Skills Advantage Research Project
A First in the Nation Report
Dear Members of the Community:

As organizations charged with growing the economy of our region, we are constantly faced with the challenge of proving to our business clients the availability, affordability and capability of the region’s workforce. For nearly five years, through our partnership with Iowa Workforce Development, we’ve had the ability to present Laborshed and Benefit Profile data to answer our clients’ workforce availability and affordability questions. The ability to present accurate, timely and relevant workforce capability data has eluded us…Until now.

The Skills Advantage Research Study is designed to provide statistically significant data on the foundational skills—the capability—of our region. Utilizing ACT’s WorkKeys® assessments—Applied Mathematics, Reading for Information and Locating Information—the Skills Advantage Research project has identified regional benchmarks of incumbent workers for these foundational skills.

Through this first in the nation research study, employers and economic development groups in the region will have critical data not available anywhere in the United States. In an economic climate where workforce shortages are a reality, this data about the capability of our workforce truly gives our region an advantage.

Sincerely,

Ranae Becker, Executive Director
Benton Development Group

Joe Raso, President
Iowa City Area Development Group

Linda Yoder, Supervisor
Iowa County

Patty Manuel, President
Jones County Economic Development Commission

Dr. Mick Starcevich, President
Kirkwood Community College

Mark Seckman, President
Priority One

Steve Lacina, Executive Director
Cedar County Economic Development Commission

Ed Raber, Executive Director
Washington County Economic Development
Executive Summary

In order for the economic development organizations in Kirkwood Community College’s service area to compete successfully for new business in a highly competitive global environment, they must provide data to clients about the region’s workforce. Three critical areas most employers are concerned about include: affordability, availability and capability of the region's workforce.

Currently, the first two areas can be addressed with data. The Wage and Benefit Study is conducted semi-annually. The Laborshed Study is conducted every 18 months to two years, and documents the availability of workers and representative skills. The area that cannot be accurately stated and represented through data is the capability and foundational skills of the region’s workforce.

The goal of this first in the nation study was to demonstrate the skill level of the region's incumbent workers in three essential skill areas: Applied Mathematics, Reading for Information and Locating Information. The benchmark scores in the three skill areas will communicate the region's incumbent worker capability to existing employers and business prospects.

Additionally, the results provide critical information to higher education and K-12 partners regarding the desired scores needed for future graduates. Kirkwood Community College and its partners led the research study from July to November 2007. The landmark study documented incumbent worker “work-ready” skills throughout Kirkwood’s service area and provided data not found anywhere else in the country—thus providing a truly competitive edge for the region!

During the July to November 2007 timeframe, 400 incumbent workers from 48 employers completed one of three identified WorkKeys assessments. The breakdown of completed assessments include: 127 Applied Mathematics assessments, 139 Reading for Information assessments and 134 Locating Information assessments.

Demographic data obtained for the purposes of this study was self-reported by the participating incumbent worker. The average age of incumbent workers participating in the study was 41 years (ranging from 20-68 years) and the average years in the workforce is 21 years (ranging from 1-46 years). The incumbent worker group consists of employees from the entire Kirkwood region, with the largest pool of incumbent workers residing in Linn (48 percent) and Johnson (28 percent) counties. Additionally, 6 percent of incumbent workers who participated reside outside of the Kirkwood Community College seven-county service area. The incumbent worker pool is represented by 92 percent caucasian, 5 percent various ethnic groups and 3 percent who did not report. Additionally, 30 percent of the incumbent workers that were randomly selected by companies were male and 70 percent were female.

The results of the 400 incumbent workers indicate that the benchmark skill levels for the region in the three identified areas are: Applied Mathematics reached a level of 5.46 (out of a maximum of 7), Reading for Information reached a level 5.83 (out of a maximum of 7), and Locating Information reached a level 4.48 (out of a maximum of 6). Currently, the Skills Advantage regional workforce readiness certificate levels are: 5-Gold, 4-Silver and 3-Bronze. An individual must score the above number on all three assessments in order to achieve a certificate at the level desired.

Introduction to the Skills Advantage Program

In the past few years, we’ve seen considerable change in the economy in the Cedar Rapids/Iowa City Technology Corridor™, eastern Iowa, the state and the nation. As the economy continues to ebb and flow, so do the workforce demands of area employers. Today’s jobs require more education and
training than in the past. In order for the region to continue its economic development success, it is important that we design and use programs to make certain all individuals are equipped with the necessary skills to succeed.

