

MISSOURI JOB VACANCY SURVEY

Mathematics

Engineering

Technology

Science

Occupations

MORE WITH

MERIC

TIMELY TARGETED INTELLIGENT

INTRODUCTION AND METS DISCIPLINES

Introduction

The 2007 Missouri Job Vacancy Survey (JVS), developed by the Department of Economic Development's Division of Workforce Development (DWD) and the Missouri Economic Research and Information Center (MERIC) provides yearly information about the quantity and quality of job vacancies in Missouri. Visit the website at: <http://pprc.umsl.edu/JVS/>

The survey results supply a measure of employer demand for workers at a regional level along with an analysis of wage and benefits offered, education and experience requirements, and skill gaps of recent applicants.

One valuable benefit of the JVS data is the ability to merge other occupational data sets, such as occupations in METS (Mathematics, Engineering, Technology, and Science) disciplines. These contain occupations that require education in one or more of the four broad areas of METS.

METS Single-Discipline	Vacancies
Engineering	2,202
Computer Science	2,003
Life Sciences	462
Environmental Science	93
Mathematics	21
Physics/Astronomy	11
Geosciences	9
Total	4,801

Table 1

METS Disciplines

METS-related occupations are classified as either single- or multi-discipline, depending upon whether the occupation fits into one or multiple disciplines listed in Table 1.

Eighty-eight percent of job vacancies classified as single-discipline were in either the engineering or computer science disciplines.

For occupations in just these two disciplines, respondents indicated they had either "some" or "great difficulty" filling the opening for 47 percent of the vacancies.

These disciplines contain occupations such as Accountants and Auditors (483), Computer Support Specialists (457), and Civil Engineers (453).

The top two multi-disciplines in Table 2 at right account for 59 percent of all the multi-discipline job vacancies.

The Computer Science, Engineering multi-discipline differs from the single-disciplines alone because its occupations require education in both Computer Science and Engineering.

Examples of these multi-discipline occupations include Computer Software Engineers, Applications (227), Computer Software Engineers, Systems Software (92), and Electrical and Electronic Engineering Technicians (39).

METS Multi-Discipline	Vacancies
Computer Science, Engineering	360
Chemistry, Computer Science, Engineering, Geosciences, Life Sciences, Physics/Astronomy	273
Life Sciences, Physics/Astronomy	97
Chemistry, Physics/Astronomy	72
Computer Science, Mathematics	54
Chemistry, Life Sciences, Physics/Astronomy	53
Chemistry, Life Sciences	49
Life Sciences, Mathematics	42
Chemistry, Engineering	21
Mathematics, Physics/Astronomy	14
Chemistry, Geosciences	13
Chemistry, Computer Science, Engineering, Geosciences, Life Sciences, Mathematics, Physics/Astronomy	13
Engineering, Geosciences	6
Geosciences, Mathematics, Physics/Astronomy	6
Engineering, Life Sciences	1
Total	1,074

