

August 2020

Labor Market Analysis

Business Information Technology



Prepared by the Central Valley/Mother Lode Center of Excellence

Table of Contents

Summary	3
Key findings	3
Introduction.....	4
Occupational Demand	5
Wages	6
Job Postings	7
Education.....	7
Baseline and Specialized Skills	8
Software Skills	8
Certifications	9
Education, Work Experience & Training	9
Supply.....	9
Gap Analysis	10
Student Outcomes	11
Conclusion.....	11
Recommendation	11
Appendix A: Methodology & Data Sources	12

COVID-19 Statement: This report includes employment projection data by EMSI. EMSI’s projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy during the projection period will be at approximately full employment or potential output. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, they may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Other measures such as unemployment rates and monthly industry employment estimates will reflect the most recent information on employment and jobs in the state and, in combination with input from local employers, may help validate current and future employment needs as depicted here.

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Summary

Please note the COVID-19 statement on page 2 when considering this report's findings.

This study conducted by the Central Valley/Mother Lode Center of Excellence examines labor market demand, wages, skills, and postsecondary supply for business information technology workers. Six occupations related to business information technology workers were identified for Modesto Junior College: 43-9061, Office Clerks, General; 43-6014, Secretaries and Administrative Assistants, Except Legal, Medical, and Executive; 43-6011, Executive Secretaries and Executive Administrative Assistants; 43-9021, Data Entry Keyers; 43-9022, Word Processors and Typists; and 43-3061, Procurement Clerks.

Key findings:

- **Occupational demand** — Nearly 23,000 workers were employed in jobs related to business information technology in 2019 in the North Central Valley/Northern Mother Lode (NCV/NML) subregion. The largest occupation is office clerks, general, with 12,129 workers in 2019, a projected growth rate of 3% over the next five years, and 1,564 annual openings.
- **Wages** — Executive secretaries and executive administrative assistants earn the highest entry-level wages, \$22.23/hour in the subregion and \$22.31/hour in the region.
- **Employers** — Employers with the most job postings in the subregion are Manteca Unified School District, The News Tribune Com, and University of the Pacific.
- **Occupational titles** — The most common occupational title in job postings in the subregion is secretaries and administrative assistants, except legal, medical, and executive. The most common job title is administrative assistant.
- **Skills and certifications** — The top baseline skill is Microsoft Excel, the top specialized skill is administrative support, and the top software skill is Microsoft Excel. The most in-demand certification is a driver's license.
- **Education** — A high school diploma or the equivalent is typically required for all six occupations, along with either short-term or moderate-term on-the-job training.
- **Supply** — Analysis of postsecondary completions in the region shows that on average 695 awards were conferred in the Central Valley/Mother Lode region each year.

Based on a comparison of occupational demand and supply, there is an undersupply of 2,685 trained workers in the subregion and 6,742 workers in the region. The Center of Excellence recommends that Modesto Junior College work with the Business and Entrepreneurship Regional Director, the college's advisory board, and local industry in the development of programs to address the shortage of business information technology workers in the region.

Introduction

The Central Valley/Mother Lode Center of Excellence was asked by Modesto Junior College to provide labor market information for business information technology workers. Review of the Taxonomy of Programs (TOP) and Classification of Instructional Programs (CIP) found the following programs are appropriate for this analysis:

- TOP 051400 - Office Technology/Office Computer Applications
- CIP 52.0407 - Business/Office Automation/Technology/Data Entry
- CIP 52.0408 - General Office Occupations and Clerical Services
- TOP 070100 - Information Technology, General
- TOP 11.0101 - Computer and Information Sciences, General

The geographical focus for this report is the North Central Valley/Northern Mother Lode (NCV/NML) subregion, but regional demand and supply data has been included for broader applicability and use. The average living wage for a single adult in the North Central Valley/Northern Mother Lode (NCV/NML) subregion is \$10.27/hour.¹ Analysis of the program and occupational data related to business information technology workers resulted in the identification of applicable occupations. The Standard Occupational Classification (SOC) System codes and titles used in this report are:

- 43-9061, Office Clerks, General
- 43-6014, Secretaries and Administrative Assistants, Except Legal, Medical, and Executive
- 43-6011, Executive Secretaries and Executive Administrative Assistants
- 43-9021, Data Entry Keyers
- 43-9022, Word Processors and Typists
- 43-3061, Procurement Clerks

The occupational titles, job descriptions, sample job titles, and knowledge and skills from the Bureau of Labor Statistics and O*NET OnLine are shown below.

