

BUSINESS OPERATIONS, MANAGEMENT AND ENTREPRENEURSHIP OCCUPATIONS

December 2020
San Diego County



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SUMMARY AND FINDINGS



The San Diego-Imperial Center of Excellence for Labor Market Research (COE) completed this study to assist the San Diego and Imperial Counties Community Colleges with program development and strategic planning for *Business Operations, Management, and Entrepreneurship Occupations*. The San Diego-Imperial COE analyzed the following occupations for this report: “Administrative Services and Facilities Managers,” “Advertising and Promotions Managers,” “Chief Executives,” “General and Operations Managers,” “Marketing Managers,” “Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other,” “Public Relations and Fundraising Managers,” and “Sales Managers.”

According to available labor market information, the combined demand for these occupations is 5,323 annual job openings, and 25 educational institutions in San Diego County supply 7,018 awards for these occupations, suggesting that there is an **oversupply** in the labor market. With the exception of Business Management Programs (TOP 0506.00), International Business and Trade (0508.00), and Management Development and Supervision (0506.30) the percentage of students who completed programs related to these occupations and obtained a living wage was lower than students in Career Education programs in general. Entry-level and median wages for all occupations are above the living wage. **The San Diego-Imperial COE does not recommend developing a new program** for these occupations because 1) there is an estimated oversupply in the region and 2) a significantly high number of institutions train for these occupations. Colleges should also note that employers typically require a bachelor’s degree as the minimum educational requirement for these occupations.

INTRODUCTION

This report provides labor market information in San Diego County for the following occupational codes in the Standard Occupational Classification (SOC)¹ system:

- **Administrative Services Managers** (SOC 11-3012): Plan, direct, or coordinate one or more administrative services of an organization, such as records and information management, mail distribution, and other office support services.
- **Advertising and Promotions Managers** (SOC 11-2011): Plan, direct, or coordinate advertising policies and programs or produce collateral materials, such as posters, contests, coupons, or giveaways, to create extra interest in the purchase of a product or service for a department, an entire organization, or on an account basis.
- **Chief Executives** (SOC 11-1011): Determine and formulate policies and provide overall direction of companies or private and public sector organizations within guidelines set up by a board of directors or similar governing body. Plan, direct, or coordinate operational activities at the highest level of management with the help of subordinate executives and staff managers.
- **General and Operations Managers** (SOC 11-1021): Plan, direct, or coordinate the operations of public or private sector organizations. Duties and responsibilities include formulating policies, managing daily operations, and planning the use of materials and human resources, but are too diverse and general in nature to be classified in any one functional area of management or administration, such as personnel, purchasing, or administrative services.
- **Marketing Managers** (SOC 11-2021): Plan, direct, or coordinate marketing policies and programs, such as determining the demand for products and services offered by a firm and its competitors, and identify potential customers. Develop pricing strategies with the goal of maximizing the firm's profits or share of the market while ensuring the firm's customers are satisfied. Oversee product development or monitor trends that indicate the need for new products and services.
- **Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other** (SOC 11-9198): All personal service managers not listed separately. Plan, direct, or coordinate entertainment and recreational activities and operations of a recreational facility, including cruise ships and parks. All managers not listed separately.

¹ The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc).

- **Public Relations and Fundraising Managers** (SOC 11-2031): Plan, direct, or coordinate activities designed to create or maintain a favorable public image or raise issue awareness for their organization or client; or if engaged in fundraising, plan, direct, or coordinate activities to solicit and maintain funds for special projects or nonprofit organizations.
- **Sales Managers** (SOC 11-2022): Plan, direct, or coordinate the actual distribution or movement of a product or service to the customer. Coordinate sales distribution by establishing sales territories, quotas, and goals and establish training programs for sales representatives. Analyze sales statistics gathered by staff to determine sales potential and inventory requirements and monitor the preferences of customers.

For the purpose of this report, these occupations are referred to as *Business Operations, Management, and Entrepreneurship Occupations*.

SUPPLY GAP ANALYSIS

To assess the training need for occupations in the labor market, the San Diego-Imperial COE compares employer demand with educational supply, which identifies whether a labor market supply gap exists for certain positions. A supply gap suggests that employers have more labor market demand than workers supplied by educational institutions. The following sections provide details on how the supply gap (demand vs. supply) is calculated, as well as student outcomes (e.g., employment, wages) for related programs.

Employer Demand

The San Diego-Imperial COE analyzed historical and projected employment data to determine the number of annual job openings available for *Business Operations, Management, and Entrepreneurship Occupations* in the upcoming years. (This type of longitudinal analysis is referred to as “traditional” labor market information or LMI.) Between 2019 and 2024, *Business Operations, Management, and Entrepreneurship Occupations* are projected to increase by **2,574** net jobs or **five** percent (Exhibit 1). During this period, employers in San Diego County are projected to hire **5,323** workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for Business Operations, Management, and Entrepreneurship Occupations (2009-2024)²

