



Western New York  
**Regional  
Skills  
Assessment**



An Agenda for Advancing Regional Talent for Economic Growth

February 2009

Prepared for the Western New York  
Senior Human Resources Group

 **Regional Institute**  
**University at Buffalo** *The State University of New York*



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“To succeed in the global economy, firms must continually innovate and economic regions must offer the assets necessary to support a strong innovation environment. Although there are many assets that matter for regional development – physical infrastructure, financial systems, and efficient government regulations among them – talented people are the engine of innovation.”

- *Randall Kempner,*  
*Retooling for Growth*

Skilled, talented individuals propel the economic growth of firms, industries and regions in the twenty first century. The

Western New York region and its firms benefit from a regional talent pool created, sustained and enhanced by proximity to successful and complementary businesses, world-class educational institutions and sophisticated customers and clients. However, talented individuals are mobile and in-demand. The economic future of the region and its firms depends on how well they develop, attract and retain talented individuals matched to needs in the years to come.

In the past few decades, Western New York’s labor force has not kept pace with the region’s economic transformation from a manufacturing to knowledge-based economy, due in part to an aging, shrinking population, and challenges in retaining newly trained talent or recruiting from outside the region. Growth in specific “new economy” fields has been significant. From 1990 to 2000, demand for health care practitioners and technicians in Erie and Niagara counties increased 44 percent, while education, training and library occupations increased 31 percent. During the same period, demand for construction and extraction workers decreased 38 percent and production occupations declined by 11 percent (**Figure 1**).<sup>1</sup> By 2005, the financial services, education/health and professional/business industries accounted for 38 percent of Erie and Niagara counties gross domestic product, twice as much as manufacturing at 19 percent.<sup>2</sup>

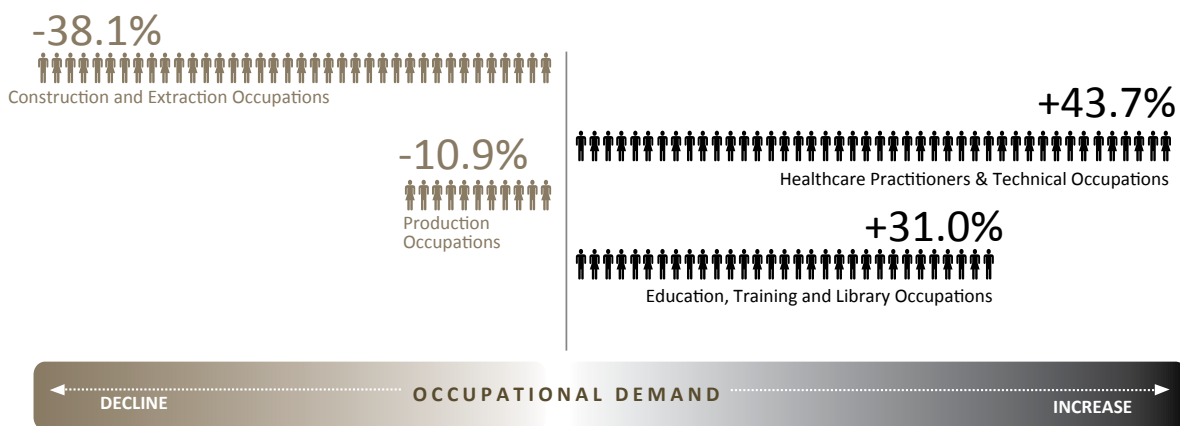
<sup>1</sup> Richard Deitz. “The Changing Composition of Upstate New York’s Workforce.”

<sup>2</sup> U.S. Department of Commerce. *Regional Economic Information System*.

At the same time, demographic shifts have stymied the region’s labor market adaptation. Population migration from the northeastern U.S. to the south and west has reduced labor supply. Meanwhile, the remaining workforce has grown older, faster than the rest of the country. In 1980, 30 percent of the country’s workforce was 45 or older. By 2007, 40 percent of the national and 42 percent of the regional workforce fit this age cohort.<sup>3</sup> As this relatively large age cohort approaches retirement, employers need to line up replacements with advanced training in particular knowledge economy growth areas and appropriate skills.

Efforts to align the existing workforce with regional employer needs, retain recent college graduates and recruit new talent from outside the region will become increasingly important. Presently, regional employers, including some of Western New York’s largest, struggle to fill critical vacancies despite above-average unemployment and underemployment levels. Such an imbalance in labor market supply and demand stifles company growth and stunts broader regional economic growth. Talent development and attraction occurs in a regional context, not just firm by firm. Therefore, all firms benefit from a sophisticated, coordinated approach to regional talent development, an approach yielding data and analysis revealing the state of talent within and across Western New York’s companies.

Figure 1 Western New York’s Shifting Occupational Demand – 1990 to 2000



To build understanding in this area, the Western New York Senior Human Resources Group, representing large private sector companies in Erie and Niagara Counties in industries ranging from banking and health care to manufacturing and grocery retail, commissioned the University at Buffalo Regional Institute to assess the scope and nature of gaps in the region’s labor skill supply and offer recommendations for a regional approach to building capacity in these areas.

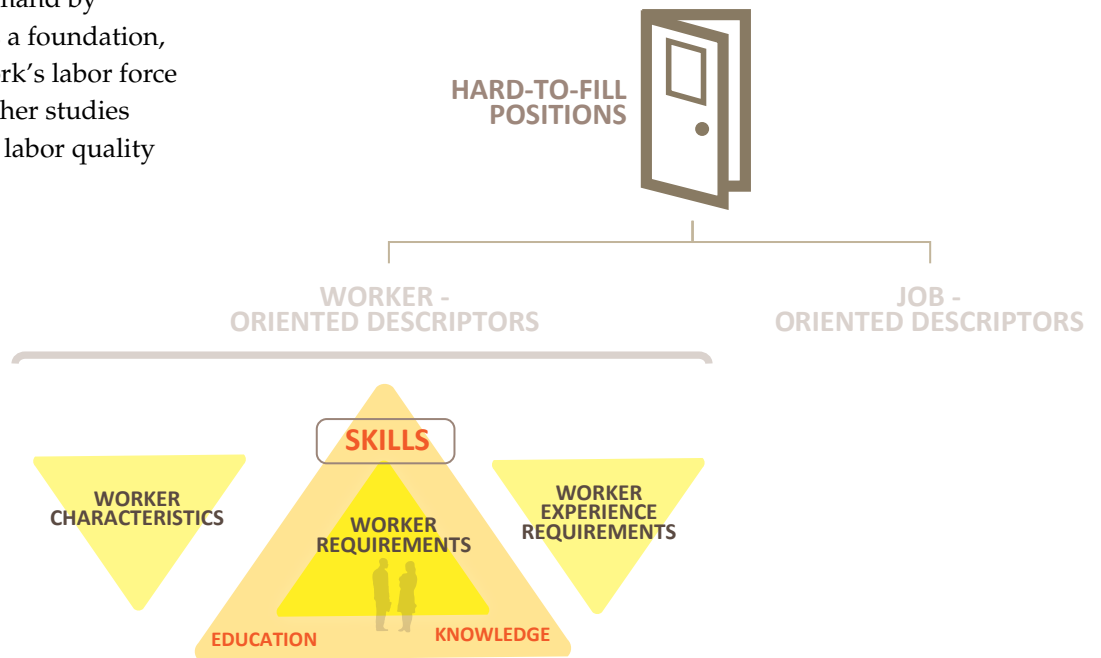
<sup>3</sup> U.S. Department of Commerce. *American FactFinder*.

Data for and analysis of Western New York's labor market supply and demand are readily available. Regional demographic information including education, age and employment status is routinely reported by government agencies.<sup>4</sup> Government agencies also prepare short- and long-term projections on labor market demand by occupation.<sup>5</sup> Using this data as a foundation, one analysis of upstate New York's labor force projects future hiring rates.<sup>6</sup> Other studies assess employer perceptions of labor quality and the quality of local education and training providers.<sup>7</sup> In addition, the Regional Institute recently examined higher education programs and their relationship to the region's occupational structure. However, years of education and degrees completed are coarse measures of workforce skill. Degrees vary in the skills they encompass and graduates with the same degree inevitably vary in level of skill.<sup>8</sup>

To meet hiring challenges in a changing labor market, these studies suggest the region collect finer-grained information on which jobs employers aim to fill and the skills that are most important for those positions.<sup>9</sup>

The U.S. Department of Labor's Occupational Information Network (O\*NET) provides a useful occupational taxonomy and framework for doing so. O\*NET's Standard Occupational Classification (SOC) taxonomy and content model, developed through a large scale research project sponsored by the Department of Labor, contain worker- and job-oriented descriptors by

Figure 2  
O\*NET Content Model



occupation (Figure 2). Job-oriented descriptors focus on the nature of each occupation in the SOC taxonomy. Worker-oriented descriptors, particularly worker requirements, are useful for gathering information by occupation and identifying and training qualified individuals for in-demand occupations.

O\*NET's worker requirements consist of three variables: skills, knowledge and education. Skills, such as active listening and complex problem solving, are capacities that facilitate the rapid acquisition of knowledge through education or experience and the application of that knowledge. Skill data are essential for training and

<sup>4</sup> U.S. Department of Labor, Bureau of Labor Statistics. *Occupational Employment Statistics*.

<sup>5</sup> *Ibid.*

<sup>6</sup> Richard Deitz. "Baby-Boom Retirements."

<sup>7</sup> Wadley-Donovan Group/GrowthTech. "Labor Market Assessment."

<sup>8</sup> Beth Ingram. "The Returns to Skill."