Office Clerks, General

Job Description: Perform duties too varied and diverse to be classified in any specific office clerical occupation, requiring knowledge of office systems and procedures. Clerical duties may be assigned in accordance with the office procedures of individual establishments and may include a combination of answering telephones, bookkeeping, typing or word processing, stenography, office machine operation, and filing.

Knowledge: Clerical, English Language, Customer and Personal Service, Administration and Management

Skills: Active Listening, Reading Comprehension, Speaking, Writing, Coordination

Secretaries and Administrative Assistants, Except Legal, Medical, and Executive

Job Description: Perform routine clerical and administrative functions such as drafting correspondence, scheduling appointments, organizing and maintaining paper and electronic files, or providing information to callers.

Knowledge: Clerical, English Language, Computers and Electronics, Customer and Personal Service, Administration and Management

Skills: Active Listening, Speaking, Reading Comprehension, Writing, Service Orientation

¹ The term "living wage" in Center of Excellence reports is calculated by averaging the self-sufficiency wages from the Insight Center's California Family Needs Calculator for each county in the subregion: <https://insightccd.org/tools-metrics/self-sufficiency-standard-tool-for-california/>.

Executive Secretaries and Executive Administrative Assistants

Job Description: Provide high-level administrative support by conducting research, preparing statistical reports, handling information requests, and performing clerical functions such as preparing correspondence, receiving visitors, arranging conference calls, and scheduling meetings. May also train and supervise lower-level clerical staff.

Knowledge: Clerical, English Language, Customer and Personal Service, Computers and Electronics, Administration and Management

Skills: Active Listening, Reading Comprehension, Speaking, Service Orientation, Writing

Data Entry Keyers

Job Description: Operate data entry device, such as keyboard or photo composing perforator. Duties may include verifying data and preparing materials for printing.

Knowledge: English Language, Clerical, Customer and Personal Service, Law and Government

Skills: Reading Comprehension, Active Listening, Monitoring, Time Management, Writing

Word Processors and Typists

Job Description: Use word processor, computer or typewriter to type letters, reports, forms, or other material from rough draft, corrected copy, or voice recording. May perform other clerical duties as assigned.

Knowledge: Clerical, English Language, Customer and Personal Service, Computers and Electronics

Skills: Reading Comprehension, Active Listening, Writing, Monitoring, Speaking

Procurement Clerks

Job Description: Compile information and records to draw up purchase orders for procurement of materials and services.

Knowledge: Clerical, Customer and Personal Service, Administration and Management, English Language, Education and Training

Skills: Reading Comprehension, Speaking, Active Listening, Writing, Complex Problem Solving

Occupational Demand

The North Central Valley/Northern Mother Lode subregion employed 22,904 workers in business information technology occupations in 2019 (Exhibit 1). The largest occupation is office clerks, general, with 12,129 workers in 2019. This occupation is projected to grow by 3% over the next five years and has the greatest number of projected annual openings, 1,564.