Table 2

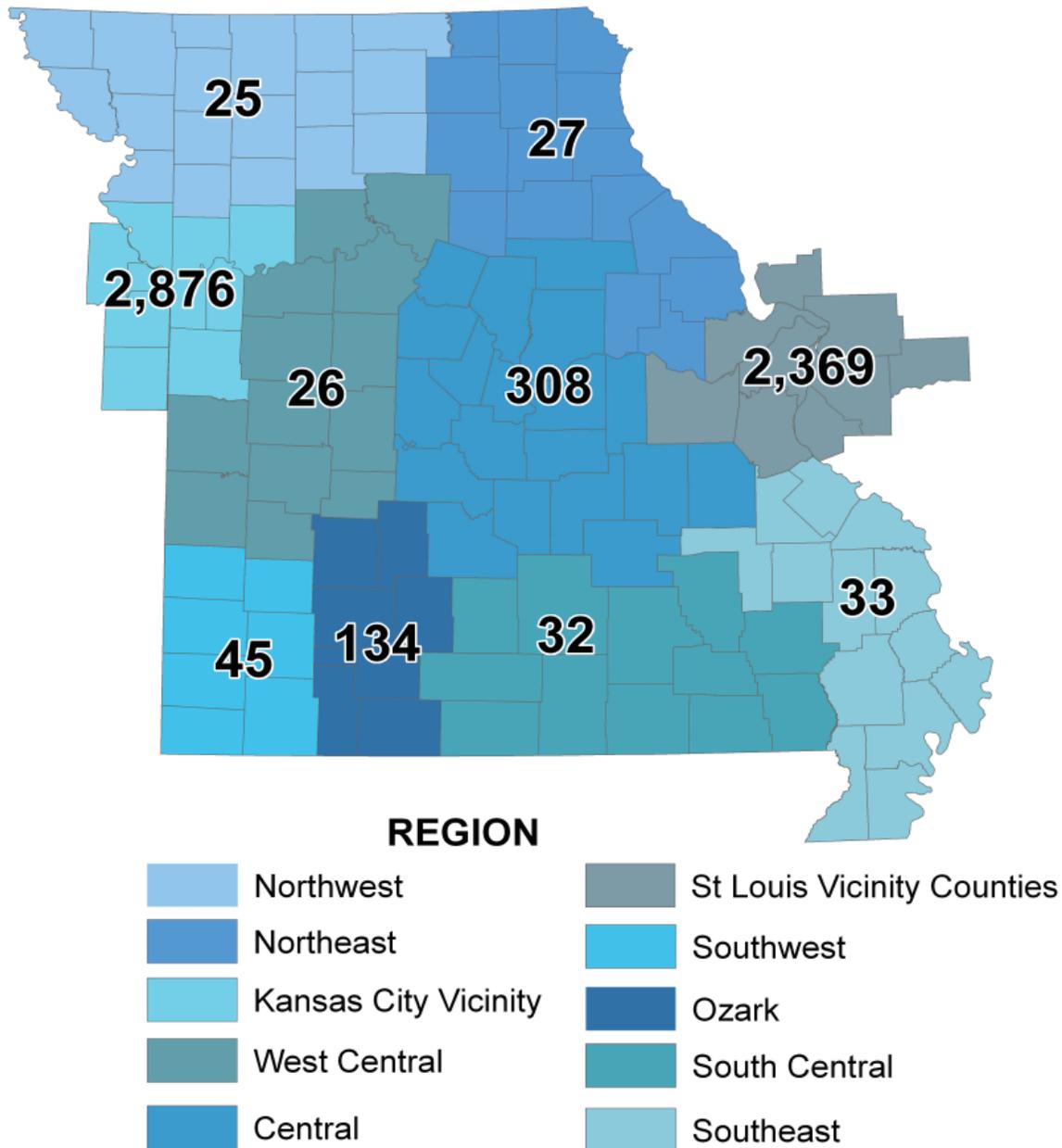
VACANCIES BY REGION

Regional Overview

The most job vacancies in METS-related occupations were in the Kansas City and St. Louis survey regions. Vacancies in these two regions accounted for 89 percent of the statewide total. Occupations with the most vacancies in Kansas City were Computer Support Specialists (327), Civil Engineers (262), and Accountants and Auditors (240). Occupations with a heavy concentration of vacancies in St. Louis were Accountants and Auditors (228), Auto Service Technicians and Mechanics (165), and Computer Systems Analysts (155).

Other regions with significant vacancies were the Central region where Computer Support Specialists (49) and Civil Engineers (41) contained the most vacancies and the Ozark region where Civil Engineers (56) and Health Specialties Teachers, Postsecondary (12) had the highest vacancy total.

Missouri Job Vacancies for METS-Related Occupations



VACANCIES BY INDUSTRY AND OCCUPATION

METS Discipline Top Industries - All Regions	Vacancies
Professional, Scientific, & Technical Services	1,677
Manufacturing	602
Finance & Insurance	518
Retail Trade	458
Educational Services	422
Other Services (except Public Administration)	419
Construction	392
Public Administration	347
Health Care & Social Assistance	291
Wholesale Trade	231
Real Estate & Rental & Leasing	175
Information	122
Administrative & Support & Waste Management & Remediation Services	85
Total - All Industries - All Regions	5,875

Table 3

Occupation

In all regions, METS-related occupations with the most vacancies were Accountants and Auditors, Computer Support Specialists, and Civil Engineers. These three occupations accounted for nearly one-quarter (24%) of all METS-related occupations statewide.

Among Computer Support Specialists:

- The majority of vacancies (72%) were from the Kansas City & Vicinity region.
- Within the Kansas City region, most were located in Jackson County (91%).
- Respondents indicated that for over two-thirds of the vacancies (67%), they had “no difficulty” filling the position with the required experience needed.
- Benefits most commonly offered for vacancies were vacation (91%) and on-the-job training (70%).
- Thinking skills most commonly required of applicants were learning new skills (73%) and critical thinking (31%).