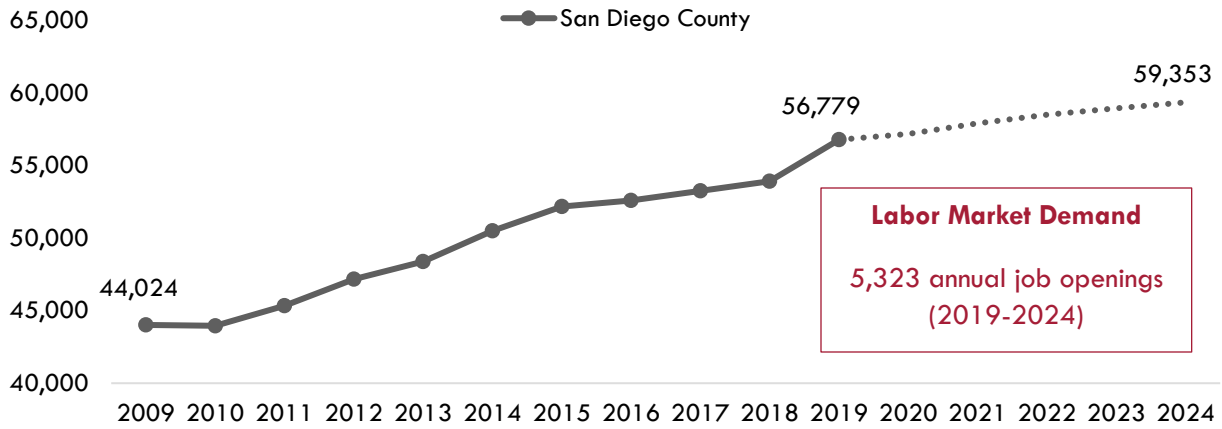


Exhibit 1b breaks down the projected number of jobs change by occupation more specifically: *General and Operations Managers* are projected to increase the most by 1,334 total jobs between 2019 and 2024. *Chief Executives*, however, are the only occupation projected to decline during this period (Exhibit 2).

Exhibit 2: Number of Jobs for Business Operations, Management, and Entrepreneurship Occupations in San Diego County (2019-2024)

Occupational Title	2019 Jobs	2024 Jobs	2019 - 2024 Net Jobs Change	2019-2024 % Net Jobs Change	Annual Job Openings (Demand)
General and Operations Managers	24,281	25,615	1,334	5%	2,411
Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	13,865	14,547	682	5%	1,210
Administrative Services and Facilities Managers	3,901	4,094	193	5%	366
Marketing Managers	3,378	3,568	190	6%	343
Sales Managers	6,737	6,885	148	2%	632
Public Relations and Fundraising Managers	749	786	37	5%	72
Advertising and Promotions Managers	204	215	11	5%	22
Chief Executives	3,664	3,643	-21	-1%	267
Total	56,779	59,353	2,574	5%	5,323

² EMSI 2020.04; QCEW, Non-QCEW, Self-Employed.

Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.³ There are **six** TOP codes and **11** CIP codes related to *Business Operations, Management, and Entrepreneurship Occupations* (Exhibit 3).

Exhibit 3: Related TOP and CIP Codes for *Business Operations, Management, and Entrepreneurship Occupations*

Business Operations, Management, and Entrepreneurship Occupations

TOP 0501.00: Business and Commerce, General

TOP 0505.00: Business Administration

TOP 0506.00: Business Management

TOP 0506.30: Management Development and Supervision

TOP 0506.40: Small Business and Entrepreneurship

TOP 0506.50: Retail Store Operations and Management

TOP 0508.00: International Business and Trade

TOP 0509.00: Marketing and Distribution

TOP 0509.40: Sales and Salesmanship

TOP 0509.70: E-Commerce (business emphasis)

TOP 0514.40: Office Management

TOP 0606.00: Public Relations

CIP 09.0900: Public Relations, Advertising, and Applied Communication

CIP 52.0101: Business/Commerce, General

CIP 52.0201: Business Administration and Management, General

CIP 52.0204: Office Management and Supervision

CIP 52.0205: Operations Management and Supervision

CIP 52.0208: E-Commerce/Electronic Commerce

CIP 52.0211: Project Management

CIP 52.0212: Retail Management

CIP 52.0701: Entrepreneurship/Entrepreneurial Studies

³ TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data).

Business Operations, Management, and Entrepreneurship Occupations

CIP 52.0703: Small Business Administration/Management

CIP 52.1001: Human Resources Management/Personnel Administration, General

CIP 52.1101: International Business/Trade/Commerce

CIP 52.1401: Marketing/Marketing Management, General

CIP 52.1801: Sales, Distribution, and Marketing Operations, General

CIP 52.1803: Retailing and Retail Operations

CIP 52.1804: Selling Skills and Sales Operations

An indicator of whether San Diego County is providing enough program supply to meet labor market demand is the average annual number of related awards (e.g., certificates, degrees) generated between 2015 and 2017 by the region’s community colleges and other educational institutions (e.g., private providers). According to TOP data, **nine** community colleges supply the region with awards for these occupations: **Cuyamaca College, Grossmont College, MiraCosta College, Palomar College, San Diego City College, San Diego Continuing Education, San Diego Mesa College, San Diego Miramar College, and Southwestern College**. According to CIP data, **16** non-community college supplies the region with awards (Exhibit 4).

Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2014-15 through PY2018-19 Average)

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY16-17 to PY18-19)	Other Educational Institutions 3-Yr Annual Average Awards (PY14-15 to PY16-17)	3-Yr Total Average Supply (PY14-15 to PY18-19)
0501.00	Business and Commerce, General	306	0	306
	• Cuyamaca	6	0	
	• Grossmont	16	0	
	• MiraCosta	11	0	
	• Palomar	55	0	
	• San Diego Cont. Ed.	188	0	
	• San Diego Mesa	30	0	

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY16-17 to PY18-19)	Other Educational Institutions 3-Yr Annual Average Awards (PY14-15 to PY16-17)	3-Yr Total Average Supply (PY14-15 to PY18-19)
0505.00	Business Administration	1,561	0	1,561
	• Cuyamaca	126	0	
	• Grossmont	402	0	
	• MiraCosta	166	0	
	• Palomar	146	0	
	• San Diego City	81	0	
	• San Diego Mesa	313	0	
	• San Diego Miramar	159	0	
	• Southwestern	168	0	
0506.00	Business Management	749	0	749
	• Cuyamaca	4	0	
	• Grossmont	22	0	
	• MiraCosta	17	0	
	• Palomar	10	0	
	• San Diego City	51	0	
	• San Diego Cont. Ed.	606	0	
	• San Diego Mesa	6	0	
	• San Diego Miramar	8	0	
	• Southwestern	25	0	
0506.30	Management Development and Supervision	18	0	18
	• Southwestern	18	0	
0506.40	Small Business and Entrepreneurship	185	0	185
	• Cuyamaca	3	0	
	• MiraCosta	15	0	
	• San Diego City	5	0	
	• San Diego Cont. Ed.	161	0	
	• Southwestern	1	0	

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY16-17 to PY18-19)	Other Educational Institutions 3-Yr Annual Average Awards (PY14-15 to PY16-17)	3-Yr Total Average Supply (PY14-15 to PY18-19)
0506.50	Retail Store Operations and Management	6	0	6
	• Grossmont	3	0	
	• MiraCosta	2	0	
	• Palomar	0	0	
	• San Diego City	1	0	
0508.00	International Business and Trade	5	0	5
	• Grossmont	1	0	
	• Palomar	2	0	
	• Southwestern	2	0	
050900	Marketing and Distribution	16	0	16
	• Grossmont	5	0	
	• MiraCosta	7	0	
	• San Diego Mesa	3	0	
	• Southwestern	1	0	
050940	Sales and Salesmanship	1	0	1
	• San Diego City	1	0	
050970	E-Commerce (Business emphasis)	1	0	1
	• Southwestern	1	0	
0514.40	Office Management	6	0	6
	• MiraCosta	2	0	
	• San Diego Mesa	4	0	
060600	Public Relations	1	0	1
	• Palomar	1	0	
09.0900	Public Relations, Advertising, and Applied Communication	0	9	9
	• National University	0	9	
52.0101	Business/Commerce, General	0	10	10
	• Argosy University-San Diego	0	10	

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY16-17 to PY18-19)	Other Educational Institutions 3-Yr Annual Average Awards (PY14-15 to PY16-17)	3-Yr Total Average Supply (PY14-15 to PY18-19)
52.0201	Business Administration and Management, General	0	3,297	3,297
	• Alliant International University-San Diego	0	38	
	• Ashford University	0	930	
	• California College San Diego	0	82	
	• California International Business University	0	4	
	• California Miramar University	0	3	
	• California State University-San Marcos	0	425	
	• National University	0	307	
	• Northcentral University	0	27	
	• Point Loma Nazarene University	0	30	
	• San Diego Christian College	0	34	
	• San Diego State University	0	1,269	
	• Southern States University	0	1	
	• United Education Institute-Chula Vista	0	2	
	• United States University	0	4	
	• University of San Diego	0	141	
52.0204	Office Management and Supervision	0	10	
	• Point Loma Nazarene University	0	10	
52.0205	Operations Management and Supervision	0	44	
	• Ashford University	0	44	
52.0208	E-Commerce/Electronic Commerce	0	26	
	• Ashford University	0	26	

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY16-17 to PY18-19)	Other Educational Institutions 3-Yr Annual Average Awards (PY14-15 to PY16-17)	3-Yr Total Average Supply (PY14-15 to PY18-19)
52.0211	Project Management	0	100	100
	• Ashford University	0	98	
	• California Miramar University	0	0	
	• National University	0	2	
52.0701	Entrepreneurship/ Entrepreneurial Studies	0	101	101
	• Ashford University	0	77	
	• John Paul the Great Catholic University	0	8	
	• Point Loma Nazarene University	0	16	
52.1001	Human Resources Management/Personnel Administration, General	0	352	352
	• Ashford University	0	331	
	• National University	0	20	
	• San Diego State University	0	1	
52.1101	International Business/Trade/Commerce	0	163	163
	• Alliant International University-San Diego	0	1	
	• Ashford University	0	27	
	• San Diego State University	0	87	
	• University of San Diego	0	48	
52.1401	Marketing/Marketing Management, General	0	131	131
	• National University	0	1	
	• Point Loma Nazarene University	0	18	
	• University of San Diego	0	112	
			Total	7,018

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply⁴ suggests that there is an **oversupply** for these occupations in San Diego County, with **5,323** annual openings and **7,018** awards.