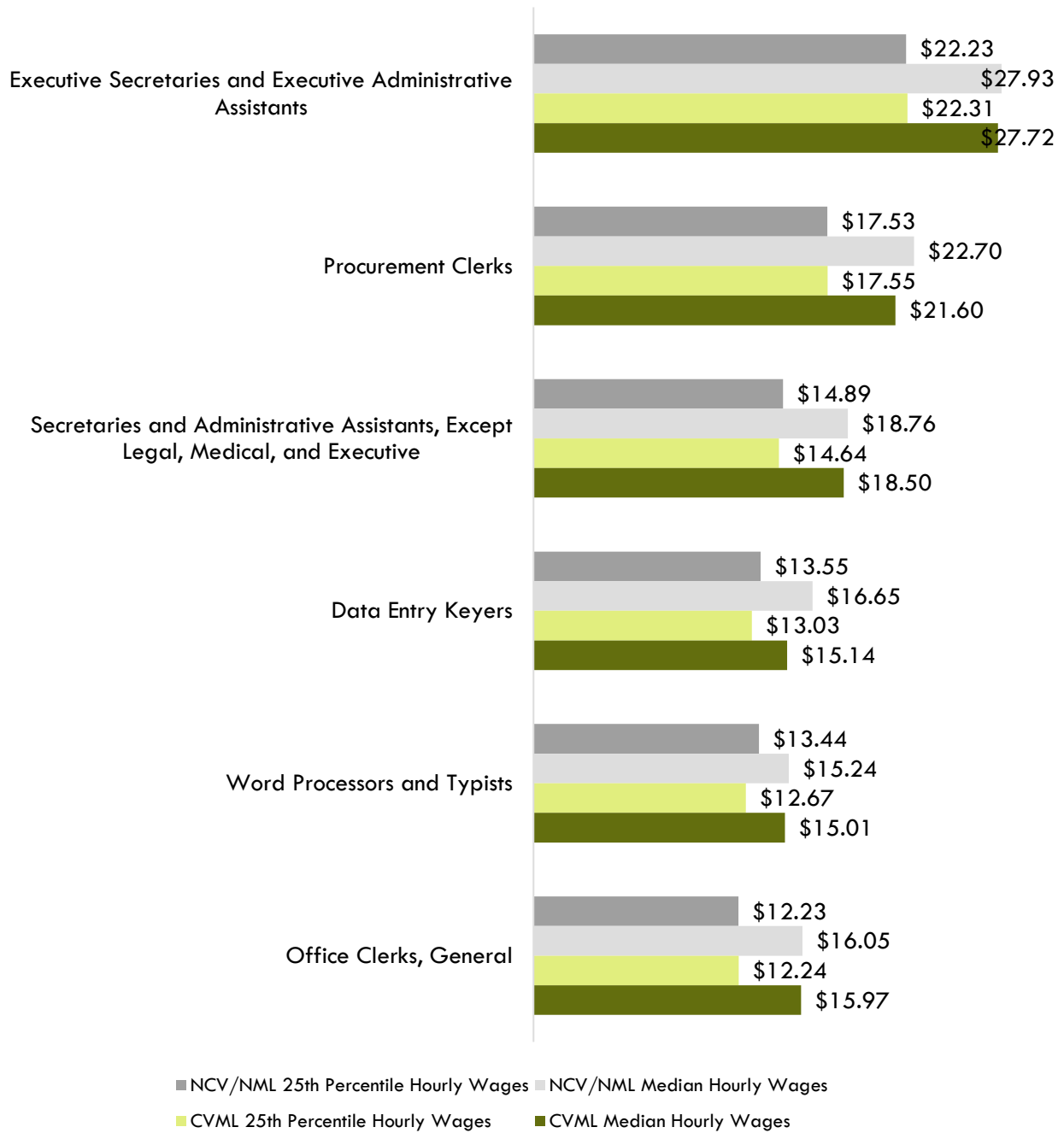
Exhibit 1. Business IT employment and occupational projections, NCV/NML subregion

Occupation	2019 Jobs	2024 Jobs	5-Year Change	5-Year % Change	Annual Openings
Office Clerks, General	12,129	12,464	335	3%	1,564
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	8,246	8,269	23	0%	958
Executive Secretaries and Executive Administrative Assistants	1,323	1,272	(51)	(4%)	149
Data Entry Keyers	670	614	(56)	(8%)	75
Word Processors and Typists	273	245	(28)	(10%)	32
Procurement Clerks	262	266	4	2%	29
Total	22,904	23,129	227	(18%)	2,806

Wages

Exhibit 2 compares the entry-level and experienced wages of the business information technology workers. Executive secretaries and executive administrative assistants earn the highest entry-level wages, \$22.23/hour in the subregion and \$22.31/hour in the region.