Industry

Vacancies in the Professional, Scientific, & Technical Services industry accounted for 29 percent of METS vacancies in all regions.

In the Professional, Scientific, & Technical Services industry:

- Occupations with the most vacancies were Civil Engineers (353), Accountants and Auditors (226), and Architects, Except Landscape and Naval (121).
- The majority of vacancies (56%) were in the Engineering METS discipline.
- The majority of vacancies (66%) were from the Kansas City & Vicinity region.
- Respondents indicated that for over half of the vacancies (51%), they had “some” or “great difficulty” filling the position with the required experience needed.
- Nearly three out of every four vacancies (74%) required an education level of at least a four-year degree.

METS Discipline Top Occupations - All Regions	Vacancies
Accountants & Auditors	483
Computer Support Specialists	457
Civil Engineers	453
Automotive Service Technicians & Mechanics	351
Construction Managers	263
Engineering Managers	259
Computer Systems Analysts	252
Computer Software Engineers, Applications	227
Electrical Engineers	188
Computer Programmers	182
Mechanical Engineers	175
Computer Security Specialists	172
Industrial Engineers	147
Architects, Except Landscape & Naval	127
Computer Specialists, All Other	120
Computer & Information Systems Managers	117
Architectural & Civil Drafters	110
Total - All Occupations - All Regions	5,875

Table 4

VACANCIES BY EDUCATION AND EXPERIENCE

Education Level	Vacancies
Four-Year College Degree	3,045
High School Diploma	900
Graduate/Professional Degree	488
Two-Year Associate Degree	437
None	139
Special Certification	137
Some High School	97
Professional Certification	76
Technical Certification	67
Total - All Regions	5,386

Table 5

Education

Not surprisingly, most vacancies for METS-related occupations required some type of higher education. The overwhelming majority required at least a four-year college degree (57%). There was also a smaller, yet significant percent of all METS-related vacancies requiring a graduate/professional degree (9%).

Occupations with the most vacancies requiring a four-year college degree were Accountants and Auditors (423), Civil Engineers (373), Computer Software Engineers, Applications (163), Mechanical Engineers (162), and Computer Systems Analysts (159).

Among vacancies which required a graduate/professional degree:

- Occupations with the most vacancies were Health Specialties Teachers, Postsecondary (78), Biological Science Teachers, Postsecondary (62), Medical Scientists, except Epidemiologists (40), Business Teachers, Postsecondary (31), and Biochemists and Biophysicists (31).
- The highest percentage of vacancies were from the Kansas City & Vicinity (42%) and the St. Louis & Vicinity (38%) regions.
- Workplace competencies deemed most important for vacancies were job specific technical skills (69%), interpersonal skills (56%), and leadership qualities (44%).
- Thinking skills most commonly required of applicants were critical thinking (53%) and decision making (46%).