The Skills Advantage Initiative is an employer-led strategy designed to develop and communicate the skills needed to be employed in the Technology Corridor. The initiative is a direct result of employer information collected in the Skills 2006 Technology Corridor report conducted in 2003.

Consortium members encourage job candidates or current staff to participate in three workplace skills CORE assessments. The assessments determine key areas identified by Corridor employers as being essential skills for the workplace: Applied Mathematics, Reading for Information and Locating Information.

A prosperous Corridor—including a workforce with marketable skills—will attract new businesses, contributing to the area’s financial stability. By raising the bar on required workforce skills, Corridor employers are actively contributing to the future financial success of our communities. Successful execution of the Skills Advantage initiative requires the adoption of several essential principles which permit the region to realize its workforce and economic development objectives.

- The first principle is adherence by all stakeholders to a common skills model.
- The second principle adopts a system which measures an individual’s skills against regional workplace requirements.
- The third principle creates a vehicle to communicate the skills measurement system.
- The fourth principle develops a process to implement the overall system.

These four principles guide the Skills Advantage initiative and this first in the nation research project.

Purpose of the Research

The goal of the study was to demonstrate the skill level of incumbent workers in the region in three essential skill areas: Applied Mathematics, Reading for Information and Locating Information. The benchmark scores in the three skill areas will be used to communicate the region’s incumbent worker readiness to existing employers and business prospects. Additionally, the results provide critical information to higher education and K-12 partners regarding the desired scores needed in the region for future graduates.

Research Team

Kirkwood Community College led the research study to document incumbent worker “work-ready” skills throughout its service area. The Kirkwood team was comprised of Dee Baird, vice president of Continuing Education and Training Services, Dr. Heidi Hansel, director of Institutional Research, Amy Lasack, Skills Advantage program director, Kim Johnson, executive director of Continuing Education Programming and Karen Friederich, department assistant. The external project team included Ranae Becker, Benton Development Group, Linda Yoder, Iowa County
supervisor, Joe Raso, Iowa City Area Development Group, Jennifer Fischer, Jones County Economic Development Commission, Mark Seckman, Priority One, Steve Lacina, Cedar County Economic Development Commission and Ed Raber, Washington Economic Development Group. Members of the Technology Corridor Business Alliance also supported the research project.

The research study was conducted from July to November 2007. The costs of the assessments and staffing (including in-kind contributions) to complete the study components were covered by Kirkwood Community College, at total cost of $6,484.97. Participating employers provided an in-kind expense of the time required for their employees to take one WorkKeys assessment.

Methodology

The study used a quantitative analysis of incumbent worker “work ready” skills in the region. The participating employers were randomly selected from a regional employer database. The goal of the study was to assess incumbent workers in the three CORE essential skills at a statistically significant sample size. Each test took approximately one hour per employee to complete and Kirkwood Community College proctored all testing sites.

Conducting the Assessments

Participants were randomly selected by their employers for the assessment process, and assigned a random test number. All test results are confidential; however, participants could receive a copy of their scores by signing a score release form. Individual scores were not shared with employers. Paper/pencil versions of the three core WorkKeys assessments were used. The assessments are:

1. Criterion-referenced, designed to measure whether or not an individual has met a life-relevant standard. In this case, that standard is the expectation of the workplace and not how one individual ranks in relationship to others (norm-referenced test design) independent of meeting a standard.

2. Designed to assess an individual’s problem-solving skills within a content domain. The emphasis of the assessment is the determination of the person’s ability to apply his/her understanding. As an individual achieves higher skill levels, they exhibit greater problem-solving and critical thinking skills within the domain being tested, as well as increased content mastery.

3. Composed of workplace relevant content. For example, in the case of the Reading for Information skill assessment, the reading stimulus material is drawn from the workplace—memos, reports, letters, etc., and not from the field of literature as in the case of traditional academic skill assessments.

As stated before, the study focused on employee skills in the areas of Applied Mathematics, Reading for Information and Locating Information. Additionally, demographical, occupational and employer industry information was collected.