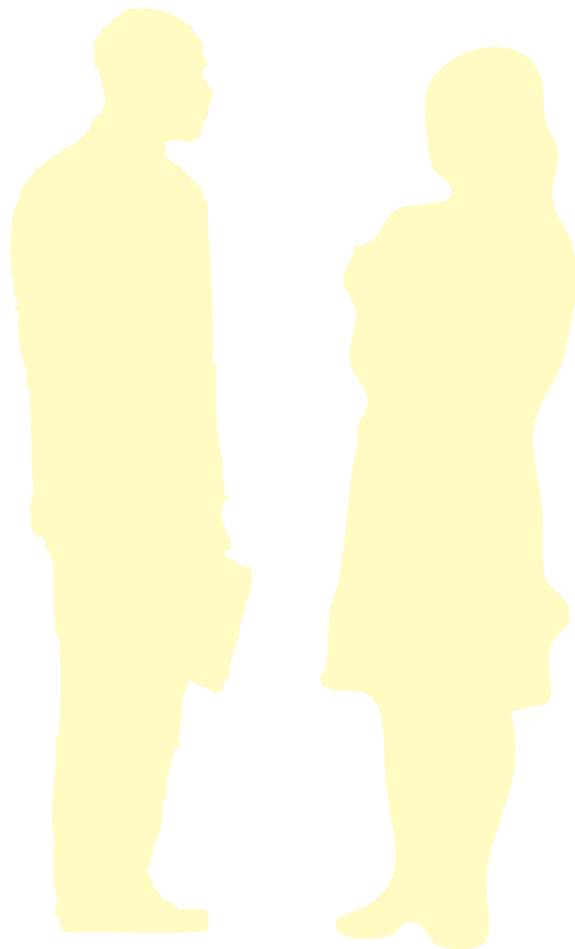
<sup>9</sup> Richard Deitz. "Baby-Boom Retirements."

human resource development.<sup>10</sup> Knowledge represents the possession of facts and principles in a domain of information such as law and governance or economics and accounting. Education correlates to degrees and coursework acquired through schooling and enhances both skills and knowledge. O\*NET contains data on worker requirements for each occupation in the SOC taxonomy. Using O\*NET, talent can be matched with appropriate occupations.<sup>11</sup>

Based on O\*NET's SOC taxonomy and content model, this Regional Skills Assessment amassed information to answer two questions posed by the Human Resources Group:

- What jobs are we, as a group, having difficulty filling?;
- and
- What skills and skill sets are related to those jobs?

The Human Resources group also requested analysis of firm-level vacancies and a set of recommendations for talent development, recruitment and retention. The resulting analysis, contained in this report, helps firms, workers and the region meet their goals.



<sup>10</sup> Norman Peterson. "Understanding Work."

<sup>11</sup> U.S. Department of Labor. *The O\*NET Content Model*.

## II. Scope and Methodology

The following scope and methodology frame the findings of this assessment. Additional methodological details and research instruments are provided throughout the report and in appendices.

**Scope.** The Regional Institute administered a survey and interviewed human resources representatives from for-profit and nonprofit employers based in Western New York. The universe consisted of 17 companies participating in the Western New York Senior Human Resources Group, a consortium of human resource directors that meets quarterly to discuss human resources (**Figure 3**).

Participants represent six broad industries, employ over 41,000 employees in eight counties in Western New York (Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans and Wyoming counties) and earned nearly \$42 billion in revenues in the last fiscal year. Employer profiles range from 130 to 8,500 full-time equivalents (FTE) and \$140 million to nearly \$11 billion in annual revenues. All participants are either headquartered or have an established presence in Erie and Niagara counties. A number of participants have locations in all eight counties of Western New York.

**Methodology.** The Regional Institute collected quantitative data on a subset of participant vacancies and the skill sets required for those positions through a survey. Interviews with human resources representatives from each participating organization identified other worker requirements and differing approaches to employee recruitment.

Regional Institute staff sent the survey in July 2008 via mail and e-mail to the initial 17 project participants. In September 2008, staff sent surveys to an additional three participants. A total of 17 responses were received by the end of November 2008. Project staff interviewed respondents following receipt of their survey response during October and November 2008.

Figure 3  
Survey Participants By Industry

### HEALTH CARE

HealthNow New York, Inc.  
Catholic Health System  
Kaleida Health

### RETAIL GROCERY

Tops Markets, LLC  
Wegmans Food Markets, Inc.

### MANUFACTURING

Fisher-Price Inc./Mattel  
Rich Products Corporation  
Moog Inc.  
Gibraltar Industries, Inc.  
New Era Cap Company, Inc.  
Columbus McKinnon Corporation

### FINANCE, INSURANCE, INFORMATION & MANAGEMENT

M&T Bank Corporation  
Merchants Insurance Group  
HSBC Bank USA, NA  
Computer Task Group

### HOSPITALITY

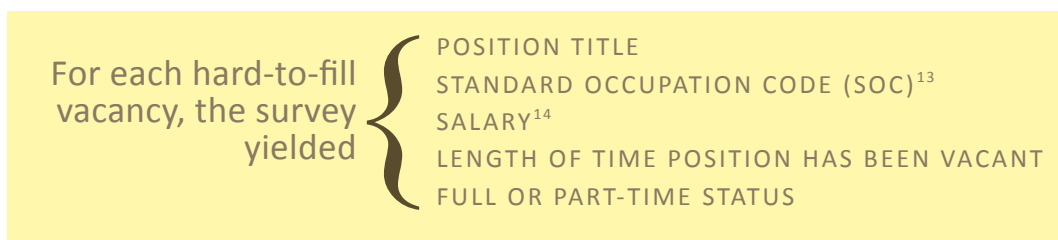
Delaware North Companies

### UTILITIES

National Fuel Gas Company

**Survey.** In addition to collecting a summary profile of participating organizations, the survey solicited information on subset of vacancies and the skills required for each vacancy (see **Appendix B** for the full survey.)

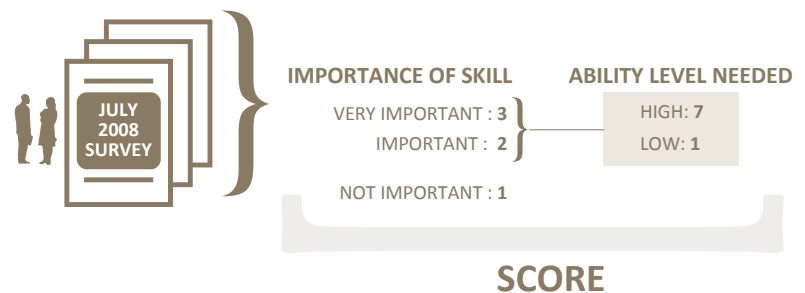
Participants reviewed all current vacancies and identified those that were hard to fill due to a lack of applicant pool skills, work experience or qualifications.<sup>12</sup> Current vacancies outside the region were excluded from review. Those vacancies that remained unfilled due to lack of funding, employment conditions or a remote physical location of the position were excluded.



Participants ranked the importance and level of 36 skills to hard-to-fill vacancies. O\*NET’s content model contains 35 skills in seven categories, classified broadly as basic and cross-functional, and links them to the O\*NET SOC taxonomy (see **Appendix C** for a categorical listing of skills). Basic skills are skills used to acquire subject, occupational or company specific knowledge. Cross-functional skills facilitate the application of knowledge to activities that occur across jobs. To capture employer demand for applicants with foreign language facility, a 36th skill, foreign language translation, was added for purposes of this study.

Participants ranked the importance of each skill on a scale of one (not important) to three (very important). For skills rated as “important” (two) or “very important,” (three) the survey asked respondents to rate the level of the skill required on a scale of one (lowest level) to seven (highest level) (**Figure 4**). The survey also provided generic examples of skill levels to assist skill rating. When combined and analyzed, the skill information collected on each hard-to-fill position paints a portrait of unique skill and skill set requirements for hard-to-fill vacancies.

Figure 4 Skill Scoring – Importance and Level



**Interviews.** Interviews collected supplementary information on labor market dynamics as experienced by project participants (see **Appendix D** for interview guide). The interview guide presented human resource representatives with preliminary survey findings as well as the background and scope of the study prior to a question and answer session. Interview questions gathered information on the impact of hard-to-fill vacancies on company performance, reviewed actions taken to address persistent vacancies, and isolated specific skills and other worker requirements in short supply.

<sup>12</sup> National Learning and Skills Council. *National Employers Skills Survey*.

<sup>13</sup> Participants classified each hard-to-fill vacancy according to the O\*NET’s Standard Occupational Classification (SOC) taxonomy. The SOC taxonomy contains 812 occupations in 23 major groups according to similar skills or work activities.

<sup>14</sup> Participants supplied either a single salary figure or a salary range for each hard-to-fill position. The final hard-to-fill salary listing reports salary figures as a range.