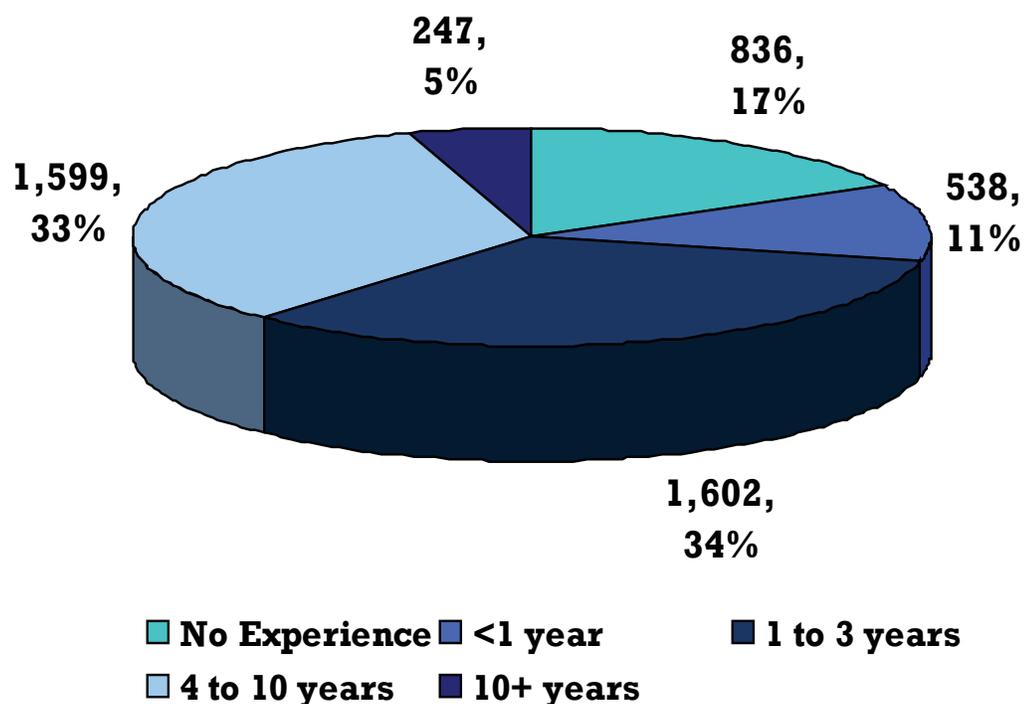
Experience

Over two-thirds of vacancies in METS-related occupations required either one to three years or four to ten years experience to fill the opening.

For vacancies requiring one to three years experience:

- Respondents indicated that the benefits most commonly offered were vacation and medical insurance, each cited for 93 percent of vacancies.
- The most common incentives offered were a 401K saving plan (74%) and tuition reimbursement (63%).

Vacancies by Experience Level

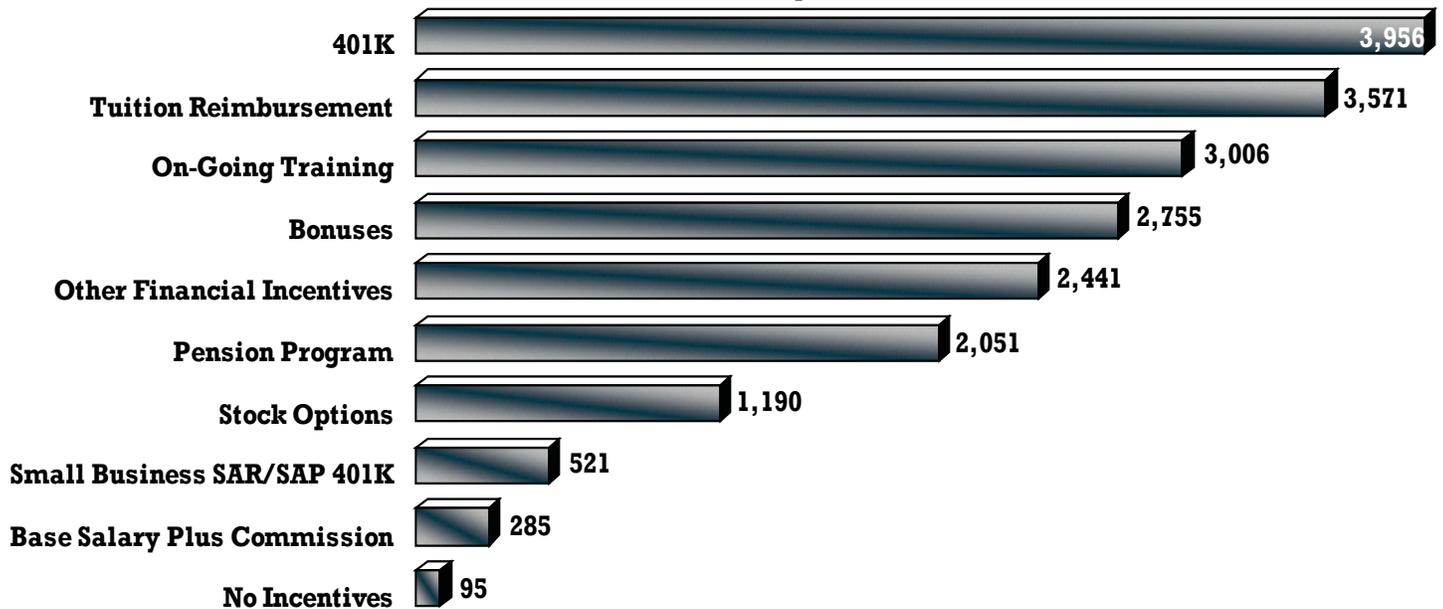


VACANCIES BY INCENTIVES AND BENEFITS

Incentives

Respondents of METS-related occupations indicated three incentive options were offered for more than half of the vacancies: 401K saving plan (70%), tuition reimbursement (63%), and on-going training (53%). The less popular options were stock options (21%) and pension programs (36%).

