

PREPARING UTAH'S WORKFORCE FOR 21ST CENTURY JOBS

Having a well-prepared, knowledgeable, and skilled workforce is a necessary component to ensuring positive economic growth in Utah. Preparing Utah's workforce for high-growth, high-wage jobs is also critical to maintaining both the competitiveness and standard of living of Utah's workers. With the economy shifting and the presence of global competitors increasing, Utah workers should understand what occupations will provide them with an adequate wage, as well as opportunities for growth in their careers.

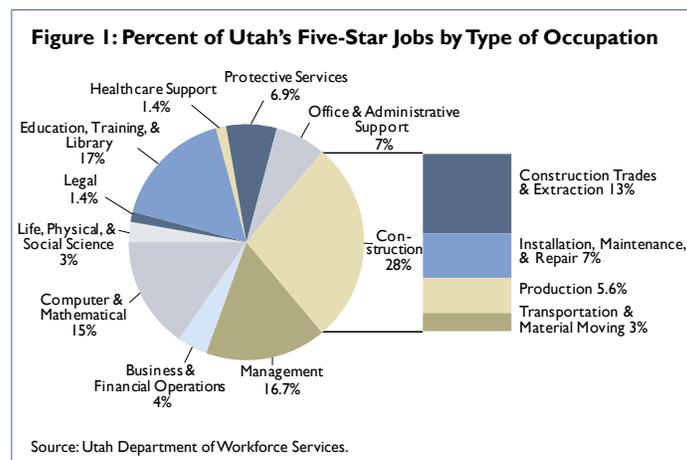
This report evaluates a list prepared by Utah's Department of Workforce Services of the best high-growth, high-wage jobs Utah officials expect to see over the next decade. The report provides detailed information about the educational and training requirements for each of Utah's top jobs, as well as data on the current levels of attainment of the degrees or training necessary for each job. The purpose of this report is to inform current workers, future workers, employers, and policy makers about the opportunities that exist in Utah's economy and the steps that are necessary for Utah workers to take advantage of these opportunities.

FIVE STAR JOBS

In 2008, the Department of Workforce Services produced a complete list of the state's occupational projections for 2006 to 2016.¹ In this list, Workforce Services ranked jobs using a "star" rating of one to five. The star rating is based on both employment outlook and wages, where *five-star* occupations have the strongest employment outlook and highest wages. The employment outlook for a given occupation is determined by both the projected annual number of job openings and how fast the occupation is expected to grow between 2006 and 2016.² Median annual wages were used to determine the wage portion of the star rating.³

Median annual wages are based on an average of all wages of the workers in each occupation. This figure is an estimate of what a more

experienced worker could expect to earn. Workforce Services lists inexperienced wages in its projections as well. Inexperienced wages represent the bottom third of all wages for the occupation, and is an estimate of what a worker may expect to earn when first starting a job. The wages represented in this analysis were collected by Workforce Services in 2005.



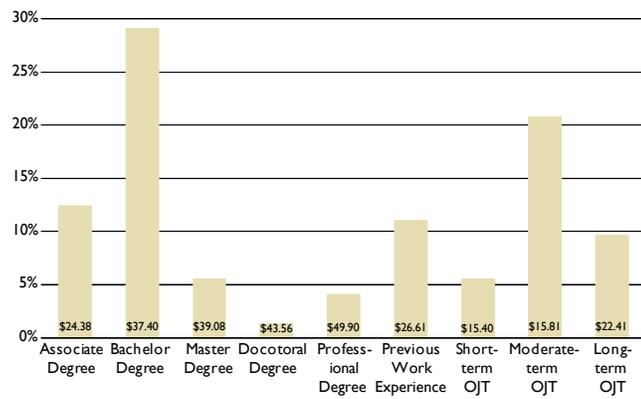
The Department of Workforce Services includes 624 jobs in its occupation projections. Of these 624 jobs, 72 (11.5%) are rated as five star jobs, 122 (19.6%) as four star, 144 (23.1%) as three star, 142 (22.8%) as two star, 56 (9.0%) as one star, and 88 (14.1%) as not rated. The majority of five-star jobs are management, computer and mathematical, and education and training related occupations. Fifty-three percent require a degree, while 36% require on-the-job training and

11% require work experience in a related field.