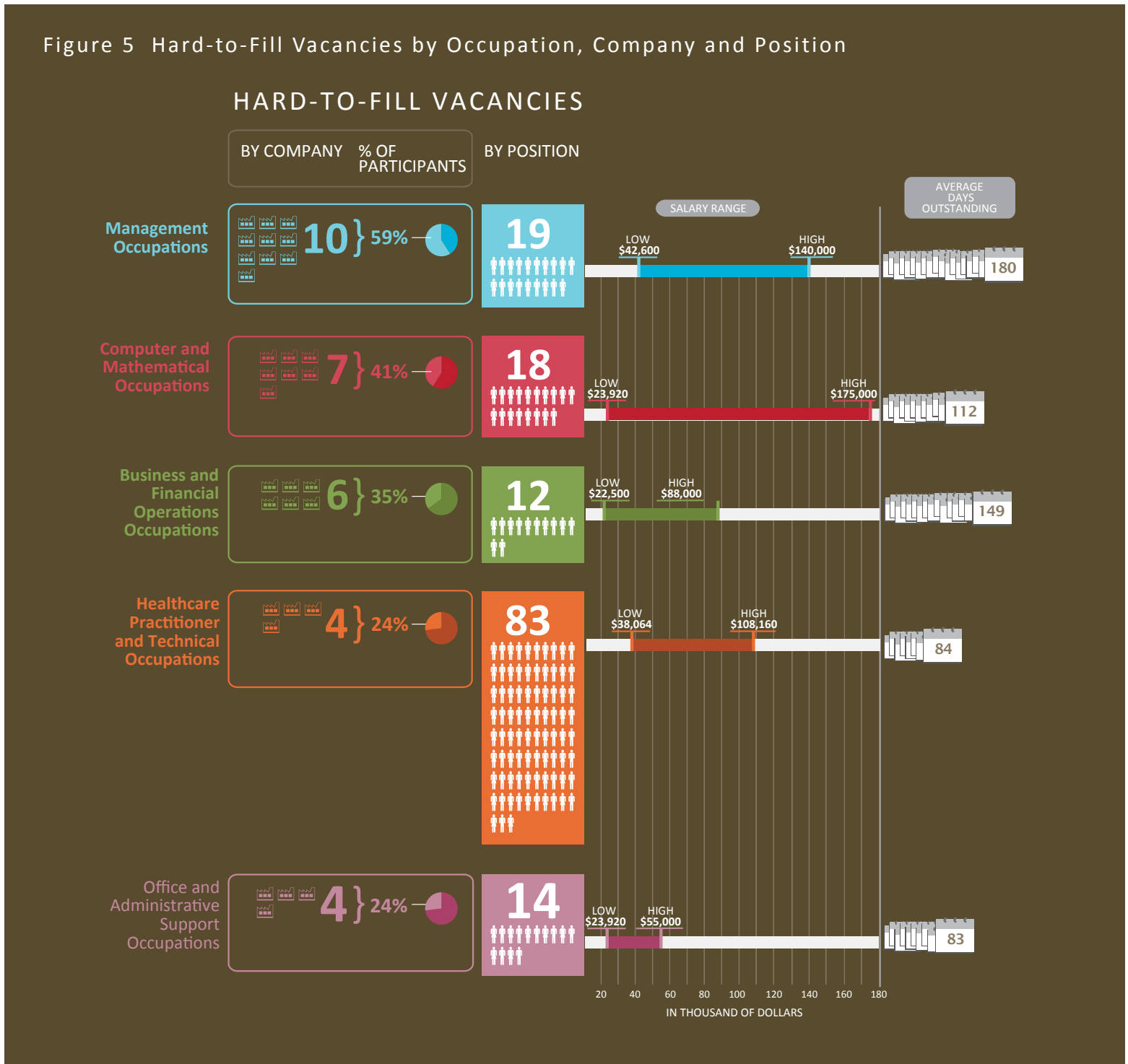
### III. Findings

#### Hard-to-Fill Vacancies

Analysis of vacancies at 17 major regional employers reveals a concentration of labor shortages in knowledge economy growth areas. Employers identified 159 hard-to-fill vacancies in 11 occupational fields including healthcare, management, computers, financial services and administrative support.<sup>15</sup> Four employers

struggled to fill healthcare vacancies and 10 identified hard-to-fill management vacancies (see **Figure 5**). Participants reported an average salary of \$59,000 to \$64,000 for hard-to-fill vacancies and searched for qualified applicants for an average of four and one-half months.

Figure 5 Hard-to-Fill Vacancies by Occupation, Company and Position



<sup>15</sup> The number and type of hard-to-fill vacancies reflects the makeup of the 17 participants and is not the result of a representative sample of regional employers.

Difficulties in securing qualified talent for **management** positions left 10 companies (60 percent) with 19 critical hard-to-fill openings in finance, marketing, human resources, sales, engineering and computer systems (**Figure 6**). Hard-to-fill management positions pay between \$42,600 and \$140,000 and have been open for a median of six months, the longest of the five clusters of critical need. Two companies identified hard-to-fill management vacancies in financial, general and operations, human resources and marketing departments. Despite searching for an average of five and one-half months and offering salary of \$45,000 to \$136,900, four firms were unable to fill five management vacancies in finance. Only management positions in marketing were open longer (an average of six and one-half months).

Demand for several **computer and mathematical** positions outpaces supply. Computer and mathematical occupations, including computer programmer, systems analyst, statistician and actuary positions, are hard-to-fill for seven or 40 percent of participants. Overall, computer and mathematical occupations pay between \$23,920 and \$175,000, second only to hard-to-fill management occupations, but have been open for a shorter time (approximately four months). Four companies identified computer systems analysts, responsible for reviewing computer system capabilities, recommending commercially available software and analyzing data processing problems, as hard-to-find. Participants posted computer system analyst positions for an average of three months, offering salaries between \$46,800 and \$82,100. Actuaries are also in demand. Two companies searched for an actuary for an average of six and one-half months. Those same two companies searched for two computer programmers for an average two and one-half months. Two participating firms struggle to find computer support specialists to provide technical assistance to computer system users.

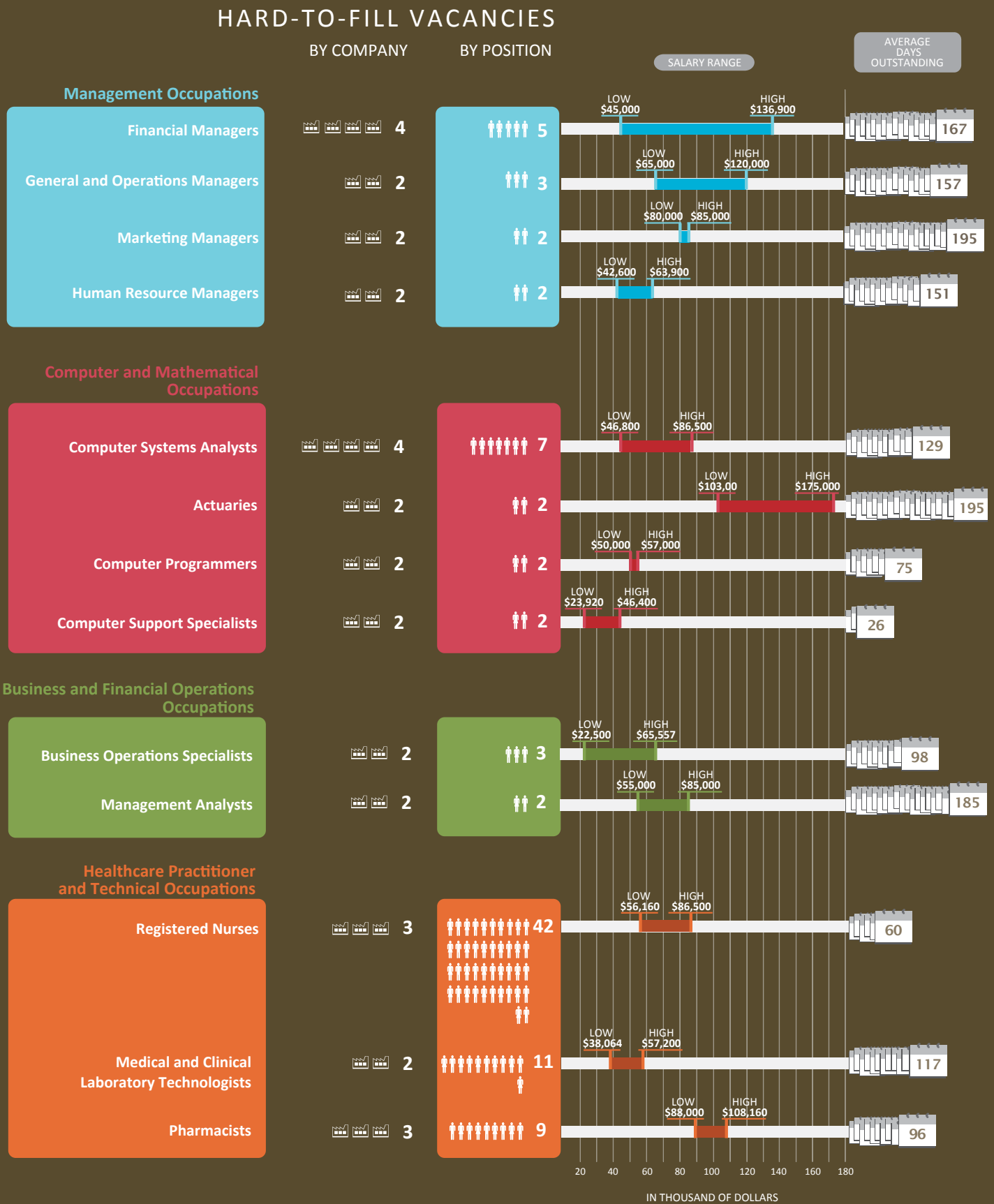
Demand for highly specialized knowledge sets presented obstacles for six employers seeking to fill 12 **business and financial** operations vacancies, including two commercial loan processors and two management analysts. Overall,

business and financial operations vacancies offer salaries from \$22,500 to \$88,000 and were outstanding an average of five months. Despite four and one-half months of recruiting, two companies reported business operations specialist and management analyst vacancies. A posting for emergency management specialist offering \$88,000 remained unfilled after 15 months.

Overall, hard-to-fill **healthcare practitioner and technical** occupations offer between \$38,064 and \$108,160 and have been open for an average of three and one-half months. Four participants reported 83 hard-to-fill healthcare practitioner and technical vacancies. Mirroring strong national demand, registered nurses accounted for 42 hard-to-fill positions, nearly one-third of overall hard-to-fill vacancies, at three companies. Participating employers offered \$56,160 to \$86,500 for hard-to-fill nurse positions for an average of three months. Three companies searched for an average of three months for pharmacists, also in demand local and nationally. One company identified 12 hard-to-fill respiratory therapist vacancies and two labeled 11 medical and clinical laboratory technologists vacancies as hard-to-fill.

Participants contend with a dearth of qualified labor for **office and administrative** support positions, including administrative assistants, schedulers and customer service representatives. Office and administrative support positions pay between \$23,920 and \$55,000, the least of all the hard-to-fill occupations, and have been open for the shortest time period, just over two and one-half months. Four companies struggled to fill 14 positions for legal and executive secretaries, customer service representatives and production, planning and expediting clerks.