Sample and Population

The population was composed of cross-sectional data from across the seven-county service area as provided by Iowa Workforce Development, Kirkwood Community College, area chambers of commerce and economic development groups. The target population, which consisted of 3,895 employers and 147,251 employees, provided a single, comprehensive listing that encompassed all businesses, non-profit entities and educational organizations in the area of interest.
The sample was chosen by randomly selecting employers from the target population. The number of employees selected was identified for each employer. The actual employees who participated were then randomly chosen by the employer. Of the 3,895 employers in the population, 535 were chosen to sample and a total of 3,264 employees were selected—representing 200 percent of the number necessary to achieve the desired confidence level of 90 percent and confidence interval of 5 percent. To realistically conduct the research, it was decided to isolate the sample to employers with three or more employees selected for participation. This decision represented 124 entities and 1,088 employees, which was still well within the parameters of confidence desired for this study.

From the sample, 48 employers provided 400 employees to participate in this study, resulting in a final confidence level of 90 percent and confidence interval of 4.1 percent for the overall project. The results were compiled for an overall report as well as disaggregated by age and educational level in an effort to provide descriptive findings that could be useful to various segments of the population.

Results

The results indicate that the benchmark skill levels for the region in the three identified areas are: Applied Mathematics: 5.46 (out of 7 maximum), Reading for Information: 5.83 (out of 7 maximum), and Locating Information: level 4.48 (out of 6 maximum).

Table I. Assessment Scores by Age Group

<table>
<thead>
<tr>
<th>AGE RANGE</th>
<th>APPLIED MATHEMATICS</th>
<th>READING FOR INFORMATION</th>
<th>LOCATING INFORMATION</th>
<th>TOTAL NUMBER OF INCUMBENT WORKERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>5.81</td>
<td>6.33</td>
<td>4.81</td>
<td>87</td>
</tr>
<tr>
<td>31-40</td>
<td>5.36</td>
<td>5.91</td>
<td>4.57</td>
<td>104</td>
</tr>
<tr>
<td>41-50</td>
<td>5.25</td>
<td>5.57</td>
<td>4.36</td>
<td>111</td>
</tr>
<tr>
<td>51 and over</td>
<td>5.38</td>
<td>5.73</td>
<td>4.22</td>
<td>91</td>
</tr>
</tbody>
</table>

*Seven incumbent workers did not report their ages and are not reflected in this table

Table I represents the average scores for each age range for each of the three assessments. The data shows a decrease in assessment scores as the age of the incumbent worker increases (with the exception of the 31-40 and 41-50 age group in the Applied Mathematics assessment).
Table II. Assessment Scores by Educational Level

<table>
<thead>
<tr>
<th>EDUCATIONAL LEVEL</th>
<th>APPLIED MATHEMATICS</th>
<th>READING FOR INFORMATION</th>
<th>LOCATING INFORMATION</th>
<th>TOTAL NUMBER OF INCUMBENT WORKERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than High School, High School Diploma or GED</td>
<td>4.92</td>
<td>5.07</td>
<td>4.14</td>
<td>72</td>
</tr>
<tr>
<td>Technical Schooling or Some College, no degree</td>
<td>5.38</td>
<td>5.58</td>
<td>4.20</td>
<td>88</td>
</tr>
<tr>
<td>Associate’s Degree</td>
<td>5.42</td>
<td>5.71</td>
<td>4.52</td>
<td>64</td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>5.68</td>
<td>6.19</td>
<td>4.66</td>
<td>100</td>
</tr>
<tr>
<td>Some Graduate, Master’s or Doctorate</td>
<td>5.89</td>
<td>6.72</td>
<td>4.75</td>
<td>60</td>
</tr>
</tbody>
</table>

**Sixteen incumbent workers did not report their educational levels and are not included in this table.**

Table II summarizes the average test scores in each educational level for each of the three assessments. Consistently, the average scores continue to increase as the educational level of the incumbent worker increases. Significant increases are noted in each of the three assessment areas, with an increase of 0.97 in the Applied Mathematics, 1.65 in Reading for Information, and 0.64 in Locating for Information (from the Less than High School, High School Diploma or GED to the Some Graduate, Master’s or Doctorate).
### Table III. Breakdown of Educational Levels by Age Group