Exhibit 2. Entry-level and experienced wage comparison in the NCV/NML subregion and region



Job Postings

There were 1,440 job postings for the six occupations in the NCV/NML subregion from February to July 2020. The employers with the most job postings are listed in Exhibit 3.

Exhibit 3. Top employers of business information technology workers by number of job postings

Employer	Job Postings	% of Job Postings
Manteca Unified School District	14	1%
The News Tribune Com	14	1%
University Pacific	13	1%
Lodi Unified School District	12	1%
Kelly	11	1%
Morani Enterprise	11	1%
Anthem Blue Cross	10	1%
Stanislaus County Office of Education	10	1%
Modesto City Schools	9	1%
San Joaquin County	9	1%

Exhibit 4 shows how job postings for the targeted occupations in the NCV/NML subregion are distributed across six O*NET OnLine occupations. The occupational title secretaries and administrative assistants, except legal, medical, and executive is listed in 699 job postings, followed by office clerks (general), 461 job postings. Note how secretaries and administrative assistants (except legal, medical, and executive) dominates the job postings. Common job titles in postings include administrative assistant, 398 job postings, office assistant, 173 job postings, and office clerk, 59 job postings.

Exhibit 4. Top occupational titles in job postings for business information technology workers

Occupational Title	Job Postings	% of Job Postings
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	699	49%
Office Clerks, General	461	32%
Data Entry Keyers	143	10%
Executive Secretaries and Executive Administrative Assistants	56	4%
Word Processors and Typists	49	3%
Procurement Clerks	32	2%

Education

Of the 1,440 job postings, 726 listed an education level preferred for the positions being filled. Of those, 84% requested high school or vocational training, 22% requested a bachelor's degree, and 20% requested an associate degree (Exhibit 5).

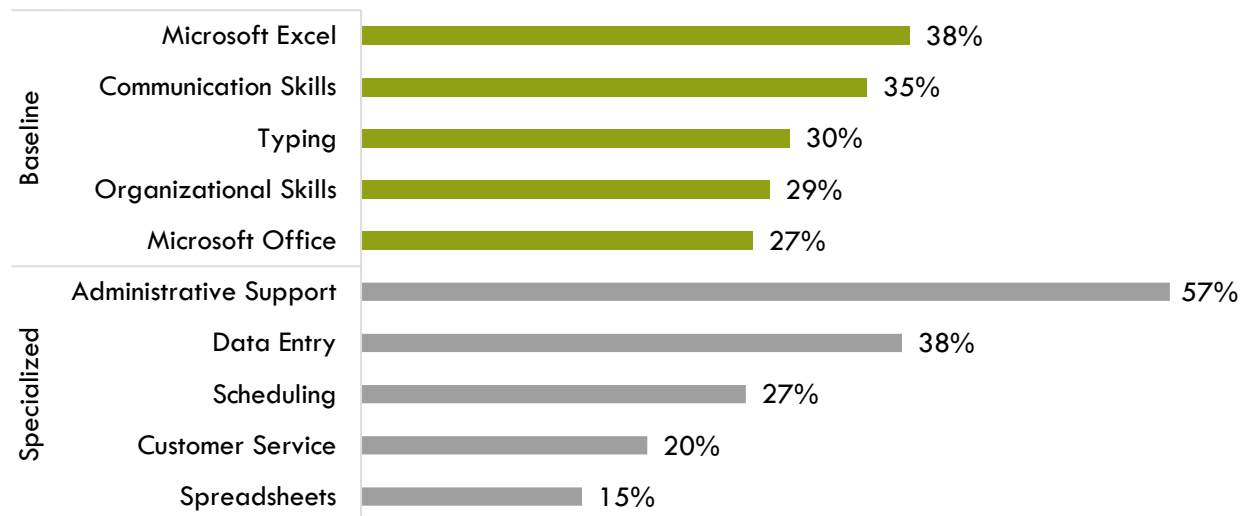
Exhibit 5. Education levels requested in job postings for business information technology workers