Comparatively, there are **60,200** annual openings in California and **50,169** awards, suggesting that there is a supply gap across the state⁵ (Exhibit 5).

Exhibit 5: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or Oversupply
San Diego	5,323	7,018	1,695
California	60,200	50,169	10,031

Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether a program should be developed.

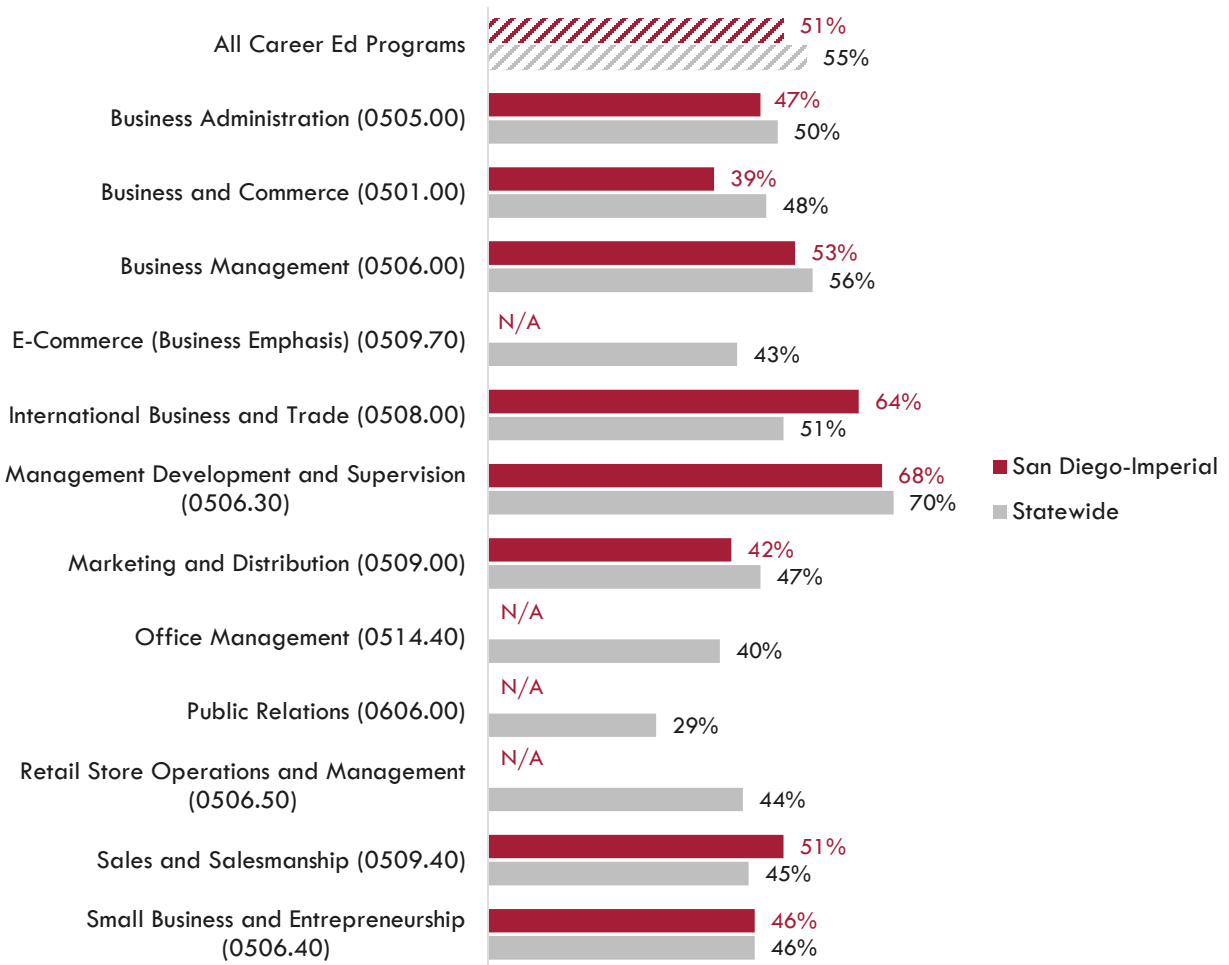
⁴ Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

⁵ "Supply and Demand," Centers of Excellence Student Outcomes, coecc.net/Supply-and-Demand.aspx.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, between 39 to 68 percent of students in the San Diego-Imperial region earned a living wage after completing a program related to *Business Operations, Management, and Entrepreneurship Occupations*, compared to 29 to 70 percent statewide and 55 percent of students in Career Education programs in general across the state (Exhibit 6).⁶