Figure 6 Hard-to-Fill Vacancies - Position Details



## Skills and Skill Sets Required

As Western New York's industrial and occupational focus shifts from manufacturing to service, so does the demand for certain worker attributes. The importance of each skill to satisfactory job performance differs by occupation. A closer look at the skills required for hard-to-fill occupations reveals the need for development or attraction of particular skill sets (see **Figure 7**).

Overall, basic skills of active listening, reading comprehension and critical thinking are most important and require the highest level of functioning for hard-to-fill occupations. Reading comprehension and active listening skills allow employees to understand thoughts and points in the written or spoken form. Employees with critical thinking skills apply logic and reason to thoughts to identify approaches and solutions to issues. The most important cross-functional skills, time management and judgment and decision-making, require employees to allocate their time and the time of others efficiently and effectively, consider the cost-benefit of certain actions and choose the most appropriate course.

Relative to other vacancies examined by this analysis, **management** positions require the highest skill level. All five of the most important skills for managers are basic skills. Managers must learn quickly and continually develop knowledge in a variety of areas using sophisticated basic skills. Qualified candidates for hard-to-fill management positions must listen, read, learn, process and convey information at the highest level. Employers also require cross-functional communicative skills such as social perceptiveness, persuasion and negotiation, and advanced capacity in judgment and time management for management positions. However, those skills did not score in the top five skills required.

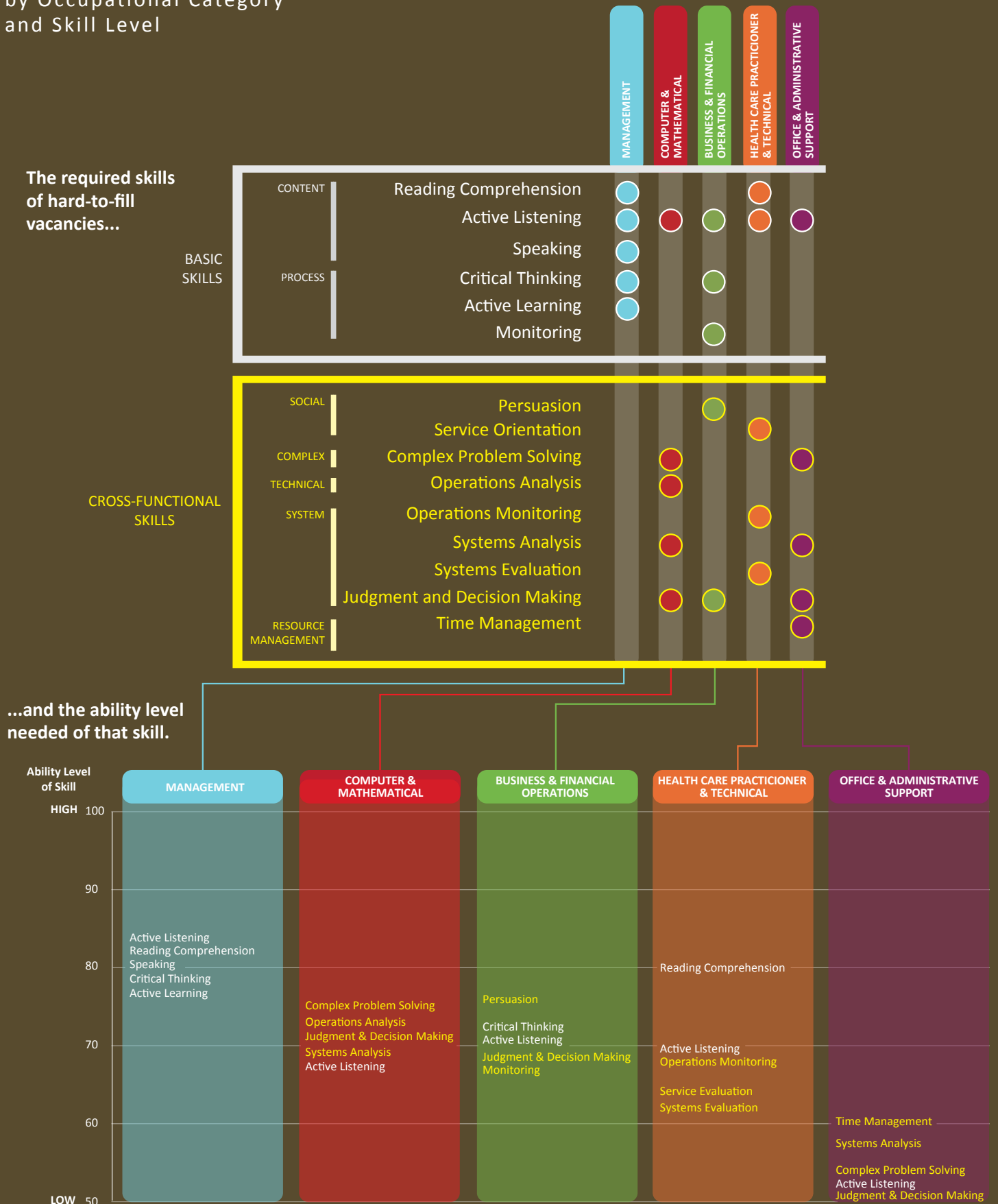
Other than managers, hard-to-fill **computer and mathematical** vacancies require the highest level of skill. However, cross-functional, not basic skills, are most important to hard-to-fill computer and mathematical positions. Cross-functional skills are problem- and system-specific. Basic skills support timely learning and knowledge development in numerous fields. Successful computer and mathematical applicants must have sophisticated technical, social, analytical and problem solving skills to efficiently structure technology systems. Applicants must also possess high level social and resource management skills to qualify for computer system analyst vacancies.

Hard-to-fill **business and financial operations** occupations require a similar, yet lower level and more cross-functional skill set than management occupations – a finding that points to the traditional career ladder from business and financial operations to management positions. Persuasion, a cross-functional social skill, is integral to business and financial operations occupations. Active listening and critical thinking, basic skills also important for managers, albeit at a higher level, are required. Successful business and financial operations applicants can use these skills to understand, reason, identify solutions to issues, and most importantly, persuade others to act. Monitoring, which also ranks highly for hard-to-fill business and financial operations vacancies, requires assessment of company financial statements or policies and procedures and recommendations for corrective action. Candidates with a combination of these skills are in short supply.

Hard-to-fill occupations in the **healthcare practitioner and technical positions** field require a mix of skills, with a particular focus on reading comprehension and active listening, the same basic skills that are required for managers. Healthcare practitioners and technologists must have basic skills to not only understand business or scientific policies and procedures prescribed by health care administrators and researchers, but also to actively procure the same in spoken form. Mixed cross-functional social, technical and system skills are also vital to healthcare practitioner and technologist occupations. Operations monitoring requires nurses to watch heart monitors and pharmacists to carefully measure prescriptions.

A number of employers struggle to fill **office and administrative support** positions despite lower skill requirements. Cross-functional skills rank highest for office and administrative support positions as they do for computer and mathematical positions. Time management, systems analysis and complex problem solving are the most important cross-functional skills for hard-to-fill office and administrative positions. These skills require employees to manage their own schedule and the schedules of others effectively, understand the structure and processes of the surrounding organization and take effective action to address requests. Active listening is one of the five most important skills for every hard-to-fill occupation and it is also the only basic skill that ranks among the most important skills for office and administrative support positions.

Figure 7  
 Top Skills Required for  
 Hard-to-Fill Vacancies  
 by Occupational Category  
 and Skill Level



## What Else Besides Skills Matters?

Each recruiting trouble spot has unique skill set requirements. Applicants for hard-to-fill occupations often lack the most important skills. However, they often lack other less important, yet required skills. In addition, as the O\*NET content model points out, an applicant's fit for an occupation depends on an array of factors that do not lend themselves to data collection in skill surveys. Other factors including regional and national labor market imbalances, a dearth of licensed professionals, salary gaps or a lack of system specific knowledge also stymie recruiters working to address hard-to-fill occupations.

Despite the importance of certain skills, successful applicants for hard-to-fill positions must have an appropriate combination of all required basic and cross-functional skills. Most participating companies struggling to fill management positions in finance, human resources and general operations are happy with the basic skill set of applicants, but were unable to find

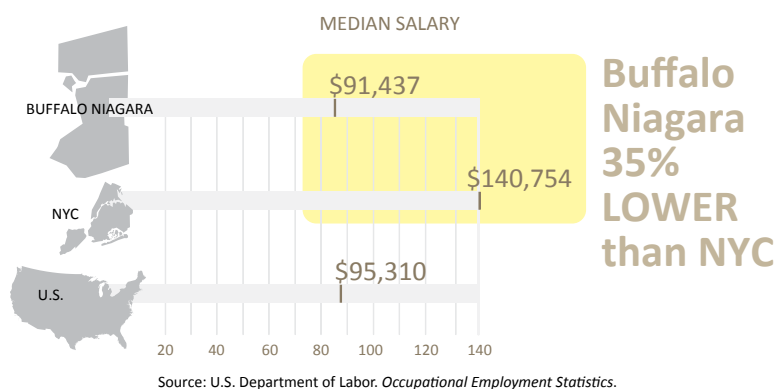
candidates with the requisite, higher level resource management skills required such as time management and management of personnel and financial resources. Those skills allow managers to apply their basic skills in a complex organizational setting across a variety of disciplines. A participant with several hard-to-fill office and administrative support positions also cited a plentiful supply of applicants with required basic skills – active listening and monitoring, for example – but few with adequate capacity in cross-functional skills. Specifically, time management and judgment and decision skills that allow employees to understand and work effectively in large, complex organizations were cited as lacking.