Education level	% of Job Postings
High school or vocational training	84%
Bachelor's degree	22%
Associate degree	20%
Doctoral degree	5%
Master's degree	5%

Baseline and Specialized Skills

Exhibit 6 depicts the top baseline and specialized skills for the targeted occupations. The three most important baseline skills are Microsoft Excel, 38% of job postings, communication, 35%, and typing, 30%. The top three specialized skills are administrative support, 57% of job postings, data entry, 38%, and scheduling, 27%.

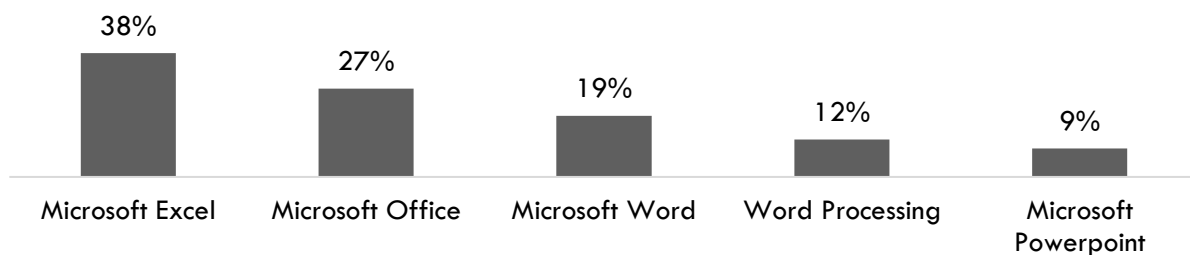
Exhibit 6. In-demand business information technology baseline and specialized skills



Software Skills

Analysis also included the software skills most in demand by employers. Microsoft Excel and Microsoft Office rank first and second (Exhibit 7).

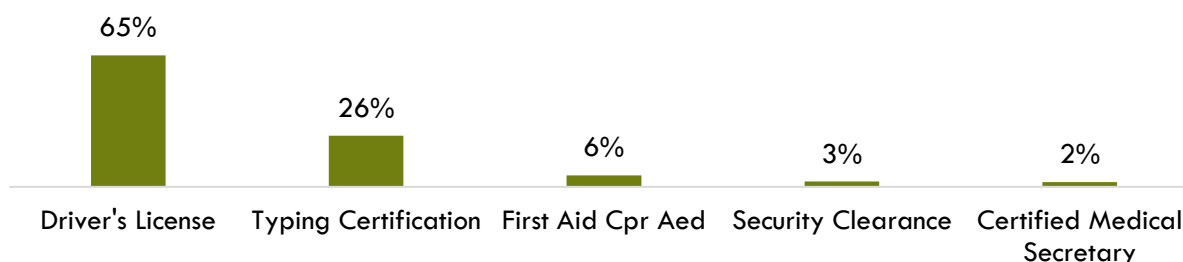
Exhibit 7. In-demand business information technology software skills



Certifications

Of the 1,440 job postings, 298 contained certification data. Of those, 65% indicated a need for a driver's license. The next top certifications are typing certification and First Aid/CPR/AED (Exhibit 8). (Due to the low number of job postings with certifications listed, the chart below may not be representative of the full sample.)

Exhibit 8. Top business information technology certifications requested in job postings



Education, Work Experience & Training

A high school diploma or the equivalent is typically required for all six occupations, along with either short-term or moderate-term on-the-job training (Exhibit 9).