The degrees required for five-star jobs vary from associate's to doctoral degrees. Associate's degrees usually require at least two years of full-time academic schooling after high school. Many of these occupations are health-related, including registered nurses,

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Figure 2: Percent of Utah's Five-Star Jobs by Training Level and Median Hourly Wage

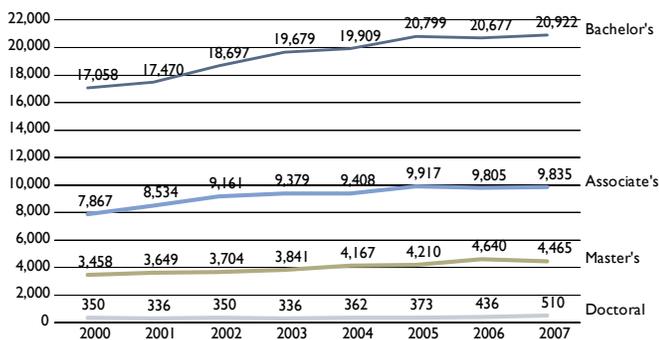


OJT=On the Job Training.
Source: Utah Department of Workforce Services.

respiratory therapists, dental hygienists, and cardiovascular technologists and technicians. Bachelor's degrees generally require four years of full-time academic schooling; however, because many management occupations prefer candidates with substantial work experience in addition to a bachelor's degree, it may take several years before a worker can advance to a high-paid position. Master's degrees are completed in two or more years after receiving a bachelor's degree and professional degrees, granted in fields such as dentistry, law, medicine, and pharmacy, are based on at least two years of post-bachelor's degree work. Doctoral degrees generally represent the highest level of formal study or research in a given field and are completed in four or more years of post-baccalaureate study. Figure 3 shows the number of academic degrees earned from Utah postsecondary schools from 2000-2007.

The on-the-job training requirement for five-star jobs can range anywhere from just a few days or weeks training to more than 12 months of formal on-the-job training. Training can be a combination of both work experience and classroom instruction, but it often involves trainees watching experienced workers and/or being given progressively more difficult assignments until they develop the skills needed for average job performance.⁴ Workforce Services classifies on-the-job training into three categories—long term (12 or more months), moderate term (one to 12 months), or short term (a few

Figure 3: Number of Degrees Awarded in Utah Per Year, 2003-2007



Data is for the academic year, i.e. 2007 is for the 2006-2007 academic year.
Source: National Center for Education Statistics (NCES).

days to several weeks). Some five-star jobs require candidates have work experience in a related occupation. Employers offering these types of jobs prefer applicants who have already received the necessary training at a previous job.

Median hourly wages of five-star jobs range from \$13.20 (industrial truck and tractor operators and court, municipal, and license clerks) to \$68.50 (chief executives). The average median wage is around \$28.00. Total annual openings range from ten per year (occupational therapist assistants and cardiovascular technologists) to 990 openings per year (heavy and tractor-trailer truck drivers). The average number of total annual openings for five-star jobs is around 200. The five-star occupation with the highest expected growth in annual openings (excluding replacements) is registered nurse, and the occupations with the highest number of replacements are truck drivers and general and operations managers.

UTAH FOUNDATION'S TOP 25 FIVE-STAR JOBS

Using the Workforce Services' list of long-term occupational projections, Utah Foundation determined the top 25 five-star rated jobs by eliminating any job with a median wage of less than \$20.00 per hour and then selecting the 25 occupations with the highest number of projected annual openings.⁵ This produces a list that includes a variety of job types and training levels. All of the jobs on Utah Foundation's final list have a median hourly wage of more than \$20.00 per hour and are expected to have more than 100 openings per year between now and 2016. The list is not rank-ordered and groups the jobs by type.

Figure 4 lists each job and provides information on the level of education and training needed to work in the field, as well as the median wages of the occupation. The job titles used by the Department of Workforce Services and in this report are consistent with the North American Industry Classification System (NAICS). This system is used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.⁶

Figures 5 through 8 are selected from the full report, showing information about the supply of graduates for some of the most prominent five-star job categories in Utah: business administration, computer systems-related positions, and nursing. These are job categories for which Utah provides a significant number of graduates each year. The full report provides similar graphs for each of the top 25 five-star job categories.

THE EFFECTS OF THE RECENT ECONOMIC RECESSION

The Department of Workforce Services' estimated annual number of job openings was forecast using 2006 as a base year. This forecast was made before the economic recession began in December 2007, and in the past two years, annual growth in many of these five-star jobs did not meet Workforce Services' projections. In particular, the construction industry experienced significant losses in the number of available jobs. While hiring has slowed in almost all occupations, there are signs economic conditions are slowly improving at both the national and state level. Therefore, it is important to remember that the occupational outlook forecast was for a 10-year period, and growth in these occupations will likely resume.

