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Mt. San Antonio College

CREATIVITY IN DEMAND

MT. SAN ANTONIO COLLEGE

2023 REPORT ON THE CREATIVE LABOR MARKET

COMMISSIONED BY MT. SAN ANTONIO COMMUNITY COLLEGE

Mt. San Antonio College is committed to the Southern California creative economy and is dedicated to supporting the creation of new programs and certificates to meet the labor market demand in the region and support community college students as they transition into high-demand jobs within the Los Angeles County creative economy.

PREPARED BY CVL ECONOMICS

CVL Economics is a Los Angeles–based economic consulting firm committed to rethinking, reframing, and redefining the future of equitable development. Founded in 2021, CVL partners with communities, municipalities, organizations, and institutions to navigate rapidly shifting economic conditions through bold action. Our work is rooted in the belief that complex challenges are best addressed by a multidisciplinary approach, and we draw on the expertise of a growing team of economists, statisticians, planners, policy analysts, and subject matter specialists who are united in their passion for asking the big questions. By employing advanced data analytics and rigorous qualitative methods, we deliver insights that drive economic and workforce development decision-making.

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FOREWORD

The 2023 *Creativity In Demand* report is part of an emerging research program to better understand the size, growth, and occupational structure and skill demands of the creative economy. It is envisioned as a resource for K-12, Career Technical Education (CTE), and postsecondary institutions as well as nonprofits, government entities, and economic and workforce development boards to leverage in preparing California's creative workforce of tomorrow.

Investing in creative skills and understanding their role in the wider economy is more important now more than ever. The goal of this report is to help policymakers make informed decisions about program or training offerings that align with labor market demands. With technological advances like automation and artificial intelligence gaining momentum and investment, it is essential to invest in jobs that humans are uniquely qualified to do.

To know how to best support and grow our creative workforce, we first need to understand it. The following report is a benchmark study; with this starting point, we will be able to monitor creative occupational changes over time and better understand the impacts of state and local government policy interventions. Investing in creative industries can help drive innovation and interdisciplinary creative collaboration across all industry sectors as well as secure California's reputation as the state that leads the future.

Finally, and maybe most importantly, the 2023 report hopes to provide a level of information and security for parents, students, and adults making decisions about pursuing additional skills training or educational opportunities.

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EXECUTIVE SUMMARY

Growth. Economic Mobility. Growing Industry Opportunity.

The Los Angeles creative economy has grown across an increasingly broad mix of industries and occupations, creating the potential for expanded economic opportunity. However, the potential of the creative industries and their vast opportunities are misunderstood. Whether they are occurring in creative or non-creative industries, occupations in the creative career cluster represent a substantial and growing part of the Los Angeles region's economy.

Creative career cluster growth is set to outpace overall occupational growth in the Los Angeles region over the next decade. Creative jobs currently eclipse the occupational wage average in the region and provide important opportunities for social mobility. The creative economy in California is innovative and export-orientated, and a key source of the state's competitive advantage. It is one of California's greatest success stories and over the next decade will continue to see growth and evolution as digital capabilities push the boundaries and transform the creation, presentation, marketing, and consumption of arts and culture.

Yet, despite this success, there are significant challenges on the horizon regarding industry access and ensuring California's rich diversity of talent will benefit from the opportunities being created in this vibrant part of the state's economy. Labor and skills shortages are a primary concern for many occupational groups in the career cluster. Many sectors face skill shortages driven by the changing nature of workflows and advancements in technology, yet there are not clear career pathways outside of a four-year degree.

Growing Faster Over the Next Decade

Overall employment in the creative career cluster is projected to grow +11% in the Los Angeles MSA from 2022 to 2032. This is notably faster than the average for all occupations in the region (+4%); and statewide is projected to grow +14%, again well above the statewide average for all occupations during the same period (+7%). The 11% growth in the Los Angeles region—growth in industries demanding creative occupations—equates to 39,800 new creative jobs coming online over the next decade.

In addition to the forecasted job growth, between 6% and 16% of workers in any given creative occupation will retire or transition out of the field. The need to replace talent, coupled with projected growth, will require the region to fill an estimated 33,000 creative positions annually.

Strong Entry-Level Wage Opportunities

In Los Angeles, each of the five major creative occupational groups analyzed in the cluster show entry-level (25th percentile) and median hourly wages (50th percentile) above the "self-sufficiency wage" for the region.[1] Positions in the Art and Design occupational group report a median hourly wage of $26.39. For those Creative Equipment Technician occupations, the median hourly wage is 26.74 and 90% of the positions report wages above $18.34 per hour. Occupations in Media and Communication report a median hourly wage of $32.00. For those in Performance, the median hourly wage is $38.71 with those in the top 10% reporting an hourly wage of $118.74. As digitization continues to disrupt and expand creative activity, Creative Digital Interface occupations report an entry-level wage of $39.89 and a median hourly wage of $55.33.

[1] While there is no widely agreed upon definition of "living wage" policymakers often prioritize sectors that provide a "living wage." When such a measure is referenced, this report has utilized the California Family Need Calculator to estimate the hourly wage that a single adult needs to earn to meet basic needs in Los Angeles County. For additional information about the methodology deployed in the calculator visit: https://insightcced.org/family-needs-calculator/.

Creative Occupations Expanding Across Industries

Across the economy, workplaces are being transformed by new business models and disruptive technologies, requiring talent to adapt and collaborate with new colleagues and areas of expertise. Creative career cluster jobs are increasingly working in traditionally non-creative sectors. Over the past decade, growth in creative occupations has primarily been occurring outside of the Arts, Entertainment and Recreation and Information industries, upending the common misconception that creative occupations are primarily limited to traditional artistic and creative industries.

Creative industry sectors employ a large percentage of creative occupations, yet those positions have remained relatively unchanged over the past 15 years. Since 2006, creative career cluster growth has been flat (+0.4%) in the Arts, Entertainment and Recreation industry sector, however, creative occupations have grown by +20% across the economy. In those traditionally non-creative industries—the number of positions that are filled by creative occupations are expanding. Sectors such as Wholesale Trade (+88% creative occupation growth), Transportation (+144% creative occupation growth), Professional Services (+45% creative occupation growth), and Healthcare (+34% creative occupation growth) have all experienced double digit percent creative occupation growth.

Across the entire economy, in the last 15 years (including two recessions) several creative occupations have seen triple digit percentage growth, including: Producers and Directors (+101%), Digital Interface Designers (+164%), Web Developers (+150%), Translators (+118%), and Film and Video Editors (+108%). While formalized education is important to these positions, the skills, and competencies necessary to secure these growing and well-paid positions need not come from a traditional four-year undergraduate degree.