Exhibit 9. Education, work experience, training and Current Population Survey results for business information technology workers²

Occupation	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training
Procurement Clerks	High school diploma or equivalent	None	Moderate-term
Executive Secretaries and Executive Administrative Assistants	High school diploma or equivalent	Less than 5 years	None
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	High school diploma or equivalent	None	Short-term
Data Entry Keyers	High school diploma or equivalent	None	Short-term
Word Processors and Typists	High school diploma or equivalent	None	Short-term
Office Clerks, General	High school diploma or equivalent	None	Short-term

Supply

Analysis of program data from the California Community Colleges Chancellor's Office Data Mart included the TOP and CIP codes: TOP 051400 - Office Technology/Office Computer Applications; CIP 52.0407 - Business/Office Automation/Technology/Data Entry; CIP 52.0408 - General Office Occupations and Clerical Services; TOP 070100 - Information Technology, General; and TOP 11.0101 - Computer and Information Sciences, General. Analysis of the last three years of TOP code data shows that, on average, 695 awards were conferred in the Central Valley/Mother Lode region each year (Exhibit 10).

² "Labor Force Statistics from the Current Population Survey," Bureau of Labor Statistics, <https://www.bls.gov/cps/>.

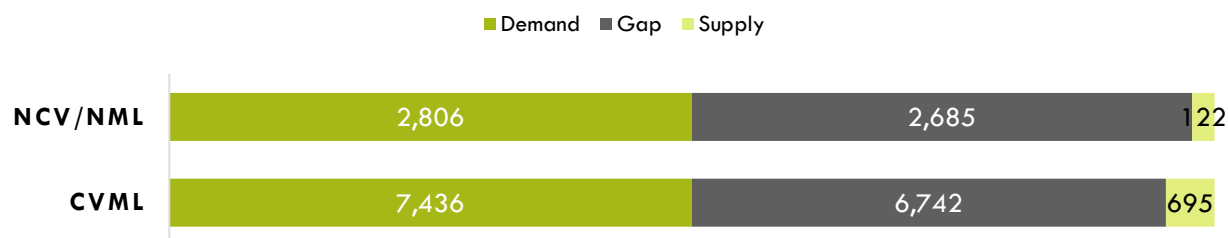
Exhibit 10. Postsecondary supply for business information technology workers in the region

TOP Title-Code	College	2014-15	2015-16	2016-17	2017-18	2018- 19	Latest 3-year Average
051400 - Office Technology/Office Computer Applications	Bakersfield			19	32	37	29
	Cerro Coso			13	32	45	30
	Columbia			1	2	-	1
	Fresno City			54	72	40	55
	Merced			29	40	82	50
	Modesto			12	15	12	13
	Reedley College			59	83	61	68
	San Joaquin Delta			17	18	11	15
	Sequoias			4	4	1	3
	Taft			3	3	10	5
	West Hills Coalinga			7	4	3	5
West Hills Lemoore			-	-	1	0	
52.0407 - Business/Office Automation/Techn ology/Data Entry	MTI Business College Inc	3	-	2			2
52.0408 - General Office Occupations and Clerical Services	Computer Tutor Business and Technical Institute	22	5	6			11
	MTI Business College Inc	18	13	13			15
	San Joaquin Valley College-Visalia	196	264	199			220
	UEI College-Bakersfield	53	55	49			52
	UEI College-Fresno	35	63	77			58
	United Education Institute- UEI College Stockton	53	43	25			40
070100 - Information Technology, General	Modesto			-	2	2	1
	Porterville			-	2	8	3
	San Joaquin Delta			1	-	-	0
	Sequoias			-	-	1	0
11.0101 - Computer and Information Sciences, General	Milan Institute-Visalia	-	7	9			5
	Santa Barbara Business College-Bakersfield	12	13	7			11
TOTAL		392	463	606	309	314	695

Gap Analysis

There is an undersupply of 2,685 business information technology workers in the NCV/NML subregion and 6,742 workers in the region (Exhibit 11).