Despite skill deficiencies, applicants for hard-to-fill healthcare, computer and math and business and finance positions still got the job. Some participants faced daunting numbers of hard-to-fill healthcare practitioner and technologist positions including registered nurses and pharmacists. Nurses and pharmacists are required

to have well developed social perceptiveness and service orientation skills that allow them to engage, understand healthcare needs and assist. However, many hard-to-fill healthcare occupation applicants have poor interpersonal skills. Participants said they often settle for candidates with required licenses, but poor social skills due to high demand. Hard-to-fill computer and mathematics and business and financial operations positions often require specific system, linguistic or financial knowledge in addition to well developed analytical and technical skills. Applicants for computer systems analyst, programming, underwriting and accounting positions often have adequate analytical skills, such as critical thinking and

system analysis, but often lack technical, system specific skills. Nevertheless, participants hired applicants for their analytical skills and invested in new hire system-specific training to meet their needs.

Figure 8  
Regional Pay Disparities,  
Hard-to-Fill Financial Manager Vacancies



Insufficient applicant knowledge, in addition to skill deficiencies, results in hard-to-fill vacancies. For example, participants had difficulty finding a human resource manager trained in both employee relations or recruiting. They found that Western New York's human resource talent pool was often trained in one or the other, but very seldom in both. The same holds true in other occupations. Employers often demand specialized knowledge and experience in law or health and human services settings when searching for talented individuals to address hard-to-fill office and administrative positions. In addition, hard-to-measure qualities, such as personality and a "company fit," challenge the hiring process, while turnover rates contribute to persistent vacancies in this area. Indicative of the specialized knowledge often required for business and financial operations positions is one employer's struggle to locate a business continuity manager, which requires not only the skills of an upper manager but also the technical knowledge of disaster response and crisis management, an area in demand across the United States.



Figure 9  
Insights from Interviews with Human  
Resources Representatives

“I’d like to find the right person (to whom) we can teach...skills.”

“We’re looking outside the company to bring in new blood, but also to keep our blood circulating.”

“Culture and brand name help pull in the right candidates.”



Several firms identified hard-to-fill positions that require specialized knowledge in an area of high demand across the United States. Healthcare practitioner and technologist occupations face the greatest demand for knowledge and licensed practitioners. Pharmacy and nursing positions require licenses that remain in short supply in Western New York and across the country as demand rises with an aging population. Companies attributed the dearth of medical/clinical laboratory technologists, a position that requires knowledge of lab technology, to the lack of bachelors-level higher education programs in the region that train technologists. Finally, individuals trained for positions that are hard-to-fill in Western New York often cluster in other regions where the pay is higher and training programs proliferate.

Other labor market pressures such as salary discrepancies between Western New York and other regions make it difficult for participants to fill management and computer and mathematical positions. For example, in May 2007, the mean and median salary for a financial manager in the region was slightly below the national mean and median, but between 25 and 69 percent lower than the mean and median wage for the same position in the New York metropolitan area, a region that attracts a number of mobile, talented managers (Figure 8).

### Recruiting Talented Employees

To meet areas of critical need, firms have taken strategic action, first internally, then externally. Internally, one participating firm developed a robust management training program that prepares newly hired graduates for future management positions. The program provides participants with a firm-wide network of management trainees and offers additional project management opportunities. To cultivate new talent, firms have also developed internship programs that bring on new graduates and identify promising ones for retention or attraction. To compensate for skill deficits in technical areas, several participating firms are hiring new graduates and providing transitional mentoring and on-the-job training in specialized knowledge areas (Figure 9). Most surveyed firms have implemented succession planning. Human resource representatives know that they must be fully aware of the skill set of key employees and must continually evaluate current employees to prepare successors.

Many participants emphasized the need to track the skill set of all employees. However, several have yet to put systems in place to do so. In addition, participating recruiters identified difficulties in mining talented employees due to difficult

## IV. Rethinking Skills and Regional Demand

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transitions across occupational groupings – such as moving an engineer or accountant to a graphic design or corporate counsel position. Importantly, some skill sets, perhaps with some additional training, are transferable across occupations and departments. In response, a majority of companies included in this analysis have implemented an employee skills database, with several already completed, others under construction, and some awaiting funding. Participants can effectively deploy human resources throughout their company using detailed, up-to-date data on employee skill sets.

Externally, firms look to education and the regional labor market, then beyond for talent. Project participants are cultivating talent and building awareness of career opportunities among high school students and adults through new certification programs. One participant established a training initiative with the Buffalo Public Schools Adult Education program. Some participants have partnered with colleges and universities in the region and beyond to more aggressively recruit in-demand graduates. To meet recurring hard-to-fill vacancies, participants have partnered with several regional colleges to develop specialized training programs, some of which have alleviated labor pressures. Other programs have failed due to lack of student interest or shifting priorities at contributing schools.

Participants have also used external recruiters and co-ops to bring in promising executives or students. Some recruit employees from other companies in the regions. Others shy away from the practice. When recruiting from outside the region, companies have found more success in targeting Western New York natives willing to accept lower salaries to return home. The annual expatriate job fair organized by Buffalo Homecoming was noted as an effective forum in this regard. For positions in demand nationwide, firms have stepped up efforts to attend special job fairs and hire recruiters focused solely on the occupation. One firm set up an in-house temporary employment agency to address its needs. Others focused on building an attractive culture and well known brand name.

Hard-to-fill vacancies persist at large regional employers despite little growth in the Western New York labor market over the past few decades. Employers from different industries struggle to fill similar occupations. Even when hard-to-fill occupation requirements differ, similar skill sets are required. Beyond skills, similar circumstances and deficiencies disrupt the pipeline of job seekers and employers. Employers have responded in a strategic, yet isolated manner.

Future hiring projections for the Western New York labor market show similar, broader trends.<sup>16</sup> For example, management occupations will have relatively high retirement rates in the region and, therefore, top hiring projections. Hiring for computer and mathematical occupations is also predicted to be strong. However, community and social service hiring, forecast to grow faster than any other occupation, is not addressed by this assessment because study participants and hard-to-fill vacancies represent a subset of the region's employer base. Most regional labor market forecasts are prepared at the Erie and Niagara county or Western New York level. Another regional labor market analyses with a restricted focus identified different demand projections than those in this study and different from those in comprehensive regional hiring projections.<sup>17</sup>

In this examination, hard-to-fill occupations and required skills are reported for a single point in time rather than over a period of time. Regional labor market conditions fluctuate regularly and must be monitored to illuminate the success or failure of particular adaptations and responses. In other regions, studies have forecast changes in occupations and skills or looked back to test market interventions. Future analyses of the Western New York labor market could illuminate fluctuations in employer demand and workforce structure over time, identify successful employer adaptations, project demand and help to build in regional, strategic response mechanisms that create an efficient labor market.

Beyond skills, research has examined the relationship between O\*NET's education and knowledge variables and economic activity in regional labor markets throughout the United States. A positive relationship was found between educational attainment and changes in metropolitan GDP per capita. Also, certain

<sup>16</sup> Richard Deitz. "Baby-Boom Retirements."

<sup>17</sup> Wadley-Donovan Group/GrowthTech. "Labor Market Assessment."



knowledge sets embodied in the regional workforce, such as information technology and economics and accounting, positively correlated with regional economic growth.<sup>18</sup> As elicited by interviews with regional human resources executives, skills are a necessary, but not sufficient measure of job requirements. Future assessments should evaluate knowledge sets as well as other attributes of regional occupational demand to enhance our current understanding of the region's labor supply-demand dynamics and prospects for regional economic growth.

In all the findings discussed above, similar circumstances abound across occupations, skills, recruiting struggles and responses. At the same time, there are few examples of multi-firm and cross-occupational human resource planning. Unilateral action is not surprising when competition is present. However, isolated action prevents participants from leveraging their full power to develop, attract and retain talent. Study participants are well positioned to implement new collaborations and programs that have a historic, lasting impact on the region's talent.

Regional skills partnerships and career pathways programs eliminate recruiting barriers, identify labor supply constraints and develop regional talent. Regional skills partnerships and career pathways programs are created and sustained by collaborations between education, unions, workforce development and employers. They identify and address hard-to-fill occupations and skills needs. Career pathways programs succeed by training and employing unemployed or underemployed residents for in-demand occupations. In other regions, both programs received monetary support from regional, state and federal sources to meet employer needs. Often, regional employers in one industry or a number of industries that have similar need form partnerships and pathway programs that create a pipeline of appropriately skilled, knowledgeable and experienced workers for in-demand occupations. Western New York and study participants in particular who have similar hard-to-fill occupations and skill set needs would benefit from regional skills partnerships and career pathways programs.

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<sup>18</sup> Jaison Abel. "Human Capital and Economic Activity in Urban America."

## V. The Regional Talent Agenda

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The region's labor shortages will persist unless strategic, deliberate action is taken by participants themselves as well as broader regional players to develop capacity in high-demand areas. A combination of short-term actions and sustained, systematic coordination can realign labor supply and employer demand to maintain the competitive edge of employers and the region's emerging knowledge economy. The following recommendations address both company-level and regional-level actions.

### Company-Level Recommendations

#### Reevaluate Requirements for Hard-to-Fill Vacancies

According to human resource representatives, the skills, experience and education requirements included in position announcements occasionally eliminate candidates with different, but sufficient qualifications. Employers should reevaluate requirements for these positions to ensure they reflect organizational needs rather than an unsuitable or outdated standard (e.g., the qualifications of the individual who last held the position). Employers may also consider increasing their flexibility in opening the position to candidates with limited qualifications in areas where company training can effectively build capacity.

#### Evaluate and Monitor Existing Skills Base

Nearly all human resource representatives interviewed said awareness of the skill base of their current employees is critical. Existing employees represent an established asset and cost-effective resource for mining talent for vacancies in high-demand areas. Current employees may have a high level of skills or knowledge in areas that employers are not aware of or are underutilized.

A comprehensive database of employee education, qualifications and skill sets matched against position requirements recognizes these considerations. Initially, such a database could serve as a cross-department tool for filling job vacancies. At more advanced levels, the system provides timely information on skill clusters and deficits and facilitates efficient application and development of employee assets across the organization. For instance, comprehensive employee and position requirement data could guide training programs and assist employees in targeting skills development and career pathways. Building a company-wide database takes time and a commitment of resources, but serves as an important foundation for recruitment and employee development strategies.