Exhibit 6: Proportion of Students Who Earned a Living Wage, PY2016-17⁷



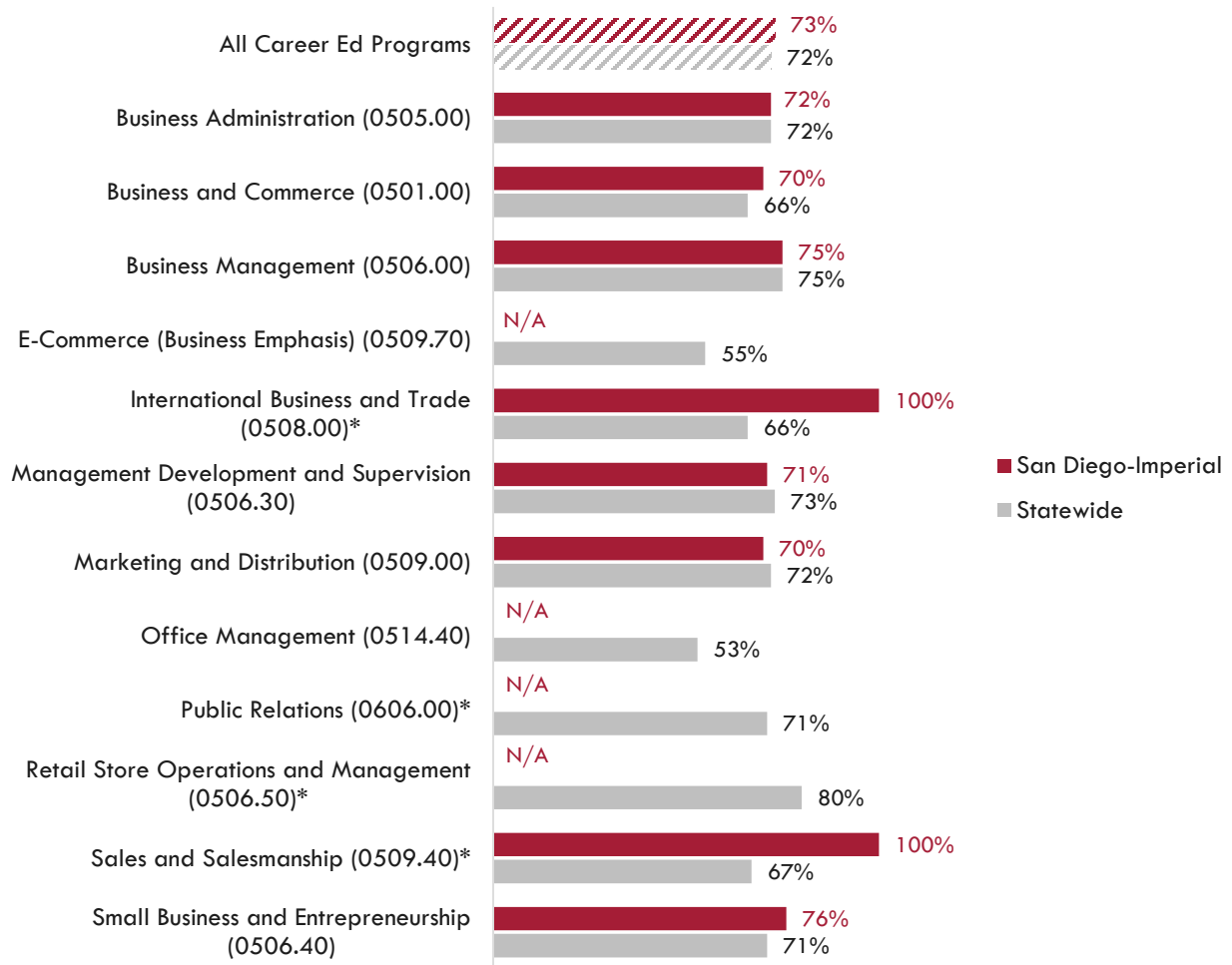
"N/A" indicates insufficient data

⁶ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

⁷ Among completers and skills builders who exited, the proportion of students who attained a living wage.

According to the California Community Colleges LaunchBoard, between 70 to 100 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a related program, compared to 53 to 80 percent statewide and 72 percent of students in Career Education programs in general across the state (Exhibit 7).⁸

Exhibit 7: Percentage of Students in a Job Closely Related to Field of Study, PY2016-17⁹



*sample size had fewer than 10 students
 "N/A" indicates insufficient data

⁸ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

⁹ Most recent year with available data is Program Year 2014-15. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

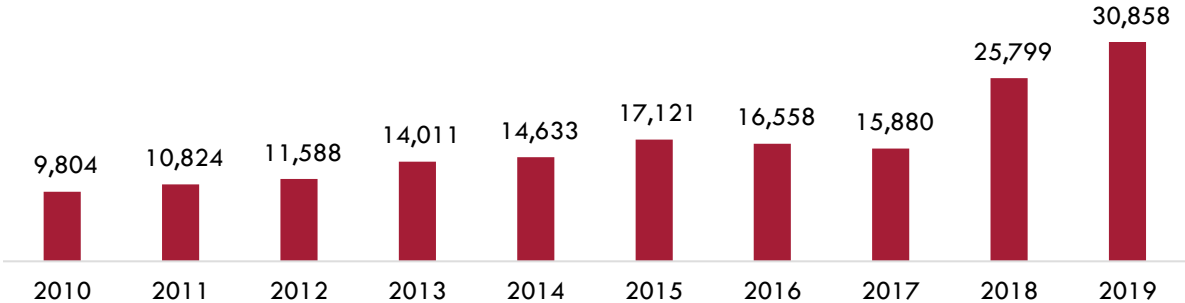
OCCUPATIONAL OVERVIEW

Due to the complexity of *Business Operations, Management, and Entrepreneurship Occupations*, the San Diego-Imperial COE analyzed both *traditional labor market information* and *online job postings* to better understand their educational requirements, wages, skills, etc. The following sections provide more information about these occupations based on the two data sources.