Community colleges can offer a more inclusive route into these creative occupations and those found throughout this report. Yet fractured and flawed career technical education (CTE) pathways and a dearth of workforce development investments into creative occupations actively undermine this potential. Yet as the demand for creative workers continues to increase, the Covid-19 pandemic dealt a tough blow to the state's community college system. Fall 2021 headcount was down approximately 7% from fall 2020 and down 20% overall compared to fall 2019—translating to a loss of more than 300,000 students over those two years.[2] The steepest declines have been among African American students, Native American students, male students, and students aged 40 and older.[3]

For career and technical education, community college, workforce, and economic development leaders there exists an important opportunity to unlock additional pathways into creative careers that aligns with the changing needs of industry. The jobs of the future in the creative career cluster are at the intersection of creative and digital. More broadly, across all industries and occupations there is an essential need to widen the aperture and recognize the incredible value of hybrid skillsets. Think: software development plus art. Innovation and creativity materialize in the margins between traditional disciplines. Given that, in meeting the demand for more creative course offerings, creative skillset development need not be divorced from traditional core subjects.

[2] Mikhail Zinshteyn, "The Collapse of Community College Enrollment: Can California Turn It Around?," CalMatters, March 21, 2022, sec. Higher Education, http://calmatters.org/education/higher-education/2022/03/community-college-enrollment/.

[3] Michael Burke, "California Community College Enrollment Drops below 2 Million Students, More than Previously Reported," EdSource, accessed October 12, 2022, https://edsource.org/2021/california-community-college-enrollment-drops-below-2-million-students-more-than-previously-reported/663225.

KEY TERMS AND CONCEPTS

What's a Job?

One challenge in forming policy to support creative careers is the complexity of defining and understanding the workforce. A simple question, such as "How many artists are there in the region?" is far from a straightforward exercise. Labor market reports on the health or needs of workers in the arts and related industries tend to vary widely. This disparity is influenced by two main factors: the definition of the creative workforce and the structures of employment in the arts and culture sector.

A key challenge in creating policy for the creative workforce is the wide range of employment structures and arrangements. Many individuals do not practice their art or creative pursuits as their primary wage-earning job. Yet many counts of the workforce focus only on those employed full-time by organizations. While a broad definition is essential for a full picture of the creative economy, this report focuses on payroll, self-employed and gig jobs. The forecasted talent needs only include payroll and self-employed jobs given their role as a primary source of income. However, for each of the five main occupational groups in the cluster, the report has estimated the number of "gig engagements" based on administrative data from the federal government on individuals who are gaining income from their artistic pursuits in some form other than as a primary source of income.

Payroll, W-2, Wage and Salary Jobs

Payroll employment counts are captured by the Bureau of Labor Statistics' (BLS) Quarterly Census of Employment and Wages (QCEW) datasets. This quarterly near-census of workers is a byproduct of unemployment insurance reporting, which businesses file monthly. These estimates match what stakeholders would find from most state Labor Market Intelligence (LMI) data offerings.

Self-Employed Jobs

Self-employment counts capture those individuals who report self-employment as their primary source of income. The data series supporting these estimates include the U.S. Census American Community Survey (ACS). The role of self-employment varies by industry, but for creative occupations plays an outsized explanatory role.

Gig Engagements

Gig engagement counts are considered miscellaneous income from labor or incidental self-employment that is not considered an individual's primary source of income. The data supporting gig work estimates are estimated by the Bureau of Economic Analysis (BEA) in the Department of Commerce. The BEA leverages survey, census and administrative data that are a byproduct of the administration of various federal and state government social insurance programs and tax codes. By utilizing anonymized IRS filing data, the BEA can capture miscellaneous job counts that exceed self-employment counts reported in ACS.

Historical trends in payroll and self-employment are used in employment forecast models. Occupational forecasts do not include estimates of forecasted gig work.

Glossary

Apprenticeship

An industry-driven, high-quality career pathway where employers can develop and prepare their future workforce and individuals can obtain paid work experience, classroom instruction, and a portable credential.

Career Technical Education (CTE)

As defined in the Strengthening Career and Technical Education for the 21st Century Act (Perkins V), CTE comprises a set of organized educational activities that:

(A) offer a sequence of courses that: (i) provides individuals with rigorous academic content and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions, which may include high-skill, high-wage, or in-demand industry sectors or occupations, which shall be, at the secondary level, aligned with the challenging state academic standards adopted by a state (ii) provides technical skill proficiency or a recognized postsecondary credential, which may include an industry-recognized credential, a certificate, or an associate degree; and (iii) may include prerequisite courses (other than a remedial course) that meet the requirements of this subparagraph;

(B) include competency-based, work-based, or other applied learning that supports the development of academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of an industry, including entrepreneurship, of an individual;

(C) to the extent practicable, coordinate between secondary and postsecondary education programs through programs of study, which may include coordination through articulation agreements, early college high school programs, dual or concurrent enrollment program opportunities, or other credit transfer agreements that provide postsecondary credit or advanced standing; and

(D) may include career exploration at the high school level or as early as the middle grades.

Labor Market Information

Refers to data and other information from employers that can be used to understand labor market conditions and trends in a particular industry and geographical area.

Work-Based Learning

Refers to varying approaches to providing students with employment-relevant experiences as part of the training program. These approaches include internships, apprenticeships, visits to local employers, clinical placements, and job shadowing.

Bureau of Labor Statistics (BLS)

Part of the U.S. Department of Labor. This federal agency is the principal data-gathering agency of the federal government in the field of economics. The BLS collects, processes, analyzes, and disseminates data relating to employment, unemployment, the labor force, productivity, prices, family expenditures, wages, industrial relations, and occupational safety and health.

Bureau of Economic Analysis (BEA)

The BEA is an agency of the Department of Commerce. The BEA produces economic accounts statistics that enable government and business decision-makers, researchers, and the American public to follow and understand the performance of the nation's economy. The BEA's economic statistics, which provide a comprehensive, up-to-date picture of the U.S. economy, are key ingredients in critical decisions affecting monetary policy, tax and budget projections, and business investment plans.

Industry

A group of establishments that produce similar products or provide similar services. For example, all establishments that manufacture automobiles are in the same industry. The North American Industry Classification System (NAICS) is used to categorize industries.

Industry Cluster

A subset of industries in the regional economy connected by flows of goods and services stronger than those linking them to the rest of the economy. Individual firms in a cluster benefit from certain comparative advantages associated with geographical concentration such as access to a common pool of specialized labor, infrastructure, intellectual property, and lower transaction costs between firms.

Localization

The process of taking entertainment or other content produced in a specific language for a specific audience and transforming it to be understandable by other relevant or new markets. Localization is often confused or used interchangeably with translation, but in practice, translation is only a part of the localization process.