#### Coordinate Employee Development and Recruitment Efforts

Employers may also find it valuable to develop a strategic workforce development and recruitment team to coordinate training and recruitment efforts within their organization, including those focused on hard-to-fill vacancies and long-term capacity needs.

#### Develop Management Training Programs

Employers cited critical needs for developing internal mid-to upper-level management capacities due to difficulties in locating outside candidates with adequate experience. Although employers are mining different company units, such as back-office or service departments, for latent management talent, inadequate experience and skills capacity continue to present challenges to filling these critical positions.

Federal and state governments operate prestigious management training programs – for example, the Presidential Fellows Program (PMF) and Public Management Internship (PMI) – which provide training and rotate employees through business units and cultivate organizational networking to prepare existing employees for mid-level management positions. Comparable private-sector programs should prove especially useful for companies that find persistent deficits in social and resource management skills.

### Implement New-Hire Training Programs

Human resource representatives mentioned the high quality of graduates produced by the region's higher education institutions, but cited their lack of specific occupation-related skills. Internship and new-hire training programs can help adjust for these skills deficits.

Robust internship programs establish pipelines of graduates from specialized higher education institutions located throughout the United States, allowing companies to systematically address what would otherwise be a persistent occupational need. Some participants have hired recent graduates with sharp analytical skills and then provided training in firm-specific processes, an approach better suited for some positions than others. Such programs can be costly while not guaranteeing performance, though payoffs include efficient integration of the new employee into the company environment. Moreover, high-quality training programs can build company brand and distinguish its reputation to attract top candidates across the board.

## Regional-Level Recommendations

### Establish Regional Skills Partnerships and Career Pathways Programs

Employers and regional economic and workforce development leaders have begun limited coordination of employer labor needs and programs to develop workforce capacity. Participating companies and firms representing a fuller range of the region's employment base should increase their engagement with regional workforce development efforts to build awareness of their labor and skill-set needs, develop more targeted regional programs, and ensure region- and company-wide initiatives are complementary. Employers should also partner on efforts to cultivate interest and develop skills in high-demand areas at the primary and secondary school level, through certificate programs and building awareness of career opportunities within the region. In 2007, the University at Buffalo Educational Opportunity Center and Center of Excellence in Bioinformatics and Life Sciences established iSciWNY, a career pathways program for Western New York's life sciences industry. Synergies may be realized between the iSciWNY effort and the work of the Western New York Senior Human Resource Group.

### Align Regional Higher Education with Employer Demand

The region's higher education institutions are an important source of graduates trained in emerging growth areas, from management and computer science to life sciences and engineering. These graduates are equipped with high-level abilities in the latest skills and typically are well suited for on-the-job training where skills are lacking. To improve coordination of regional employer demand and graduate supply over the short- and long-term, leaders of these two industries should establish a regular forum for communication and program development. With both the higher education industry and the region's major employers undertaking labor market studies in recent months, there is a prime window of opportunity to coalesce around a strategy for addressing regional workforce needs. Employers could provide important and timely input on curriculum development to address skills set needs, while colleges and universities can keep employers aware of enrollment and graduation trends. Several programs developed by employers participating in this analysis have experienced mixed results, but could serve as a foundation for future efforts.

### Develop a Support Network for Candidate Relocation

Employers looking to hire mid- to upper-level managers often cast a national or even international net in searching for candidates. An acute need identified by employers is relocation assistance to facilitate the transition of these candidates into the Western New York region. For instance, candidates may need assistance in securing employment for a spouse or partner, selecting a neighborhood and housing and placing children in school. The Buffalo Niagara Partnership fields occasional inquiries for these cases and several companies handle these requests on their own. The region needs a broader, more streamlined network to assist employers in luring high-quality talent to the region.

# Appendix A – Survey Tool



## Buffalo Niagara Regional Skills Assessment

Enclosed please find the following:

1. Company Profile;
2. Job Skills Questionnaire; and
3. Listing of Occupations.

Please follow the instructions below. Data provided will assist with a cross-organizational analysis of the type, level and magnitude of workforce skills that are hard-to-find in the Buffalo Niagara region.

Please mail completed materials to the following address by Friday, August 15, 2008. Alternatively, you may return the Excel workbook version of this survey provided via e-mail to Darren Kempner at [dkempner@buffalo.edu](mailto:dkempner@buffalo.edu). If you have any questions please contact Darren at (716) 829-3777.

The Regional Institute  
University at Buffalo  
The State University at New York  
Attn: Darren Kempner  
Beck Hall  
Buffalo, NY 14214-8010

### Instructions

1. Complete the *Company Profile*.
2. Complete a separate *Job Skills Questionnaire* for each current vacancy that is hard-to-fill because job applicants have lacked the necessary skills, work experience or qualifications. Do not complete a questionnaire for announcements that remain unfilled due to other factors such as lack of funding, conditions of employment or a remote physical location of the position. Use the enclosed occupation listing to classify each vacancy.

\*\*The *Job Skills Questionnaire* has been adapted from the O\*Net Resource Center (<http://www.onetcenter.org>), a project developed under the sponsorship of the US Department of Labor/Employment and Training Administration (USDOL/ETA).

## Company Profile

Company: \_\_\_\_\_

Number of FTEs at End of Last Fiscal Year: \_\_\_\_\_

Last Fiscal Year Revenues: \_\_\_\_\_

Industry: \_\_\_\_\_

1

## Job Skills Questionnaire

Title: \_\_\_\_\_

Occupation Code (see attached): \_\_\_\_\_

Salary: \_\_\_\_\_ Length of Time Announcement Has Remained Unfulfilled: \_\_\_\_\_

Status (e.g. Full-Time, Part-Time): \_\_\_\_\_

There are 36 cross-cutting, transferable job-related skills listed below. Each skill is named and defined. There are two questions under each skill. First, rate the importance of the skill to the position. If you rate the skill as not important, skip to the next skill. If you rate the skill as important or very important, select the skill level necessary for the position in the second question. See below for an example skill assessment.

### Example

#### Writing

Communicating effectively in writing as appropriate for the needs of the audience.

### A How important is the skill to the performance of the listed job?

How important is WRITING to the performance of your current job?

Not Important\* ① ————— ② ————— ③ Very Important

\*If you rate the skill as **Not Important** to the performance of your job, mark one (  ) then skip over question B and proceed to the next skill.

### B What level of the skill is needed to perform the listed job?

To help you understand what we mean by level, we provide you with examples of job-related activities at different levels. For example:

What level of WRITING skill is needed to perform your current job?

Take a telephone message ↓ ① — ② — ③ — ④ — ⑤ — ⑥ — ⑦ Highest Level

Write a memo to staff outlining new directives ↓

Write a novel for publication ↓

2

### 1. Reading Comprehension

Understanding written sentences and paragraphs in work-related documents.

#### A. How important is READING COMPREHENSION to the performance of the listed job?

Not Important\* ① ————— ② ————— ③ Very Important

\* If you marked Not Important, skip LEVEL below and go on to the next skill.

#### B. What level of READING COMPREHENSION is needed to perform the listed job?

Read step-by-step instructions for completing a form ↓ ① — ② — ③ — ④ — ⑤ — ⑥ — ⑦ Highest Level

Read a memo from management describing new personnel policies ↓

Read a scientific journal article describing surgical procedures ↓

### 2. Active Listening

Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

#### A. How important is ACTIVE LISTENING to the performance of the listed job?

Not Important\* ① ————— ② ————— ③ Very Important

\* If you marked Not Important, skip LEVEL below and go on to the next skill.

#### B. What level of ACTIVE LISTENING is needed to perform the listed job?

Take a customer's order ↓ ① — ② — ③ — ④ — ⑤ — ⑥ — ⑦ Highest Level

Answer inquiries regarding credit references ↓

Preside as judge in a complex legal disagreement ↓

3

### 3. Writing

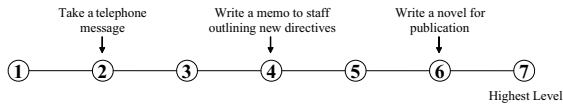
Communicating effectively in writing as appropriate for the needs of the audience.

A. How **important** is WRITING to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of WRITING is needed to perform the listed job?



### 4. Speaking

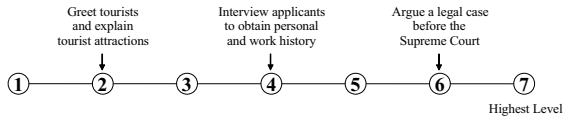
Talking to others to convey information effectively.

A. How **important** is SPEAKING to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of SPEAKING is needed to perform the listed job?



4

### 5. Mathematics

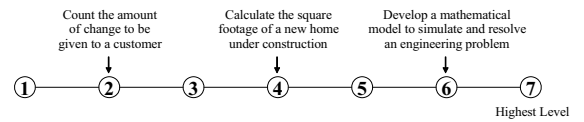
Using mathematics to solve problems.

A. How **important** is MATHEMATICS to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of MATHEMATICS is needed to perform the listed job?



### 6. Science

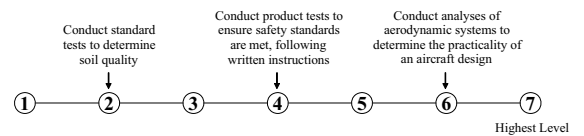
Using scientific rules and methods to solve problems.

A. How **important** is SCIENCE to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of SCIENCE is needed to perform the listed job?

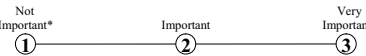


5

### 7. Critical Thinking

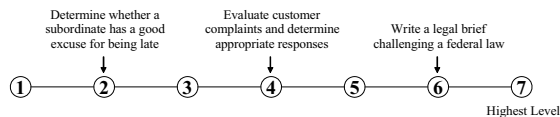
Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.

A. How **important** is CRITICAL THINKING to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of CRITICAL THINKING is needed to perform the listed job?