**FUTURE RESEARCH:
UNDERSTANDING
UTAH'S WORKFORCE**

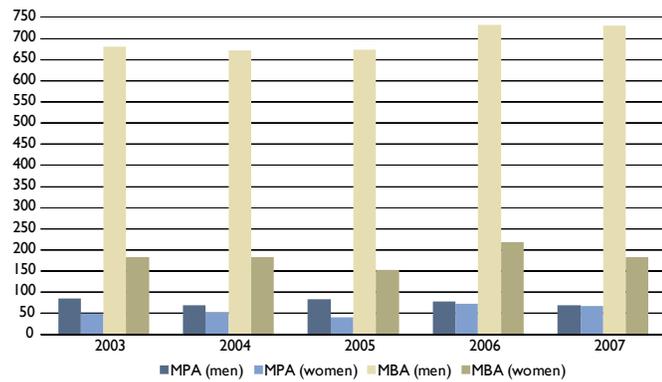
While the information in this report is useful in understanding how to prepare Utah's future workforce for Utah's top 25 five-star jobs, it only completes part of the picture. In order to understand how Utah's workforce can better fill the demand for these jobs, Utah Foundation will be publishing a second part to this report, analyzing where executives in these 25 occupations find their best employees, how well Utah is providing the education and training necessary for these positions, and how Utah could do better in providing a quality labor pool for these high-growth, high-wage jobs.

Figure 4: Utah's Top 25 Five-Star Jobs (based on wage and number of total annual openings between 2006 and 2016)

Occupation	Annual Openings			Median Wage	Training Level
	Growth	Replacements	Total		
Management Occupations					
Chief Executives	60	90	150	\$68.50	Bachelor's or higher degree, plus work experience
General and Operations Managers	250	370	620	\$35.50	Bachelor's or higher degree, plus work experience
Food Service Managers	90	70	160	\$22.50	Work experience in a related occupation
Financial Managers	100	60	160	\$39.40	Bachelor's or higher degree, plus work experience
Medical and Health Services Managers	70	50	120	\$35.50	Bachelor's or higher degree, plus work experience
Business and Financial Operations Occupations					
Management Analysts	100	70	170	\$30.10	Bachelor's or higher degree, plus work experience
Purchasing Agents, Except Wholesale, Retail, and Farm Products	60	70	130	\$22.80	Long-term on-the-job training
Computer and Mathematical Occupations					
Computer Software Engineers, Systems Software or Applications	285	70	355	\$37.20	Bachelor's degree
Computer Systems Analysts	140	80	210	\$30.90	Bachelor's degree
Computer Programmers	50	140	190	\$32.30	Bachelor's degree
Architecture and Engineering Occupations					
Civil Engineers	90	70	160	\$29.90	Bachelor's degree
Mechanical Engineers	80	60	140	\$35.20	Bachelor's degree
Industrial Engineers	100	50	140	\$34.10	Bachelor's degree
Education, Training, and Library Occupations					
Health Specialties Teachers, Postsecondary	90	40	130	\$53.90	Master's degree
Healthcare Practitioners and Technical Occupations					
Registered Nurses	700	280	980	\$26.40	Associate degree
Dentists, General	70	50	120	\$55.10	First professional degree in dentistry
Pharmacists	80	30	110	\$48.90	First professional degree in pharmacy
Sales and Related Occupations					
Sales Managers	80	60	140	\$41.60	Bachelor's or higher degree, plus work experience
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	480	370	850	\$23.40	Work experience in a related occupation
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	190	120	310	\$30.00	Work experience in a related occupation
Construction and Extraction Occupations					
Construction Managers	320	130	450	\$33.60	Bachelor's degree
Electricians	290	200	490	\$20.20	Long-term on-the-job training
Plumbers, Pipefitters, and Steamfitters	190	110	300	\$21.20	Long-term on-the-job training
Sheet Metal Workers	70	60	140	\$20.40	Long-term on-the-job training
Installation, Maintenance, and Repair Occupations					
Industrial Machinery Mechanics	100	50	150	\$20.70	Long-term on-the-job training