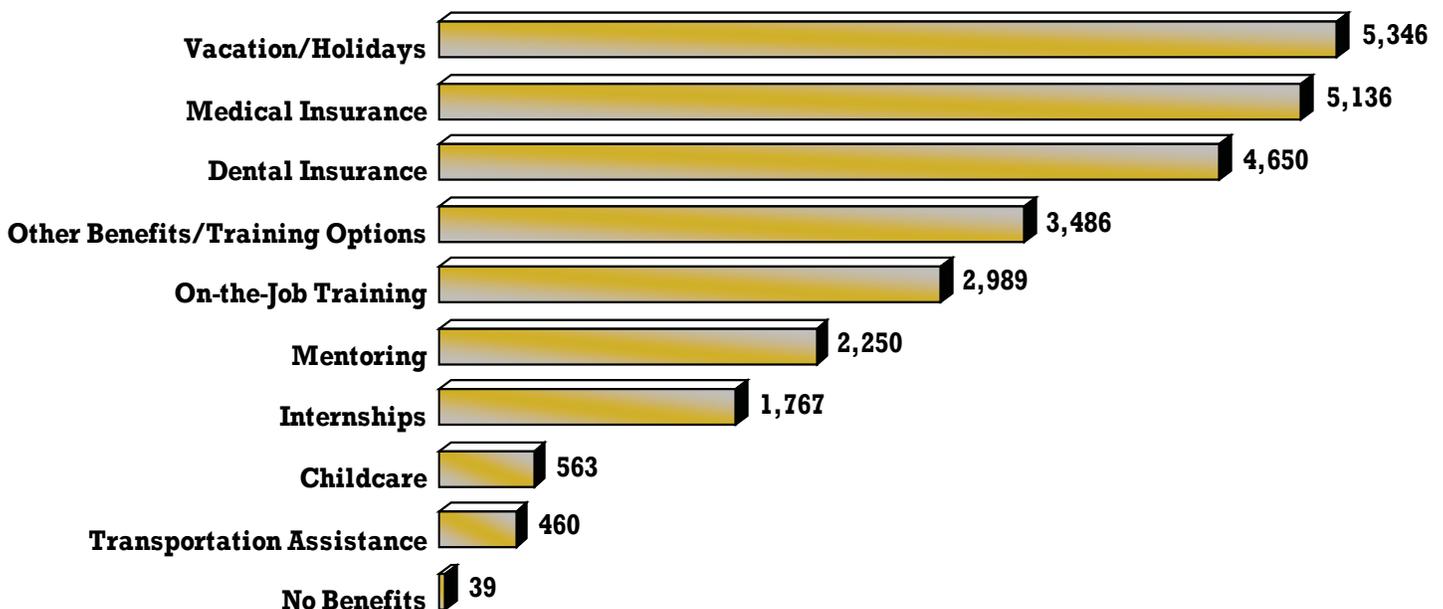
Vacancies by Incentives Offered



Benefits

Three benefit options were offered for more than 80 percent of METS-related vacancies: vacation/holidays (94%), medical insurance (90%), and dental insurance (82%). The less popular benefit options were transportation assistance (8%) and childcare (10%).

Vacancies by Benefits Offered



VACANCIES BY SKILLS, COMPETENCIES AND SHORTCOMINGS

Thinking Skills	Vacancies
Critical Thinking	4,237
Decision Making	3,694
Learning New Skills	3,457
Reading Charts	2,801
Other Thinking Skills Required	387
No Thinking Skills Required	77
Total - All Regions	4,894

Table 6

Competencies

Interpersonal skills, specific technical skills, and computer literacy were all required competencies for over 75 percent of METS-related vacancies.

Among vacancies which required technical skills:

- The Engineering (36%) METS single-discipline had the highest percentage of vacancies, followed by Computer Science (34%).
- Occupations with the most vacancies were Computer Support Specialists (403), Accountants and Auditors (370), Automotive Service Technicians and Mechanics (343), and Civil Engineers (267).
- Respondents indicated that for just under half of the vacancies (47%), they had “some” or “great difficulty” filling the position with the required experience needed.