Metropolitan Statistical Area (MSA)

A geographic entity delineated by the Office of Management and Budget for use by federal statistical agencies. Metropolitan statistical areas consist of the county or counties (or equivalent entities) associated with at least one urbanized area of at least 50,000 population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting ties.

Occupation

A set of activities or tasks that employees perform. Employees that perform essentially the same tasks are in the same occupation, whether or not they are in the same industry.

Occupational Employment and Wage Statistics (OEWS) Program

A federal/state cooperative program produces employment and wage estimates annually for over 800 occupations. These estimates are available for the nation as a whole, for individual states, and for metropolitan and nonmetropolitan areas; national occupational estimates for specific industries are also available.

Occupational Information Network (O*NET)

The O*NET Program is the nation's primary source of occupational information. Valid data are essential to understanding the rapidly changing nature of work and how it impacts the workforce and U.S. economy. From this information, applications are developed to facilitate the development and maintenance of a skilled workforce.

Projections and/or Forecasts

A prediction or estimate of an actual value in a future time period. For employment, it is based on a time series. The terms "forecast," "prediction," and "projection" are typically used interchangeably. Projections of employment are based on historical employment and economic indicators input into mathematical models with national, state and local trends factored into the overall model.

Separations

The separations methodology is designed to estimate the number of workers who leave their occupation and need to be replaced by new entrants into the occupation. It is not a measure of all movement in and out of occupations, but instead an estimate of workers who permanently leave an occupation.

Staffing Pattern

Each business employs workers with different types of skills to produce a good or provide a service. A staffing pattern summarizes this array of workers for an industry. The costs of labor and equipment in a local area will largely determine the mix of workers that a business will employ to remain competitive. Industry staffing patterns are often used to determine the ability of a local area to support economic development by being able to provide a skilled workforce.

Standard Occupational Classification (SOC)

The Standard Occupational Classification (SOC) system is a federal statistical standard used by federal and state agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. All workers are classified into one of 867 detailed occupations according to their occupational definition. To facilitate classification, detailed occupations are combined to form 459 broad occupations, 98 minor groups, and 23 major groups. Detailed occupations in the SOC with similar job duties, and in some cases skills, education, and/or training, are grouped together.

Total Job Openings

The total of job openings produced by industry growth plus the job openings created when a worker changes occupations or leaves the labor force.

Wage Percentiles

Wage percentiles describe the distribution of earnings within occupations and are used to describe wage variation. For the purposes of this report, the 25th wage percentile is used as a proxy for entry level wages, and the 90th wage percentile is used to represent wages for more experienced workers in each occupation. The 50th wage percentile constitutes median wages for a given occupation or set of occupations.

Virtual Production

Virtual production uses technology to join the digital world with the physical world in realtime. It enables filmmakers to interact with the digital process in the same ways they interact with live-action production. Some examples of virtual production include world capture (location/set scanning and digitization), visualization (previs, techvis, postvis), performance capture (mocap, volumetric capture), simulcam (on-set visualization), and in-camera visual effects (ICVFX). The key to the successful use of this technique is choosing the right tools to solve production problems and empowering the creators without detracting or distracting the crew from the content creation process.

Workforce Development

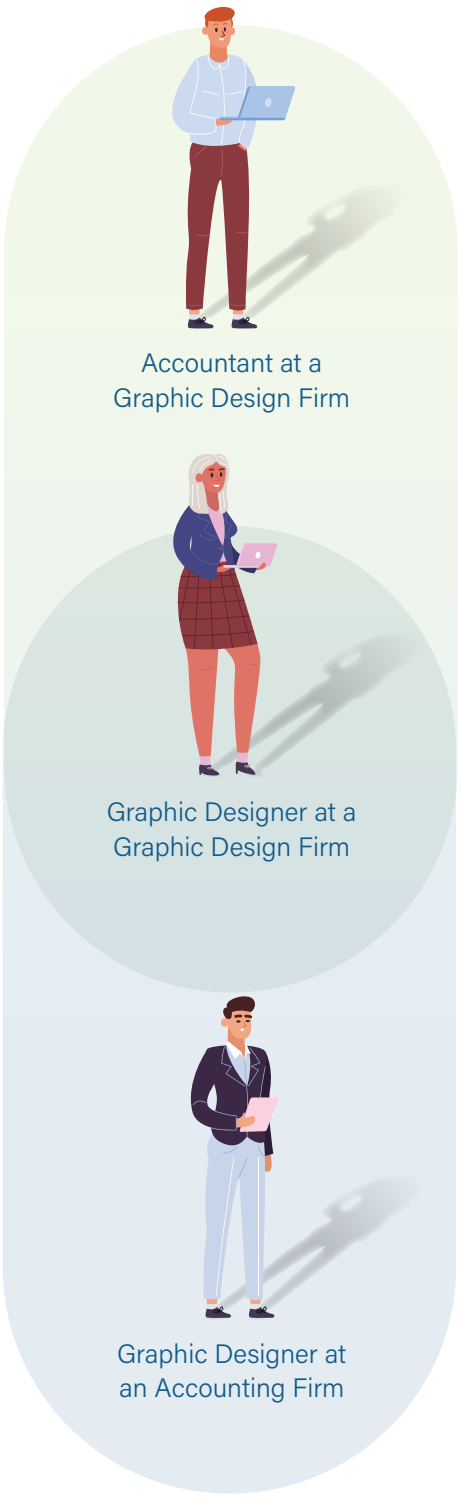
The term has come to describe a relatively wide range of activities, policies and programs employed by geographies to create, sustain and retain a viable workforce that can support current and future business and industry.

Workforce Innovation and Opportunity Act (WIOA)

President Barack Obama signed the Workforce Innovation and Opportunity Act (WIOA) into law on July 22, 2014. The WIOA supersedes the Workforce Investment Act of 1998 (WIA) and amends the Wagner-Peyser Act, the Adult Education and Family Literacy Act, and the Rehabilitation Act of 1973.

The WIOA helps job seekers succeed in the labor market by providing access to employment, education, training, and support services while matching employers with the skilled workers they need to compete in the global economy.

Figure 1.1: The Creative Economy Venn Diagram



CREATIVE CAREER CLUSTERS

CREATIVE DIGITAL INTERFACE

Software Developers

Research, design, and develop computer and network software or specialized utility programs. Analyze user needs and develop software solutions, applying principles and techniques of computer science, engineering, and mathematical analysis. Update software or enhance existing software capabilities. May work with computer hardware engineers to integrate hardware and software systems and develop specifications and performance requirements. May maintain databases within an application area, working individually or coordinating database development as part of a team.

Programmers

Create, modify, and test the code and scripts that allow computer applications to run. Work from specifications drawn up by software and web developers or other individuals. May develop and write computer programs to store, locate, and retrieve specific documents, data, and information.