6

### 9. Learning Strategies

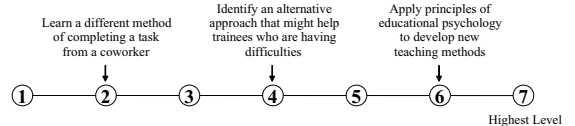
Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.

A. How **important** are LEARNING STRATEGIES to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of LEARNING STRATEGIES is needed to perform the listed job?



7

### 8. Active Learning

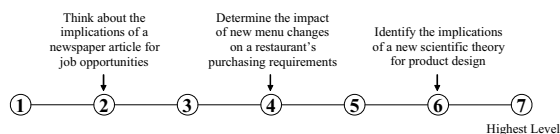
Understanding the implications of new information for both current and future problem-solving and decision-making.

A. How **important** is ACTIVE LEARNING to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

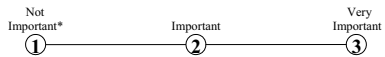
B. What **level** of ACTIVE LEARNING is needed to perform the listed job?



### 10. Monitoring

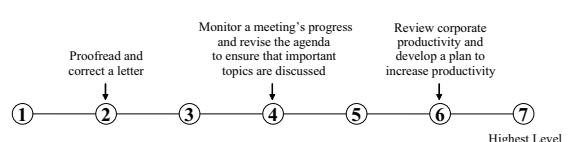
Monitoring/assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.

A. How **important** is MONITORING to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of MONITORING is needed to perform the listed job?



### 11. Social Perceptiveness

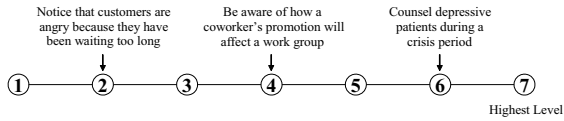
Being aware of others' reactions and understanding why they react as they do.

A. How **important** is SOCIAL PERCEPTIVENESS to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of SOCIAL PERCEPTIVENESS is needed to perform the listed job?



### 12. Coordination

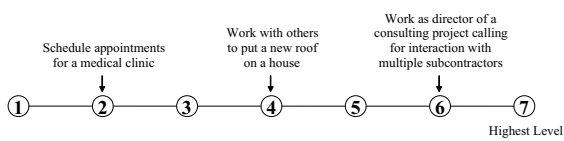
Adjusting actions in relation to others' actions.

A. How **important** is COORDINATION to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of COORDINATION is needed to perform the listed job?



8

### 13. Persuasion

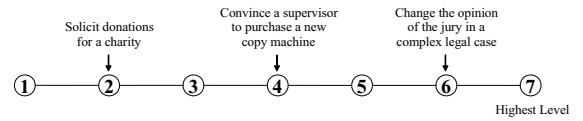
Persuading others to change their minds or behavior.

A. How **important** is PERSUASION to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

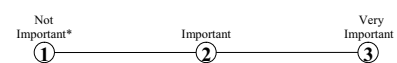
B. What **level** of PERSUASION is needed to perform the listed job?



### 14. Negotiation

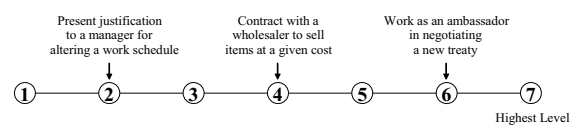
Bringing others together and trying to reconcile differences.

A. How **important** is NEGOTIATION to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of NEGOTIATION is needed to perform the listed job?



9

### 15. Instructing

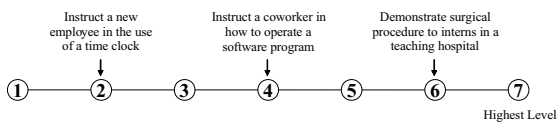
Teaching others how to do something.

A. How **important** is INSTRUCTING to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of INSTRUCTING is needed to perform the listed job?



### 16. Service Orientation

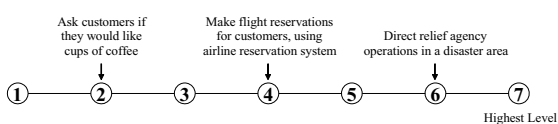
Actively looking for ways to help people.

A. How **important** is SERVICE ORIENTATION to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of SERVICE ORIENTATION is needed to perform the listed job?



10

### 17. Complex Problem Solving

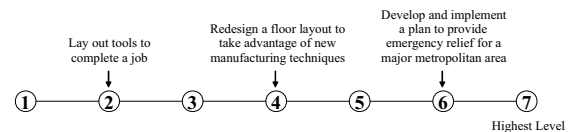
Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

A. How **important** is COMPLEX PROBLEM SOLVING to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

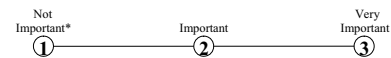
B. What **level** of COMPLEX PROBLEM SOLVING is needed to perform the listed job?



### 18. Operations Analysis

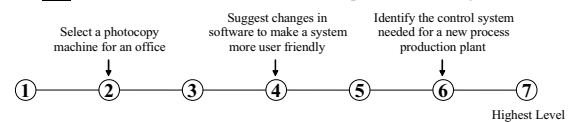
Analyzing needs and product requirements to create a design.

A. How **important** is OPERATIONS ANALYSIS to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of OPERATIONS ANALYSIS is needed to perform the listed job?

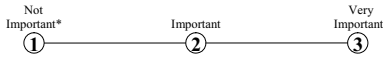


11

### 19. Technology Design

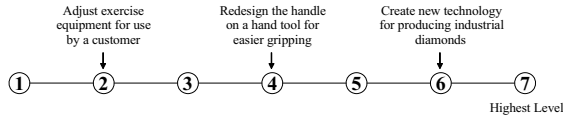
Generating or adapting equipment and technology to serve user needs.

A. How **important** is TECHNOLOGY DESIGN to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of TECHNOLOGY DESIGN is needed to perform the listed job?



### 20. Equipment Selection

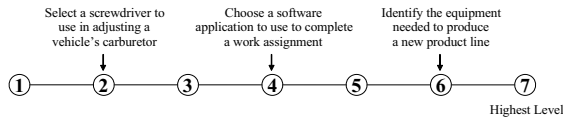
Determining the kind of tools and equipment needed to do a job.

A. How **important** is EQUIPMENT SELECTION to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of EQUIPMENT SELECTION is needed to perform the listed job?

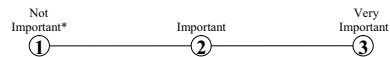


12

### 21. Installation

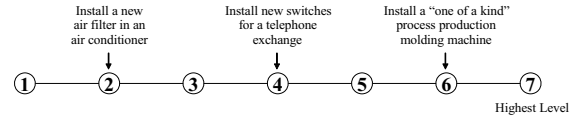
Installing equipment, machines, wiring, or programs to meet specifications

A. How **important** is INSTALLATION to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of INSTALLATION is needed to perform the listed job?



### 22. Programming

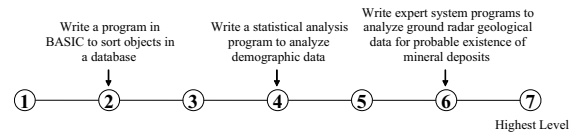
Writing computer programs for various purposes.

A. How **important** is PROGRAMMING to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of PROGRAMMING is needed to perform the listed job?



13

### 23. Quality Control Analysis

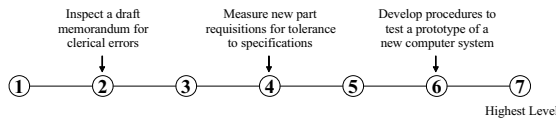
Conducting tests and inspections of products, services, or processes to evaluate quality or performance.

A. How **important** is QUALITY CONTROL ANALYSIS to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of QUALITY CONTROL ANALYSIS is needed to perform the listed job?



### 24. Operations Monitoring

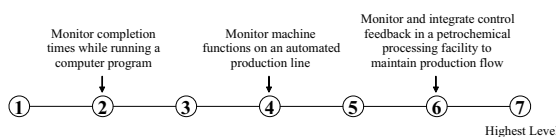
Watching gauges, dials, or other indicators to make sure a machine is working properly.

A. How **important** is OPERATIONS MONITORING to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of OPERATIONS MONITORING is needed to perform the listed job?



14

### 25. Operation and Control

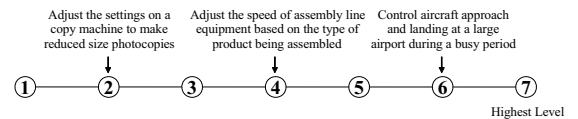
Controlling operations of equipment or systems.

A. How **important** is OPERATION AND CONTROL to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of OPERATION AND CONTROL is needed to perform the listed job?



### 26. Equipment Maintenance

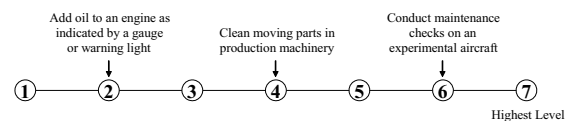
Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.

A. How **important** is EQUIPMENT MAINTENANCE to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of EQUIPMENT MAINTENANCE is needed to perform the listed job?



15



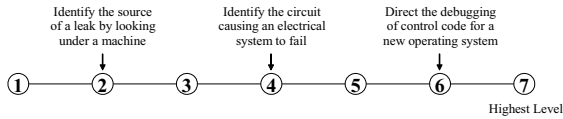
**27. Troubleshooting** Determining causes of operating errors and deciding what to do about it.

A. How **important** is TROUBLESHOOTING to the performance of the listed job?



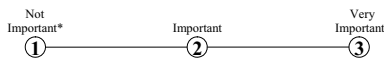
\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of TROUBLESHOOTING is needed to perform the listed job?



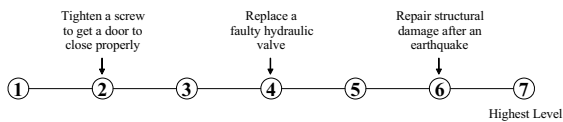
**28. Repairing** Repairing machines or systems using the needed tools.