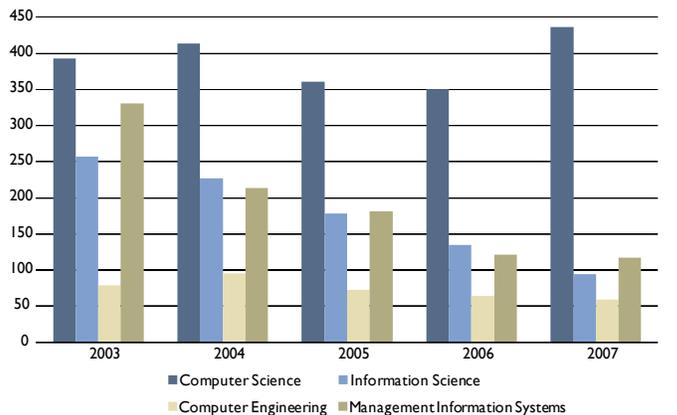
Source: Utah Department of Workforce Services.

Figure 5: Number of Master's Degrees Awarded in Public and Business Administration in Utah Per Year, 2003-2007



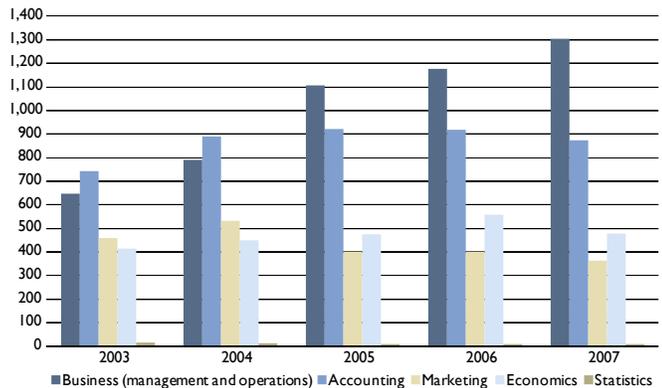
Data is for the academic year, i.e. 2007 is for the 2006-2007 academic year.
Source: NCES.

Figure 7: Number of Computer Systems Analyst Related Bachelor Degrees Awarded in Utah Per Year, 2003-2007



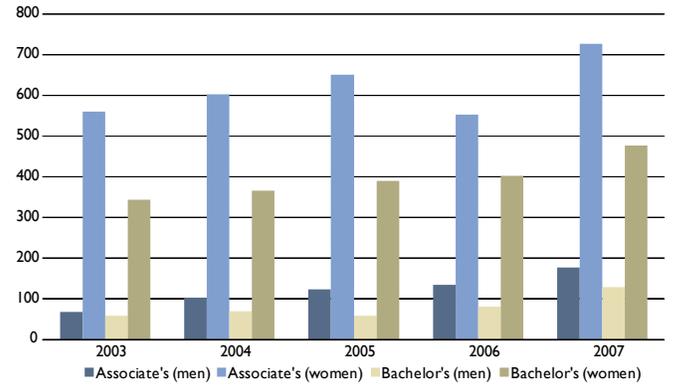
Data is for the academic year, i.e. 2007 is for the 2006-2007 academic year.
Source: NCES.

Figure 6: Number of Business-Related Bachelor Degrees Awarded in Utah Per Year, 2003



Data is for the academic year, i.e. 2007 is for the 2006-2007 academic year.
Source: NCES.

Figure 8: Number of Nursing Degrees Awarded in Utah Per Year, 2003-2007



Data is for the academic year, i.e. 2007 is for the 2006-2007 academic year.
Source: NCES.

ENDNOTES

¹ Utah Department of Workforce Services (DWS), "Utah Occupational Projections 2006-2016," June 2008, <http://jobs.utah.gov/opencms/wi/pubs/outlooks/state/index.html> (accessed 12 March 2009).

² Employment outlook is based 90% on the projected number of total Utah job openings between 2006 and 2016 and 10% on how fast the occupation is expected to grow over that time period.

³ DWS, "Utah Job Outlook: A Guide for Making Informed Career Decisions," April 2009, <http://jobs.utah.gov/opencms/wi/pubs/outlooks/state/joboutlook09.pdf> (accessed 11 May 2009).

⁴ DWS, "Utah Job Outlook."

⁵ Computer systems software engineer and application engineers were combined because of similar job descriptions, training, and wages. In this case an average of employment estimates, annual openings, and hourly wages are calculated. Some supervisory positions were also listed as a subset of management positions because of similarity. In these cases, employment estimates, annual openings, and hourly wages of the management position are listed.

⁶ U.S. Census Bureau, North American Industry Classification System (NAICS), "Introduction," June 11, 2009, <http://www.census.gov/eos/www/naics/> (accessed September 8, 2009).

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