Software Analysts and Testers

Develop and execute software tests to identify software problems and their causes. Test system modifications to prepare for implementation. Document software and application defects using a bug tracking system and report defects to software or web developers. Create and maintain databases of known defects. May participate in software design reviews to provide input on functional requirements, operational characteristics, product designs, and schedules.

Web Developers

Develop and implement websites, web applications, application databases, and interactive web interfaces. Evaluate code to ensure that it is properly structured, meets industry standards, and is compatible with browsers and devices. Optimize website performance, scalability, and server-side code and processes. May develop website infrastructure and integrate websites with other computer applications.

Digital Interface Designers

Design digital user interfaces or websites. Develop and test layouts, interfaces, functionality, and navigation menus to ensure compatibility and usability across browsers or devices. May use web framework applications as well as client-side code and processes. May evaluate web design following web and accessibility standards and may analyze web use metrics and optimize websites for marketability and search engine ranking. May design and test interfaces that facilitate the human-computer interaction and maximize the usability of digital devices, websites, and software with a focus on aesthetics and design. May create graphics used in websites and manage website content and links.

ART AND DESIGN

Craft Artists

Create or reproduce handmade objects for sale and exhibition using a variety of techniques, such as welding, weaving, pottery, and needlecraft.

Art Directors

Formulate design concepts and presentation approaches for visual productions and media, such as print, broadcasting, video, and film. Direct workers engaged in artwork or layout design.

Commercial and Industrial Designers

Design and develop manufactured products, such as cars, home appliances, and children's toys. Combine artistic talent with research on product use, marketing, and materials to create the most functional and appealing product design.

Fashion Designers

Design clothing and accessories. Create original designs or adapt fashion trends.

Floral Designers

Design, cut, and arrange live, dried, or artificial flowers and foliage.

Fine Artists

Create original artwork using any of a wide variety of media and techniques.

Special Effects Artists and Animators

Create special effects or animations using film, video, computers, or other electronic tools and media for use in products, such as computer games, movies, music videos, and commercials.

Set and Exhibit Designers

Design special exhibits and sets for film, video, television, and theater productions. May study scripts, confer with directors, and conduct research to determine appropriate architectural styles.

Merchandise Displayers

Plan and erect commercial displays, such as those in windows and interiors of retail stores and at trade exhibitions.

Interior Designers

Plan, design, and furnish the internal space of rooms or buildings. Design interior environments or create physical layouts that are practical, aesthetic, and conducive to the intended purposes. May specialize in a particular field, style, or phase of interior design.

Graphic Designers

Design or create graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. May use a variety of mediums to achieve artistic or decorative effects.

PERFORMANCE

Producers and Directors

Produce or direct stage, television, radio, video, or film productions for entertainment, information, or instruction. Responsible for creative decisions, such as interpretation of script, choice of actors or guests, set design, sound, special effects, and choreography

Actors

Play parts in stage, television, radio, video, or film productions, or other settings for entertainment, information, or instruction. Interpret serious or comic role by speech, gesture, and body movement to entertain or inform audience. May dance and sing.

DJs

Play prerecorded music for live audiences at venues or events such as clubs, parties, or wedding receptions. May use techniques such as mixing, cutting, or sampling to manipulate recordings. May also perform as emcee (master of ceremonies).

Choreographers

Create new dance routines. Rehearse performance of routines. May direct and stage presentations.

Dancers

Perform dances. May perform on stage, for broadcasting, or for video recording.

Music Directors and Composers

Conduct, direct, plan, and lead instrumental or vocal performances by musical artists or groups, such as orchestras, bands, choirs, and glee clubs; or create original works of music.

Musicians and Singers

Play one or more musical instruments or sing. May perform on stage, for broadcasting, or for sound or video recording.

MEDIA AND COMMUNICATIONS

Reporters and Journalists

Narrate or write news stories, reviews, or commentary for print, broadcast, or other communications media such as newspapers, magazines, radio, or television. May collect and analyze information through interview, investigation, or observation.

Broadcast Announcers

Speak or read from scripted materials, such as news reports or commercial messages, on radio, television, or other communications media. May play and queue music, announce artist or title of performance, identify station, or interview guests.

Editors

Plan, coordinate, revise, or edit written material. May review proposals and drafts for possible publication.

Technical Writers

Write technical materials, such as equipment manuals, appendices, or operating and maintenance instructions. May assist in layout work.

Writers and Authors

Originate and prepare written material, such as scripts, stories, advertisements, and other material.

Public Relations

Promote or create an intended public image for individuals, groups, or organizations. May write or select material for release to various communications media. May specialize in using social media.

Translators and Interpreters

Interpret oral or sign language or translate written text from one language into another.

CREATIVE EQUIPMENT TECHNICIANS

Audio and Video Technicians

Set up, maintain, and dismantle audio and video equipment, such as microphones, sound speakers, connecting wires and cables, sound and mixing boards, video cameras, video monitors and servers, and related electronic equipment for live or recorded events, such as concerts, meetings, conventions, presentations, podcasts, news conferences, and sporting events.

Film and Video Editors

Edit moving images on film, video, or other media. May work with a producer or director to organize images for final production.

Broadcast Technicians

Set up, operate, and maintain the electronic equipment used to acquire, edit, and transmit audio and video for radio or television programs. Control and adjust incoming and outgoing broadcast signals to regulate sound volume, signal strength, and signal clarity. Operate satellite, microwave, or other transmitter equipment to broadcast radio or television programs.

Sound Engineering Technicians

Assemble and operate equipment to record, synchronize, mix, edit, or reproduce sound, including music, voices, or sound effects, for theater, video, film, television, podcasts, sporting events, and other productions.

Camera Operators, Television, Video, and Film

Operate television, video, or film camera to record images or scenes for television, video, or film productions.