A. How **important** is REPAIRING to the performance of the listed job?



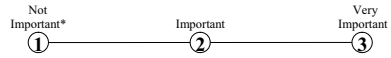
\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of REPAIRING is needed to perform the listed job?



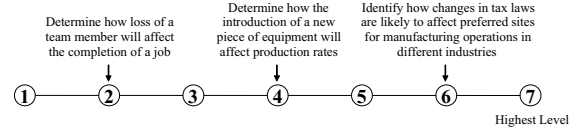
**29. Systems Analysis** Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.

A. How **important** is SYSTEMS ANALYSIS to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of SYSTEMS ANALYSIS is needed to perform the listed job?



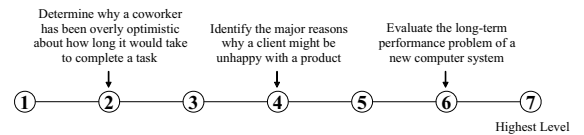
**30. Systems Evaluation** Identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system.

A. How **important** is SYSTEMS EVALUATION to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of SYSTEMS EVALUATION is needed to perform the listed job?



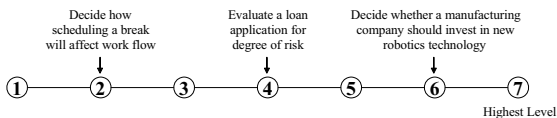
**31. Judgment and Decision Making** Considering the relative costs and benefits of potential actions to choose the most appropriate one.

A. How **important** is JUDGMENT AND DECISION MAKING to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of JUDGMENT AND DECISION MAKING is needed to perform the listed job?



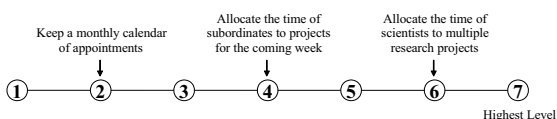
**32. Time Management** Managing one's own time and the time of others.

A. How **important** is TIME MANAGEMENT to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of TIME MANAGEMENT is needed to perform the listed job?



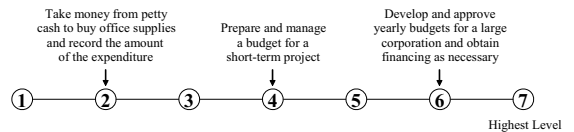
**33. Management of Financial Resources** Determining how money will be spent to get the work done, and accounting for these expenditures.

A. How **important** is MANAGEMENT OF FINANCIAL RESOURCES to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of MANAGEMENT OF FINANCIAL RESOURCES is needed to perform the listed job?



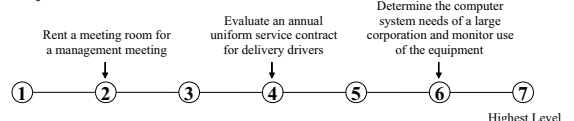
**34. Management of Material Resources** Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work.

A. How **important** is MANAGEMENT OF MATERIAL RESOURCES to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of MANAGEMENT OF MATERIAL RESOURCES is needed to perform the listed job?





**35. Management of Personnel Resources**

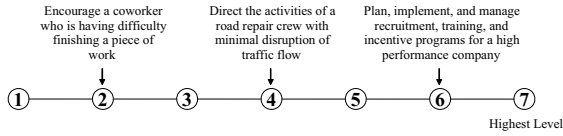
Motivating, developing, and directing people as they work, identifying the best people for the job.

A. How **important** is MANAGEMENT OF PERSONNEL RESOURCES to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What **level** of MANAGEMENT OF PERSONNEL RESOURCES is needed to perform the listed job?



**36. Foreign Language Translation**

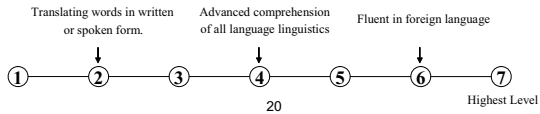
Reading, comprehending and speaking a language in addition to English.

A. How **important** is FOREIGN LANGUAGE TRANSLATION to the performance of the listed job?



\* If you marked Not Important, skip LEVEL below.

B. What **level** of FOREIGN LANGUAGE TRANSLATION is needed to perform the listed job?



# Appendix B – Skills Definitions - Basic and Cross-Functional

## BASIC SKILLS

### Content:

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**Reading Comprehension** – Understanding written sentences and paragraphs in work related documents.

**Active Listening** – Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

**Writing** – Communicating effectively in writing as appropriate for the needs of the audience.

**Speaking** – Talking to others to convey information effectively.

**Mathematics** – Using mathematics to solve problems.

**Science** – Using scientific rules and methods to solve problems.

### Process:

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**Critical Thinking** – Using logic and reasoning to identify the strengths and weakness of alternative solutions, conclusions or approaches to problems.

**Active Learning** – Understanding the implications of new information for both current and future problem-solving and decision making.

**Learning Strategies** – Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.

**Monitoring** – Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.

## CROSS-FUNCTIONAL SKILLS

### Social Skills:

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**Social Perceptiveness** – Being aware of other’s reactions and understanding why they react as they do.

**Coordination** – Adjusting actions in relation to others’ actions.

**Persuasion** – Persuading others to change their minds or behavior.

**Negotiation** – Bringing others together and trying to reconcile differences.

**Instructing** – teaching others how to do something.  
**Service Orientation** – Actively looking for ways to help people.

### Complex Problem Solving Skills:

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**Complex Problem Solving** – Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

### Technical Skills:

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**Operations Analysis** – Analyzing needs and product requirements to create a design.

**Technology Design** – Generating or adapting equipment and technology to serve user needs.

**Equipment Selection** – Determining the kind of tools and equipment needed to do a job.

**Installation** – Installing equipment, machines, wiring, or programs to meet specifications.

**Programming** – Writing computer programs for various purpose.

**Operation Monitoring** – Watching gauges, dials, or other indicators to make sure a machine is working properly.

**Operation and Control** – Controlling operations of equipment or systems.

**Equipment Maintenance** – Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.

**Troubleshooting** – Determining causes of operating errors and deciding what to do about it.

**Repairing** – Repairing machines or systems using the needed tools.

**Quality Control Analysis** – Conducting tests and inspections of products, services, or processes to evaluate quality or performance.

**Foreign Language Translation** – Reading, comprehending, and speaking a language in addition to English.

### System Skills:

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**Judgment and Decision Making** – Considering the relative costs and benefits of potential actions to choose the most appropriate one.

**Systems Analysis** – Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.

**Systems Evaluation** – Identifying measures or indicators of systems performance and the actions needed to improve or correct performance, relative to the goals of the system.

### Resource Management Skills:

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**Time Management** – Managing one’s own time and the time of others.

**Management of Financial Resources** – Determining how money will be spent to get the work done, and evaluate options and implement solutions.

**Management of Material Resources** – Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work.

**Management of Personnel Resources** – Motivating, developing, and directing people as they work, identifying the best people for the job.

# Appendix C – Interview Guide

## Introduction

We asked 19 companies that have operations in Erie and Niagara Counties for hard-to-fill vacancies – those that have lacked applicants with the necessary skills, work experience or qualifications for the position – and the importance and level of skills required for those positions.

We've received 14 survey responses listing 88 hard-to-fill vacancies. The reported median salary these positions, which are primarily full-time, is about \$62,000 and they've been open for about 3 months, on average. Positions in management, health care, information technology are hardest-to-fill. Overall, basic content and resource management skills such as active listening, reading comprehension and time management are rated as being the most important and require the highest level of functioning for hard-to-fill vacancies. When the State of Ohio assessed demand for workplace skills in each region, overall these same skills came out on top as well. Technical skills like equipment maintenance, repairing and operation and control are the least important to the hard-to-fill vacancies identified.

This interview is intended to provide context for these results, fill in any questions or gaps in the results and to support strategies for addressing concerns. Your responses will remain anonymous in our written report. If these questions seem farfetched or difficult to answer it may be that the question is appropriate for one company and not yours. All we ask is that you provide your thoughts. Feel free to ask for clarification at any time.

## Preliminary Questions

Is it OK that I tape record the interview?

Could you please tell me your title and give me a brief description of your position?

## Discussion Questions

### 1. Why do you think the vacancies you identified are hard-to-fill?

- Is it a lack of experience, knowledge or educational qualifications?
- Is it something else rather than skills that make it hard-to-fill certain vacancies?
- Is it a skills mismatch or skills shortage in the region in general that causes difficulties (i.e. applicants have technical skills when social skills are more important or there are not enough applicants with any skills)?

d. What characteristics besides the skills of the Buffalo Niagara workforce make it hard to fill a vacancy (i.e. appeal of the career)?

### 2. In your opinion, what are the root causes of deficiencies in applicants for hard-to-fill vacancies?

- How does an inability to upgrade skills impact the employability of the workforce?
- How does a lack of experience impact the employability of applicants?
- How does a lack of education and knowledge impact the skills of applicants?

### 3. How do you determine whether applicants are qualified for a vacancy?

- How, if at all, do you test the skills of job applicants?
- How many applicants, if any, do you typically interview for hard-to-fill positions?

### 4. What additional steps have you taken, if any, to fill hard-to-fill vacancies?

- Where do you advertise for regular vacancies compared to vacancies that you know will be hard-to-fill?
- How have you tried to make a hard-to-fill vacancy more attractive?
- What information, if any, have you presented to workforce development organizations on hard-to-fill vacancies or hard-to-find skills?

### 5. What opportunities, if any, do you offer to promising applicants to enhance their skills?

- What training have you offered, if any, to new staff who were hired despite a skill deficiency?
- How do you upgrade the skills of your workforce?
- Do you keep a database on the knowledge, skills and experience of current employees that you can examine for a match to each vacancy?

### 6. How do hard-to-fill vacancies impact your company?

- How would you characterize the impact of hard-to-fill jobs on your firm?
- What impact do hard-to-fill vacancies have on the success of your firm?

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