Frequency of Online Job Postings

This report analyzes not only historical and projected data (traditional labor market information or LMI), but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market that are not captured by historical data. Between 2010 and 2019, there was an average of **16,708** online job postings per year in San Diego County for *Business Operations, Management, and Entrepreneurship Occupations* (Exhibit 8). Please note that online job postings do **not** equal labor market demand; demand is represented by annual job openings as shown in Exhibit 1. Employers may post a position multiple times for various reasons, such as increasing the pool of applicants, for example.

Exhibit 8: Number of Online Job Postings for *Business Operations, Management, and Entrepreneurship Occupations* in San Diego County (2010-2019)¹⁰



¹⁰ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2019.

Typical Entry-Level Education

Business Operations, Management, and Entrepreneurship Occupations have a national educational requirement of a **bachelor's degree** (Exhibit 9a).

Exhibit 9a: National Educational Attainment for *Business Operations, Management, and Entrepreneurship Occupations*¹¹

Occupational Title	Typical Entry-Level Education
Administrative Services and Facilities Managers	Bachelor's degree
Advertising and Promotions Managers	Bachelor's degree
Chief Executives	Bachelor's degree
General and Operations Managers	Bachelor's degree
Marketing Managers	Bachelor's degree
Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	Bachelor's degree
Public Relations and Fundraising Managers	Bachelor's degree
Sales Managers	Bachelor's degree

Based on online job postings between January 1, 2017 and December 31, 2019 in San Diego County, the top listed educational requirement for *Business Operations, Management, and Entrepreneurship Occupations* is a **bachelor's degree** (Exhibit 9b).¹²

Exhibit 9b: Educational Requirements for *Business Operations, Management, and Entrepreneurship Occupations* in San Diego County¹³



*May not add to 100% due to rounding

¹¹ EMSI 2020.04; QCEW, Non-QCEW, Self-Employed.

¹² Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2017-2019.

¹³ "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified September 4, 2019. bls.gov/emp/tables/educational-attainment.htm.

Wages

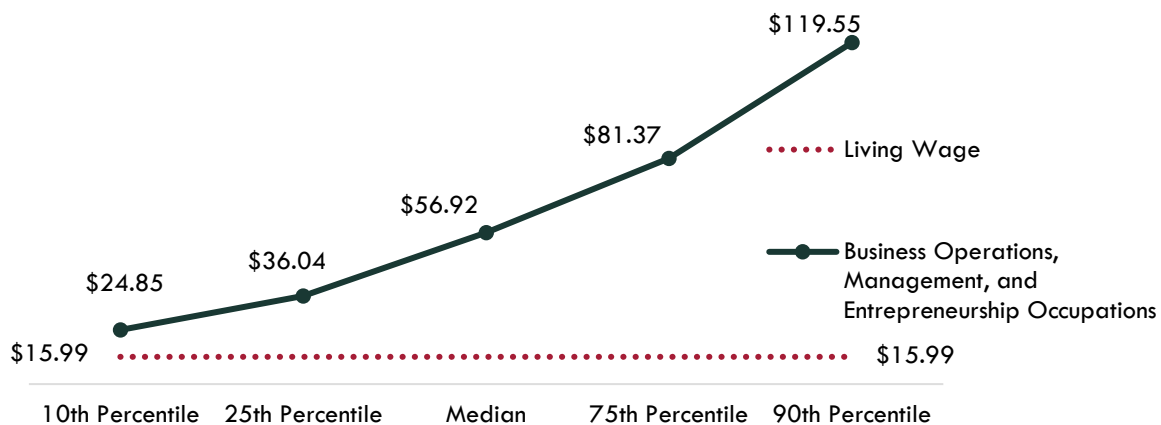
The entry-level hourly earnings for *Business Operations, Management, and Entrepreneurship Occupations* range from **\$27.06** to **\$53.52** (Exhibit 10a).

Exhibit 10a: Hourly Earnings for Business Operations, Management, and Entrepreneurship Occupations in San Diego County

Occupational Title	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Chief Executives	\$53.52	\$91.40	\$127.94
Marketing Managers	\$42.14	\$62.54	\$87.53
Public Relations and Fundraising Managers	\$36.70	\$49.95	\$62.98
General and Operations Managers	\$36.39	\$56.15	\$88.02
Administrative Services and Facilities Managers	\$32.02	\$44.09	\$60.42
Sales Managers	\$30.63	\$50.43	\$80.19
Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	\$29.88	\$50.76	\$71.88
Advertising and Promotions Managers	\$27.06	\$50.01	\$71.97

On average, the entry-level hourly earnings for *Business Operations, Management, and Entrepreneurship Occupations* is **\$36.04**; this is more than the living wage for a single adult in San Diego County, which is **\$15.99** per hour (Exhibit 10b).¹⁴

Exhibit 10b: Average Hourly Earnings¹⁵ for Business Operations, Management, and Entrepreneurship Occupations in San Diego County¹⁶



¹⁴ "California Family Needs Calculator (formerly the Self-Sufficiency Standard)," Insight: Center for Community Economic Development, last updated 2018. insightccd.org/2018-self-sufficiency-standard.