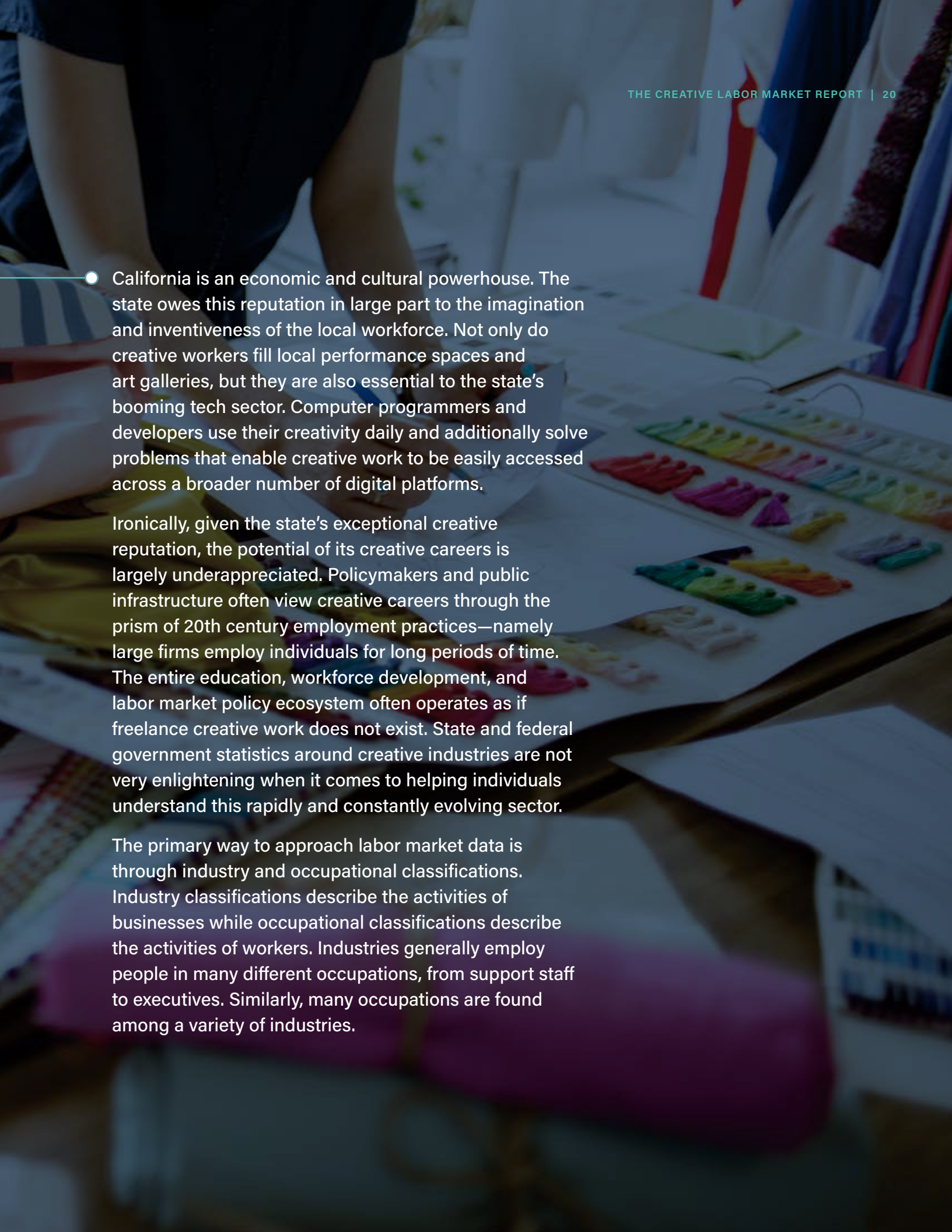
Lighting Technicians

Set up, maintain, and dismantle light fixtures, lighting control devices, and the associated lighting electrical and rigging equipment used for photography, television, film, video, and live productions. May focus or operate light fixtures, or attach color filters or other lighting accessories.

Photographers

Photograph people, landscapes, merchandise, or other subjects. May use lighting equipment to enhance a subject's appearance. May use editing software to produce finished images and prints. Includes commercial and industrial photographers, scientific photographers, and photojournalists.

OVERVIEW



California is an economic and cultural powerhouse. The state owes this reputation in large part to the imagination and inventiveness of the local workforce. Not only do creative workers fill local performance spaces and art galleries, but they are also essential to the state's booming tech sector. Computer programmers and developers use their creativity daily and additionally solve problems that enable creative work to be easily accessed across a broader number of digital platforms.

Ironically, given the state's exceptional creative reputation, the potential of its creative careers is largely underappreciated. Policymakers and public infrastructure often view creative careers through the prism of 20th century employment practices—namely large firms employ individuals for long periods of time. The entire education, workforce development, and labor market policy ecosystem often operates as if freelance creative work does not exist. State and federal government statistics around creative industries are not very enlightening when it comes to helping individuals understand this rapidly and constantly evolving sector.

The primary way to approach labor market data is through industry and occupational classifications. Industry classifications describe the activities of businesses while occupational classifications describe the activities of workers. Industries generally employ people in many different occupations, from support staff to executives. Similarly, many occupations are found among a variety of industries.

The creative career cluster is composed of five broad occupation groups: Creative Digital Interface; Art and Design; Performance; Media and Communication; and Creative Equipment Technicians. Each of these broad groups is composed of detailed occupations–a subset of which are examined in depth in this report. Full details on the methodology and occupation classification and levels of aggregation are found in the Appendix.

Creative Career Cluster: Employment Summary

The Los Angeles region continues to be a thriving home for the creative career cluster, providing almost 350,000 jobs. These positions represent a little over 5% of total jobs in the region in 2022. In addition to the 350,000 jobs considered to be a primary source of income there are 202,000 gig engagements—short-term or one-off projects or activities—in the region providing miscellaneous income in this career cluster.

The Los Angeles region has experienced rapid growth in creative career cluster jobs over the last decade. From 2012 to 2022 the total number of jobs in the creative career cluster increased by 16% while the total number of jobs in the region only grew by 8%. Across the cluster, the Creative Digital Interface and Art and Design occupation groups registered growth in excess of 20% with the rise of streaming services and video games and their associated platform ecosystems.

FIgure 1.2: Historical Growth of Creative Career Cluster Occupation Groups in Los Angeles | 2012-2022

	2012 Jobs	2022 Jobs	Percent Increase
Creative Digital Interface	65,295	78,472	20%
Art and Design	63,039	76,239	21%
Performance	77,018	86,034	12%
Media and Communication	49,832	52,754	6%
Creative Equipment Technicians	46,169	53,938	17%
All Occupations	6,320,903	6,856,137	8%

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS).

Although the next decade's growth is not expected to eclipse the past decades, overall employment in the creative career cluster is projected to grow +11% in the Los Angeles MSA from 2022 to 2032—notably faster than the average for all occupations in the region (+4%)—and +14% statewide, also well above the statewide average for all occupations during the same period (+7%). For the Los Angeles region, the increase is expected to result in about 39,800 new creative occupational cluster jobs over the decade.

Creative career cluster jobs are increasingly working in traditionally non-creative sectors. Over the past decade, growth in creative occupations, has primarily been occurring outside of the Arts, Entertainment and Recreation and Information industries, upending the common misconception that creative occupations are primarily limited to traditional artistic and creative industries. The nearly 350,000 creative career cluster jobs are distributed across several industries in the Los Angeles area. The types of occupations in the creative career cluster now account for 53% of total jobs in the Information industry sector. Additionally, 33% of the jobs in the Arts, Entertainment, and Recreation industry sector are now those in the creative career cluster. Industry sectors like Wholesale Trade (5.3%), Finance and Insurance (5.3%), and Manufacturing (5.1%) include a growing share of the creative career cluster occupations.