Exhibit 11. Business information technology workforce annual demand and supply in the NCV/NML subregion and region



Student Outcomes

Exhibit 12 summarizes employment and wage outcomes from the California Community College Chancellor’s Cal-PASS Plus LaunchBoard for the TOP codes related to business information workers. Across the region, 184 office technology/office computer applications students received a degree/certificate or attained apprenticeship journey status, and 753 information technology, general, students transferred.

Exhibit 12. Regional metrics for the TOP codes related to business information technology workers

Metric	Office Technology/Office Computer Applications 051400	Information Technology, General 070100
Students Who Got a Degree or Certificate or Attained Apprenticeship Journey Status	184	*
Number of Students Who Transferred	186	753
Job Closely Related to Field of Study	69%	65%
Median Change in Earnings	22%	39%
Attained a Living Wage	54%	57%

* denotes data not available.

Conclusion

The entry-level wages of the six occupations exceed the NCV/NML subregion’s average living wage. There were 1,440 job postings in the past six months for occupations related to business information technology workers in the subregion. Analysis of skills and certification requirements in job postings indicates:

- The top baseline skill is Microsoft Excel, and the top specialized skill is administrative support.
- The top software skill is Microsoft Excel.
- The top certification is a driver’s license.

There is an undersupply of trained workers, a shortage of 2,685 in the NCV/NML subregion and 6,742 in the region.

Recommendation

Based on these findings, it is recommended that Modesto Junior College work with the Business and Entrepreneurship Regional Director, the college’s advisory board, and local industry in the development of programs to address the shortage of business information technology workers in the region.

Appendix A: Methodology & Data Sources

Data Sources

Labor market and educational supply data compiled in this report derive from a variety of sources. Data were drawn from external sources, including the Economic Modeling Specialists, Inc., the California Community Colleges Chancellor's Office Management Information Systems Data Mart and the National Center for Educational Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS). Below is the summary of the data sources found in this study.

Data Type	Source
Labor Market Information/Population Estimates and Projections/Educational Attainment	Economic Modeling Specialists, Intl. (EMSI). EMSI occupational employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level EMSI earnings by industry: economicmodeling.com .
Typical Education Level and On-the-job Training	Bureau of Labor Statistics (BLS) uses a system to assign categories for entry-level education and typical on-the-job training to each occupation for which BLS publishes projections data: https://www.bls.gov/emp/tables/educational-attainment.htm .
Labor Force, Employment and Unemployment Estimates	California Employment Development Department, Labor Market Information Division: labormarketinfo.edd.ca.gov .
Job Posting and Skills Data	Burning Glass: burning-glass.com/ .
Additional Education Requirements/ Employer Preferences	The O*NET Job Zone database includes over 900 occupations as well as information on skills, abilities, knowledge, work activities and interests associated with specific occupations: onetonline.org .

Key Terms and Concepts

Annual Job Openings: Annual openings are calculated by dividing the number of years in the projection period by total job openings.

Education Attainment Level: The highest education attainment level of workers age 25 years or older.

Employment Estimate: The total number of workers currently employed.

Employment Projections: Projections of employment are calculated by a proprietary Economic Modeling Specialists, Intl. (EMSI) formula that includes historical employment and economic indicators along with national, state and local trends.

Living Wage: The cost of living in a specific community or region for one adult and no children. The cost increases with the addition of children.

Occupation: An occupation is a grouping of job titles that have a similar set of activities or tasks that employees perform.

Percent Change: Rate of growth or decline in the occupation for the projected period; this does not factor in replacement openings.

Replacements: Estimate of job openings resulting from workers retiring or otherwise permanently leaving an occupation. Workers entering an occupation often need training. These replacement needs, added to job openings due to growth, may be used to assess the minimum number of workers who will need to be trained for an occupation.

Total Job Openings (New + Replacements): Sum of projected growth (new jobs) and replacement needs. When an occupation is expected to lose jobs, or retain the current employment level, number of openings will equal replacements.

Typical Education Requirement: represents the typical education level most workers need to enter an occupation.

Typical On-The-Job Training: indicates the typical on-the-job training needed to attain competency in the skills needed in the occupation.