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>LESS THAN HIGH SCHOOL, HIGH SCHOOL DIPLOMA OR GED</th>
<th>TECHNICAL SCHOOLING OR SOME COLLEGE, NO DEGREE</th>
<th>ASSOCIATE’S</th>
<th>BACHELOR’S DEGREE</th>
<th>SOME GRADUATE, MASTER’S OR DOCTORATE</th>
<th>TOTAL NUMBER OF INCUMBENT WORKERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>6%</td>
<td>19%</td>
<td>20%</td>
<td>45%</td>
<td>10%</td>
<td>84</td>
</tr>
<tr>
<td>31-40</td>
<td>17%</td>
<td>23%</td>
<td>17%</td>
<td>31%</td>
<td>12%</td>
<td>100</td>
</tr>
<tr>
<td>41-50</td>
<td>29%</td>
<td>20%</td>
<td>15%</td>
<td>17%</td>
<td>19%</td>
<td>105</td>
</tr>
<tr>
<td>50 and over</td>
<td>19%</td>
<td>30%</td>
<td>14%</td>
<td>14%</td>
<td>22%</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL NUMBER OF INCUMBENT WORKERS</strong></td>
<td><strong>379</strong>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***21 incumbent workers did not report age and/or educational level and were not included in this table

Table III represents the percentages of incumbent workers participating in the research by their age and educational levels. The data shows that as the incumbent workers’ ages increase, the educational levels decrease. For the 20-30 age category, 55 percent of individuals have bachelor’s degrees or above. This number decreases to 36 percent for the 50 and over age group. Conversely, for the 20-30 age category, 25 percent of individuals fall in the bottom two educational categories (Less than High School, High School diploma, GED, Technical Schooling or some college with no degree). For the 31-40 age group, this increases to 40 percent, then jumps to 49 percent in the 50 and over age group.
++1 incumbent worker did not report category information and was not included in this table. Total figures may not equal exactly 100 percent, due to rounding of individual numbers.

Table IV represents the study participants by occupational category. In this table, Clerical and Professional Specialties represent the largest categories with 20 percent and 24 percent, respectively.

## Table V. Summary of Incumbent Worker by Employer Industry Sector

### INDUSTRY/Number of Incumbent Workers

- Advanced Manufacturing/Elec. / 56
- Ag/BioTech / 4
- Education / 90
- Financial Services/Software / 40
- Food/Health/Beauty Products / 23
- Government / 23
- Healthcare / 77
- Plastics/Packaging / 14
- Printing / 19
- Other / 49

395 (Total number of Incumbent Workers

#5 incumbent workers did not report their employer industry and were not included in this table

Table V presents the study participants by industry sector. The two largest industries represented are education (23 percent) and health care (19 percent).
Conclusion

Each year, employers in the region invest thousands of dollars for employee essential and technical skill training. However, a significant cost savings could be gained if employers and education partnered to better align these needs as a long-term workforce strategy. The Skills Advantage consortium is one such effort to address foundational employability skills through employer/education alignment. There are currently 90 employers in the consortium that identify the advantage of this regional workforce initiative.

In the knowledge economy, human capital is this region’s key advantage to remaining globally competitive. If foundational employability skills are commonplace among incumbent workers, and among students exiting educational institutions, employers could better focus limited time and resources on upgrading skills to meet changing technology and workplace demands. This is the ultimate goal of the Skills Advantage Initiative and the regional data collected through this research will help us achieve this result.
Participating Employers

ACT
AEGON USA
The Arc of East Central Iowa
Cedar Rapids Community School District
CENTRO, Inc.
City of Cedar Rapids
City of Coralville
City of Iowa City
City of North Liberty
Diamond V Mills, Inc.
Four Oaks of Iowa, Inc.
Frontier Natural Products Co-op
Gazette Communications
GEICO Direct
Grantwood Area Education Agency
GreatAmerica Leasing Corporation
Hawkeye Foodservice Distribution
Iowa City Community School District
Iowa State Bank & Trust Company
J&P Cycles
KINZE Manufacturing, Inc
Kirkwood Community College
Linn Mar Community School District
Linn County

Mercer
Mercy Care
Mercy Iowa City
Midland Forge
Modine Manufacturing
Monticello Nursing and Rehabilitation Center
Moyer & Bergman, P.L.C.
Oaknoll Retirement Residence
Orbis
Pearson
Pickwick Manufacturing Services
Quaker, a unit of PepsiCo Beverages & Foods
Riverside Casino & Golf Resort
Rockwell Collins, Inc
Sixth Judicial District of Iowa
St. Luke’s Hospital
Systems Unlimited, Inc.
Toyota Financial Services
Tru Art Color Graphics
United Fire & Casualty Company
University Athletic Club
University of Iowa Hospitals and Clinics
Whirlpool Corporation
Yellow Book USA, Inc.