Figure 1.3: Forecast Job Growth of Creative Career Cluster | 2022-2032

	LOS ANGELES MSA		CALIFORNIA	
	Employment 2022	Projected New Jobs 2022-2032	Employment 2022	Projected New Jobs 2022-2032
Creative Career Cluster	347,436	39,789	851,300	115,854
All Occupations	6,856,137	372,863	19,844,331	1,301,692

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program

Figure 1.4: Major Industries with Embedded Creative Occupations | 2022

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); BLS Employment Projections Program Staffing Pattern, Lightcast.™

In Los Angeles, each of the five major creative occupational groups analyzed in the cluster show entry-level (25th percentile) and median hourly wages (50th percentile) above the "self-sufficiency wage" for the region.[4] Positions in the Art and Design occupational group report a median hourly wage of $26.39. For Creative Equipment Technician occupations, the median hourly wage is $26.74 and 90% of the positions report wages above $18.34 per hour. Occupations in Media and Communication report a median hourly wage of $32.00. For those in Performance, the median hourly wage is $38.71 and those in the top 10% report an hourly wage of $118.74. As digitization continues to disrupt and expand creative activity, Creative Digital Interface occupations report an entry level wage of $39.89 and a median hourly wage of $55.33.

The wage distributions of creative occupations vary widely due to the nature of the work, and variations naturally lead to large differences in lower- and upper-end wages when compared to many other occupational clusters. For educational and workforce policymakers, it is important to be vigilant when examining wage statistics. Unlike many non-creative occupations, where individuals move through a career path that spans multiple occupations, many creative pursuits can offer career advancement over a lifetime in the same occupational category. For example, Solar Photovoltaic Installers in Los Angeles have a median hourly wage of $22.58 with 25% making $17.94 or below and 25% making $27.65 or above (10% making $33.10 or above)—a difference of about $10 per hour between the 25th and 75th percentiles. On the other hand, Art Directors have a median hourly wage of $47.15 with 25% of positions paying $21.08 or below and 25% making $71.66 and above (10% making $99.77 or more)—a difference of about $50.

For individuals starting out their career, the wage distribution can serve as a proxy for what growth might be expected from a long-term career in that occupation. For higher education and workforce policymakers, the wage distribution offers important insight into how an individual's wage structure might evolve over time—an important factor in evaluating resource investment.

[4] While there is no widely agreed upon definition of living-wage policymakers often prioritize sectors that provide a "living wage." When such a measure is referenced, this report has utilized the California Family Need Calculator to estimate the hourly wage that a single adult needs to earn to meet basic needs in Los Angeles County. For additional information about the methodology deployed in the calculator visit: https://insightcced.org/family-needs-calculator/.

Figure 1.5: Average Hourly Wage by Creative Career Cluster Occupation Group | 2022

	25th Percentile	Median Hourly	90th Percentile	Self-Sufficiency Wage
Creative Digital Interface	$39.98	$55.33	$81.08	
Art and Design	$16.03	$26.39	$63.56	
Performance	$23.74	$38.71	$118.74	$18.10
Media and Communication	$20.75	$32.00	$65.09	
Creative Equipment Technicians	$18.34	$26.74	$61.66	

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); BLS Occupational Employment Statistics (OES); Lightcast.™

Major Labor Unions, Guilds, and Associations in the Creative Career Cluster

For a sizable subset of in-demand creative occupations in the creative career cluster, including (but not limited to) those in the screen industries (e.g., film, television, gaming, animation), there are a number of convergent (though not necessarily mutually exclusive) employment tracks that can provide sustainable wages and benefits: (1) union membership for work on projects that are signatories to collective bargaining agreements, (2) traditional W-2 employment, (3) self-employment and 1099 or other forms of project engagement, and/or (4) gig engagements that serve as additional income sources (e.g., selling art and crafts on a platform like Etsy). The employment form can vary but creative opportunities are in demand across sectors like advertising (a potential W-2 position) and motion picture and television production (project-based, non-W-2 work that can be unionized or non-unionized).

For creative work that necessitates union membership, the criteria to join varies for each Local union. The largest union, International Alliance of Theatrical Stage Employees (IATSE), represents the creative labor of over 160,000 technicians, artisans and craftspersons in the entertainment industry, including live events, motion picture and television production, broadcast, and trade shows in the United States and Canada.

Figure 1.6: Major Labor Unions in the Screen Industries in Southern California

Affiliation	Number	Name	Professions
International Alliance of Theatrical Stage Employees (IATSE)	Local 44	Affiliated Property Craftspersons	Professions served: coordinators (including construction coordinators), drapers, floor cover, greens, prop makers, property, sewers, set decorators, special effects, upholsterers, commercial masters, commercial prop makers, and commercial property.
IATSE	Local 80	Motion Picture Studio Grips & Crafts Service	Professions served: motion studio picture grips, crafts services, set medics, marine department and warehouse workers
IATSE	Local 600	International Cinematographers Guild	Professions served: cinematographers, camera professionals and publicists (includes visual effects supervisors and first and second assistant camera)
IATSE	Local 695	Production Sound Technicians, Television Engineers, Video Assist Technicians and Studio Projectionists	Professions served: boom operators/sound technicians, video engineers, television broadcast engineers and studio projectionists
IATSE	Local 700	Motion Picture Editors Guild	Post-production professionals served: animation editors, apprentice editors, assistant editors, colorists, engineers, foley artists, librarians, music editors, picture editors, recordists, re-recording/scoring mixers, sound editors, story analysts, technical directors, trailer editors
IATSE	Local 705	Motion Picture Costumers	Professions served: finished costumers, custom-made costumers, live television costumers, custom house employees
IATSE	Local 706	Make-Up Artists and Hair Stylists	Professions served: makeup artists and hairstylists
IATSE	Local 728	Studio Electrical Lighting Technicians	Profession served: studio electrical lighting technicians (electricians, gaffers)
IATSE	Local 729	Motion Picture Set Painters and Sign Writers	Profession served: painter, decorator, sign writer
Operating Plasterers & Cement Masons International Association (OPCMIA)	Local 755	Plasterers	Professions served: plasterer, sculptor, shop hand
IATSE	Local 800	Art Directors Guild	Professions served: art directors, illustrators, storyboard artists, matte artists, production designers, model makers, scenic artists, title artists, and graphic artists
IATSE	Local 839	The Animation Guild and Affiliated Optical Electronic and Graphic Arts	Professions served: animation artists, writers, and technicians
IATSE	Local 871	Script Supervisors/ Continuity, Coordinators, Accountants & Allied Production Specialists Guild	Professions served: script supervisors, accountants, production office coordinators, and art department coordinators