¹⁵ 10th and 25th percentiles could be considered entry-level wages, and 75th and 90th percentiles could be considered experienced wages for individuals who may have been in the occupation longer, received more training than others, etc.

¹⁶ EMSI 2020.04; QCEW, Non-QCEW, Self-Employed.

Top Employers

Between January 1, 2017 and December 31, 2019, the top five employers in San Diego County for these occupations were **Anthem Blue Cross, General Atomics, University of California San Diego, Thermo Fisher Scientific, and Accenture** (Exhibit 11).

Exhibit 11: Top Employers for *Business Operations, Management, and Entrepreneurship Occupations* in San Diego County¹⁷

Top Employers	
• Anthem Blue Cross	• Northrop Grumman
• General Atomics	• Illumina Incorporated
• University of California San Diego	• Becton Dickinson
• Thermo Fisher Scientific Inc.	• Qualcomm
• Accenture	• Intuit

Knowledge, Skills, and Abilities

Exhibit 12 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2017 and December 31, 2019.

Exhibit 12: Top Skills for *Business Operations, Management, and Entrepreneurship Occupations* in San Diego County¹⁸

Specialized Skills	Soft Skills	Software Skills
• Budgeting	• Communication Skills	• Microsoft Excel
• Project Management	• Planning	• Microsoft PowerPoint
• Scheduling	• Teamwork / Collaboration	• Microsoft Word
• Sales	• Organizational Skills	• Microsoft Project
• Customer Service	• Problem Solving	• Salesforce
• Staff Management	• Writing	• Software Development
• Business Development	• Building Effective Relationships	• Software as a Service
• Customer Contact	• Detail-Oriented	• Scrum
• Sales Management	• Creativity	• Enterprise Resource Planning
• Product Management	• Research	• Microsoft Outlook
• Product Development	• Written Communication	• SAP
• Project Planning and Development Skills	• Computer Literacy	• Microsoft SharePoint
• Marketing	• Leadership	• Customer Relationship Management
• Program Management	• Presentation Skills	• Microsoft Visio
• Quality Assurance and Control	• Multi-Tasking	• Microsoft Access

¹⁷ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2017-2019.

¹⁸ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2017-2019.

Top Certifications

Exhibit 13 lists the top certifications that appeared in online job postings between January 1, 2017 and December 31, 2019 for these occupations.

Exhibit 13: Top 25 Certifications for *Business Operations, Management, and Entrepreneurship* Occupations in San Diego County¹⁹

Top Certifications in Online Job Postings

1. Driver's License
2. Project Management Certification
3. Security Clearance
4. Project Management Professional (PMP)
5. First Aid CPR AED
6. IT Infrastructure Library (ITIL) Certification
7. Registered Nurse
8. Real Estate Certification
9. Six Sigma Certification
10. Series 7
11. CompTIA Security+
12. Certified Information Systems Security Professional (CISSP)
13. Licensed Professional Engineer
14. Certified ScrumMaster (CSM)
15. Social Work License
16. Certified Public Accountant (CPA)
17. Six Sigma Black Belt Certification
18. Lean Six Sigma Certification
19. Insurance License
20. Certified in Production and Inventory Management (CPIM)
21. Insurance Agent Certification
22. SANS/GIAC Certification
23. Master Project Management
24. Program Management Professional (PgMP)
25. Google AdWords Training

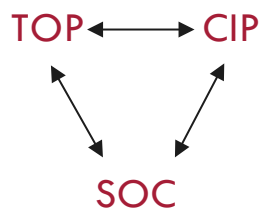
¹⁹ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2017-2019.

APPENDIX A: METHODOLOGY AND CROSSWALKS

To determine if there is a supply gap (demand > supply) for occupations in this study, the San Diego-Imperial Center of Excellence for Labor Market Research (COE) examined occupational and programmatic data from available sources. Occupational data is derived from the Standard Occupational Classification (SOC)²⁰ system. For each occupation or SOC code, labor market demand is generally defined as the “number of annual job openings.” Annual job openings include:

- **Job Growth:** An employer experiences increased demand for products and hires new employees to increase production. If job growth is zero or negative, then any and all openings are due to replacement needs.
- **Replacement Needs:** An employer hires replacement workers for employees who leave the workforce or change occupations. Replacement rates are derived from national 10-year, occupation-specific percentages published by the U.S. BLS’s Employment Projections program.

