instruction to meet the educational needs of apprentices. The Houston Community College, for example, offers a weekend Certified Nursing Assistant program that accommodates work schedules of apprentices at a community health care center. Articulation agreements between the Indiana National Guard and several universities and colleges provide college credit for military training, depending upon the nature and length of the military schooling that a service member receives.

In developing Registered Apprenticeship programs, employers often face the challenge of having too few qualified trainers and mentors. Community college representatives reported that there are too few qualified faculty members. This is particularly true in health care, where worker or skill shortages are acute, and in geospatial technology, where occupational competencies are not yet clearly defined and are still emerging. This points to the need for increased collaboration among community colleges, four-year institutions, employers and the workforce development system.



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Workforce Diversity Necessary to Mirror the Local Community

The Registered Apprenticeship model as applied in these industries is helping to increase workplace diversity, providing opportunities to workers that traditionally have not participated in apprenticeships. Employers from advanced manufacturing, health care, and the military have made strong efforts to ensure diverse groups are participating in their apprenticeship programs to better mirror local communities. Health care, in particular, has emphasized the need for greater minority participation in its workforce to match the patient population. This ensures better communication with patients, which in turn provides better health care.

Nontraditional students, those who do not follow a formal academic training path, have been targeted in these projects. Several employers said that students often perform better using the apprenticeship training model because it allows them to move at their own pace. It also allows them to directly apply what they learn in their jobs, which helps them become more competent at a faster pace. This appears to be the case for both incumbent workers as well as dislocated workers. The Indiana National Guard, for example, uses the apprenticeship model to train Guard members returning from active duty.



Leadership and Sustainability Vital to Advancing Apprenticeship

The OATELS national and local staff demonstrated strong vision and direction as they promoted Registered Apprenticeship as a valuable training model. Local OATELS and SAC staff members played major roles in helping establish programs in the six industries. Interviews with employers and the workforce system indicate that apprenticeship staff played a key role in recruiting employers, forming partnerships, and providing technical support throughout program implementation.

Next Steps

In addition to the six industries considered in this report, OATELS is pressing ahead with developing Registered Apprenticeship in several other high-growth industries. The industries include biotechnology, automotive, retail trade, con-

struction, transportation, hospitality, financial services, and energy. The early trends from the six industries will facilitate the development of these new ventures.

For More Information

Office of Apprenticeship Training,
Employer and Labor Services
Employment and Training Administration
U.S. Department of Labor

www.doleta.gov/atels_bat
202-693-3812

Health Care
www.cael.org

Advanced Manufacturing
www.nims-skills.org

Information Technology
www.comptia.org and www.nifas.us

Maritime
www.seafarers.org

Military - National Guard
www.inarng.org

Geospatial Technology
www.geowdc.com



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