Figure 1.6: Major Labor Unions in the Screen Industries in Southern California (continued)

Affiliation	Number	Name	Professions
IATSE	Local 884	Motion Picture Studio Teachers and Welfare Workers	Profession served: studio teachers
	Local 892	Costume Designers Guild	Professions served: costume designers, assistant costume designers and costume illustrators
IBEW	Local 40	International Brotherhood of Electrical Workers	Professions served: Animal handlers & trainers, casting, couriers, dispatchers, drivers, locations, mechanics, warehousemen, wranglers
Teamsters	Local 399	International Brotherhood of Teamsters	Professions Served: Actors, announcers, broadcast journalists, dancers, DJs, news writers, news editors, program hosts, puppeteers, recording artists, singers, stunt performers, voiceover artists, and other media professionals
AFM	Local 47	American Federation of Musicians (AFM)	Professions Served: Musicians
DGA	-	Directors Guild of America	Professions Served: Directors
SAG-AFTRA	-	Screen Actors Guild-American Federation of Television and Radio Artists (SAG-AFTRA)	Professions Served: Actors, announcers, broadcast journalists, dancers, DJs, news writers, news editors, program hosts, puppeteers, recording artists, singers, stunt performers, voiceover artists, and other media professionals
WGA	West	Writers Guild of America (WGA West)	Professions Served: Writers

Source: CVL Economics

Additional non-union membership organizations that serve creative talent in southern California include:

American Society of Cinematographers; Alliance of Motion Picture and Television Producers; American Society of Composers, Authors and Publishers; Association of Talent Agents; Location Managers Guild International; Motion Picture Sound Editors; Producers Guild of America; Set Decorators Society of America; Society of Camera Operators; Society of Motion Picture & TV Engineers; Stuntmen's Association of Motion Pictures (invitation and must be a SAG-AFTRA; Stuntwomen's Association of Motion Pictures (invitation and must be a SAG-AFTRA member).

Figure 1.7: Major Labor Unions in Live Events and Theater in Southern California.

Affiliation	Number	Name	Professions
AFL-CIO	-	Actors Equity Association	Actors and stage managers
IATSE	Local 33	Stage Crew	Carpentry, Staging, Rigging, Audio/Video Specialist, Electrician
IATSE	Local 857	Wardrobe Crew	Wardrobe attendants (dressers), seamstresses, tailors, fitters, milliners, craft persons, and wardrobe supervisors.
IATSE	Local USA 829	United Scenic Artists	Scenic, Costume, Lighting, Sound, and Projection Designers; Scenic Artists; Computer Artists; Art and Costume Department Coordinators; and Scenic Shop workers.
-	-	Society of Stage Directors and Choreographers, Inc.	Directors and Choreographers

CREATIVE DIGITAL INTERFACE

Los Angeles MSA

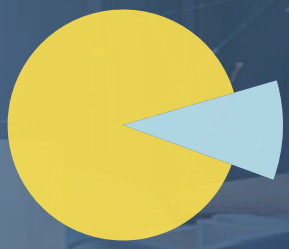
5,952
Annual Job Openings
2022-2032

$55.33
Median Hourly Earnings

11%
10 Year Forecast Job Growth
2022-2032

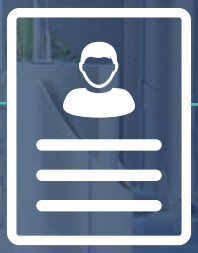
$39.98
Entry Hourly Earnings

71,887
Payroll Employment 2022



6,585
Self Employed 2022

8,775
2022 Gig Engagements



78,472
Total Jobs in 2022

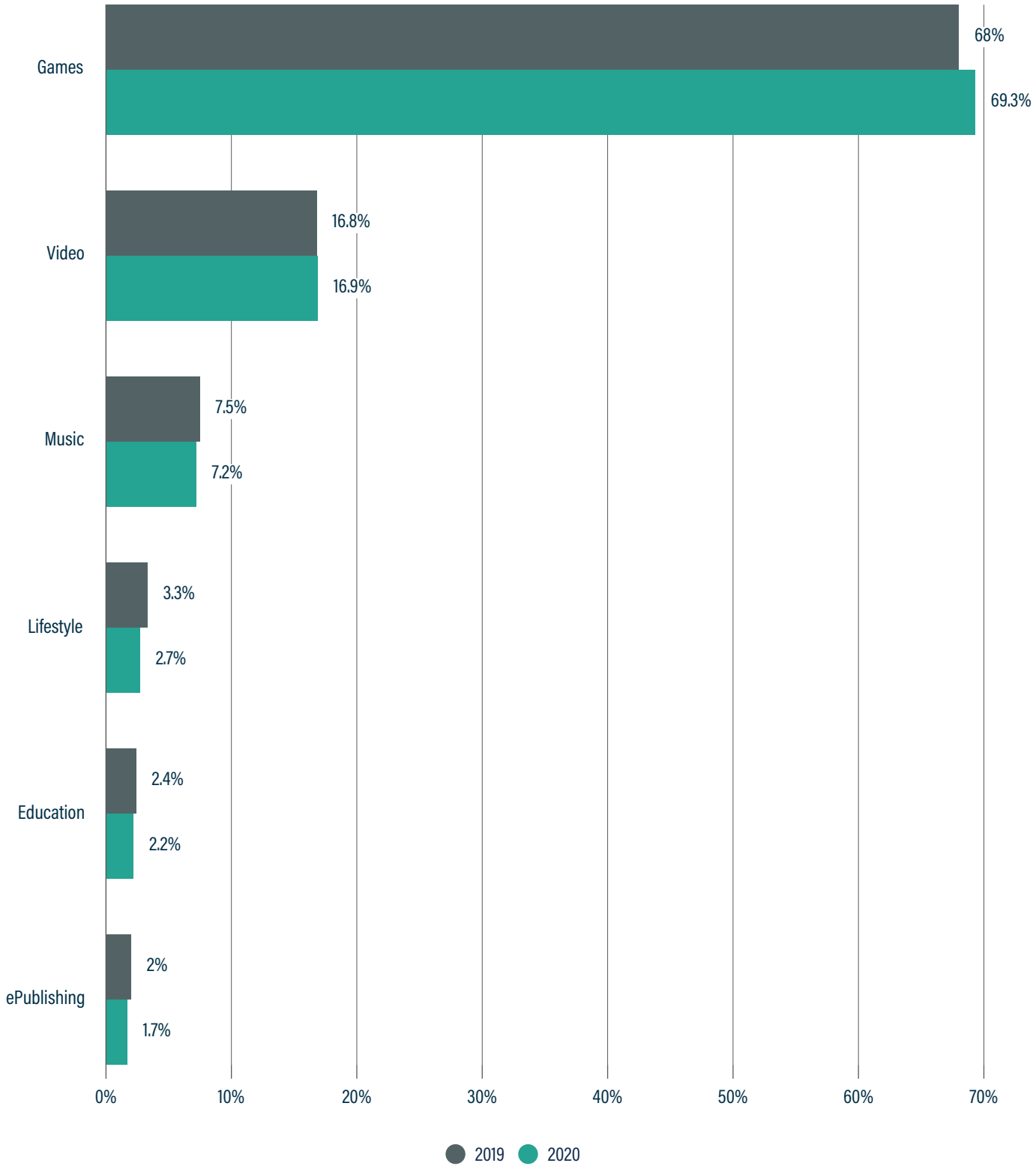
Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program; Bureau of Economic Analysis (BEA) State Personal Income, BEA Local Area Personal Income (LPI).