The San Diego-Imperial COE then cross-referenced the SOC (occupational) codes with Classification of Instructional Programs (CIP) and Taxonomy of Programs (TOP) codes to compare labor market demand with educational or program supply. The following diagram illustrates this process:

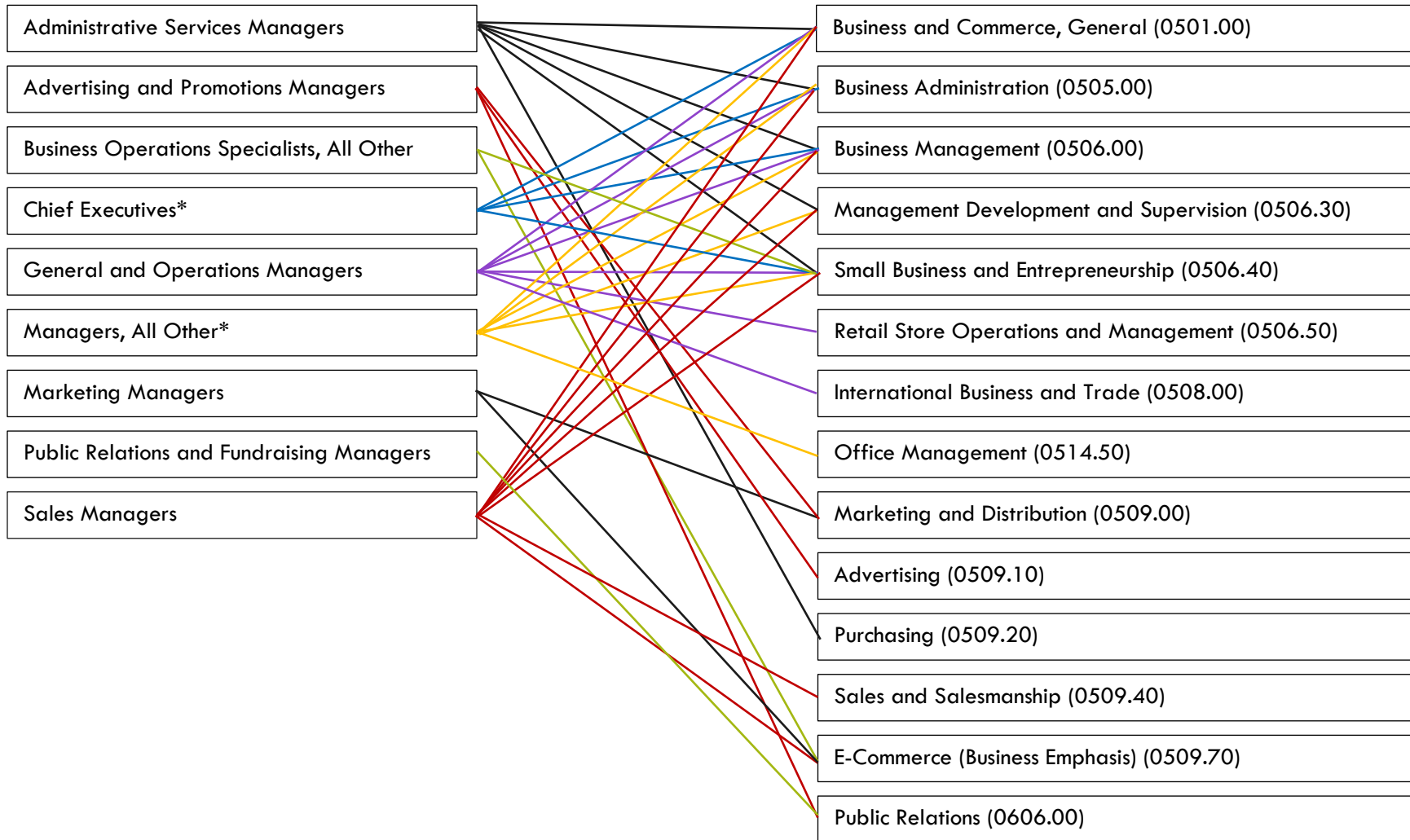


The COE determined educational supply for an occupation or SOC code by analyzing the number of program completers or awards in a related TOP or CIP code. The COE developed a “supply table” with this information, which is the source of the program supply data for this report. TOP data comes from the California Community Colleges Chancellor’s Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data), also known as IPEDS. TOP is a system of numerical codes used at the state level to collect and report information on California community college programs and courses throughout the state that have similar outcomes. CIP codes are a taxonomy of academic disciplines at institutions of higher education in the United States and Canada. Institutions outside of the California community college system do not use TOP codes in their reporting systems.

²⁰ SOC is a federal statistical standard used by EDD, BLS and other federal agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. The San Diego-Imperial COE analyzed SOC data using Emsi, a software program that consolidates data from the California Employment Development Department (EDD), U.S. Bureau of Labor Statistics (BLS), and other government agencies.

Because a TOP/CIP code may train for more than one occupation, simply aggregating all supply from all related codes may overestimate supply for an occupation. Therefore, the COE de-duplicated TOP codes that trained for more than one occupation to avoid counting the program supply more than once. Doing so provides a more accurate representation of the supply gaps in the region by occupation. This de-duplication process is presented in Exhibit A on the following page.

Exhibit A: SOC-TOP Crosswalk for *Business Operations, Management and Entrepreneurship Occupations*



*These occupations are not generally considered "middle-skill jobs" (which require more than a high school diploma but less than a four-year degree) in the traditional, statewide COE crosswalk. Therefore, the San Diego-Imperial COE used TOP codes most similar to CIP codes generally associated with these occupations.

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Important Disclaimers

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

This workforce demand report uses state and federal job projection data that was developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.