Shortcomings	Vacancies
Poor Communication Skills	1,449
Lack of Positive Attitude	1,411
Poor Technical Skills	1,320
Poor Work Ethic	974
Lack of Industry Knowledge	943
Other Shortcomings	917
Poor Customer Service Skills	783
Poor Writing Skills	745
Lack of Computer Skills	631
Inability to Understand Written Information	620
Poor Basic Math Skills	406
No Shortcomings	253
Total - All Regions	2,939

Table 8

Thinking Skills

Respondents indicated three of the four thinking skills were required for at least 70 percent of the vacancies: critical thinking (87%), decision making (76%), and learning new skills (71%). Occupations which required critical thinking with the most vacancies were Civil Engineers (383), Accountants and Auditors (378), and Automotive Service Technicians and Mechanics (343).

Competencies	Vacancies
Interpersonal Skills	4,734
Specific Technical Skills	4,621
Computer Literacy	4,345
Acquiring/Using Information	3,675
Managing Time Wisely	3,607
Leadership	3,600
Habits (Punctuality/Good Hygiene)	3,482
Other Workplace Competencies	403
No Workplace Competencies	1
Total - All Regions	5,592

Table 7

Shortcomings

Poor communication skills, lack of positive attitude, and poor technical skills were all shortcomings of recent applicants for over 40 percent of METS-related vacancies.

Among vacancies with the shortcoming of poor technical skills:

- Respondents indicated that for 27 percent of vacancies, applicants met job requirements “very well” or “well.”
- Occupations with the most vacancies were Automotive Service Technicians and Mechanics (299), Engineering Managers (182), and Construction Managers (145).
- Respondents indicated that for 84 percent of vacancies, they had “some” or “great difficulty” filling the position with the required experience needed.

CONCLUSION

Conclusion

There are a number of conclusions which can be drawn looking at Job Vacancy Survey data through the lens of METS-related occupations. The data allows a very broad or very narrowly-focused approach to analyzing the information. Some broad conclusions include:

- Since vacancies in METS-related occupations required both higher education and experience levels than vacancies for all occupations, they were harder to fill with the required experience and had applicants that matched well to job requirements at lower percentages.
- The percent of vacancies in METS-related occupations which require a four-year college degree were four times higher than for those vacancies in all occupations (57 percent versus 14 percent).
- Given the higher education requirements, vacancies in METS-related occupations were harder to fill than were those vacancies in all occupations. By a two-to-one margin, respondents indicated they had “greater difficulty” filling METS-related vacancies with the required experience needed than vacancies in all occupations (41 percent versus 19 percent).
- Likewise, employers of METS-related occupations had a lower percentage of applicants that matched job requirements either “well” or “very well” when compared to vacancies for all occupations (30 percent versus 37 percent).
- Different skill sets and competencies were required at differing rates for vacancies in METS-related occupations compared to vacancies for all occupations.
- Math skills at greater than a 10th grade level were required for vacancies in METS-related occupations at more than an eight in ten ratio, compared to vacancies in all occupations which required math skills at that level for more than half the vacancies (84 percent versus 53 percent).
- Reading skills at greater than a 10th grade level were required for vacancies in METS-related occupations at more than a nine in ten ratio, compared to vacancies in all occupations which required reading skills at that level for more than six in ten of the vacancies (94 percent versus 61 percent).
- Respondents indicated that the top competency important to fill vacancies in both METS-related occupations and all occupations was the “soft skill” of interpersonal communication. However, the next two most predominant competencies in METS-related vacancies were the “hard skill” competencies of specific technical skills and computer literacy. These two competencies, by contrast, were at the bottom of the list of competencies for vacancies in all occupations.
- Specific technical skills were a more important competency for vacancies in METS-related occupations than for vacancies in all occupations (83 percent versus 63 percent).
- Computer literacy was also a more important competency for vacancies in METS-related occupations than for vacancies in all occupations (78 percent versus 56 percent).

For a more narrowly-focused approach, the Job Vacancy Survey data merged with METS-related occupations can be examined through several cross-variable analyses. For example, “What is the most common benefit and training opportunity for Computer Support Specialists in the Central region?” would be a more narrowly-focused, customized question which could be answered from Job Vacancy Survey data.

Such customized analysis as this and other Job Vacancy Survey reporting can be produced by the Missouri Economic Research and Information Center (MERIC). Email MERIC at mericdata@ded.mo.gov or call at 1-866-225-8113. Access the MERIC website at missourieconomy.org and the Missouri Job Vacancy Survey website at <http://pprc.umsi.edu/JVS/>.