The jobs found in the Creative Digital Interface occupational group include video games and interactive experiences across all digital platforms from arcade machines to computers, home and handheld consoles, smart phones, and tablets, along with new technologies like virtual reality (VR) and augmented reality (AR). The growth of mobile applications and new technologies like VR and AR have increased the range and popularity of games and adjacent digital creative work worldwide. Immersive technology—including Virtual Reality (VR), Augmented Reality (AR), Immersive Audio and Mixed Reality (MR)—will likely be a key area of economic growth in the next 5-10 years.

Examples of Jobs in the Creative Digital Interface Occupational Group:

- Content Creators
- Game Designers
- Environment Artists
- Concept Artists
- Character Designers
- Gameplay Engineers
- Lead Game Designers
- Video Content Creators
- 3D Environment Artists
- Associate Game Directors
- Game Producers
- Franchise Coordinators
- YouTube Content Creators
- Video Game Testers
- Level Designers
- Dialogue Editors
- Front End Developers
- UI/UX Designers
- User Experience Designers
- Web Designers
- Content Producers
- Web Application Developers
- Mobile UX Designers
- Narrative Designers

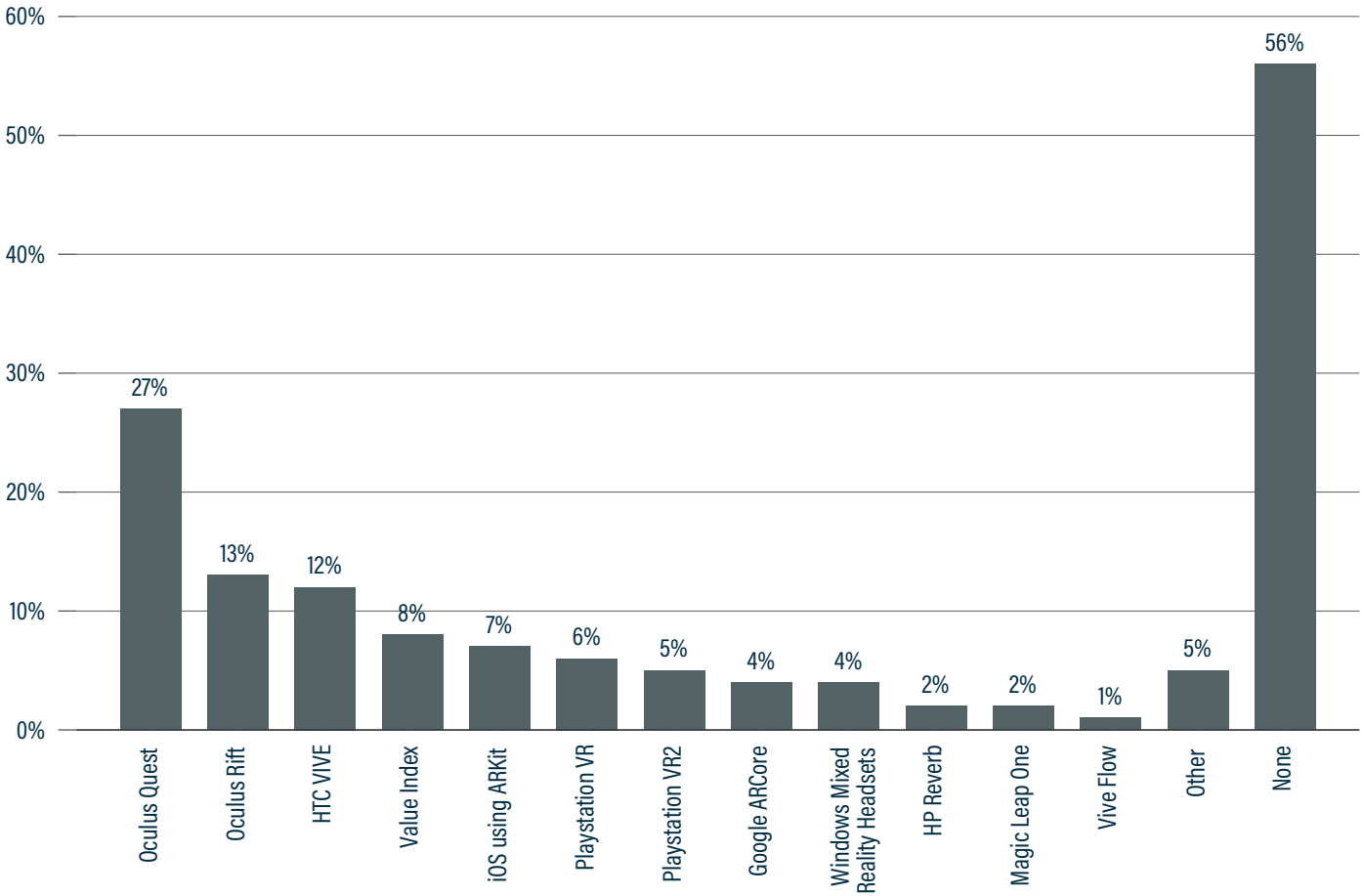
Figure 2.1: Global Market Share of Select Mobile Content Services 2019-2020, By Category



Source: Statista

Figure 2.2: VR/AR Platforms Attracting Software Development

Based on survey of more than 2,700 game developers



The skills needed to work in the Creative Digital Interface Occupation Group are broad and varied, with large and small development studios requiring different skills for publishers or distributors. In general, the smaller the studio, the broader the set of skills that are needed. Employees in this group often engage in a number of jobs which can include design, programming, or even production. In a large firm, job roles tend to be more specific, like 3D Modeling Artist, Programmer, or Animator. There is also a wide range of specializations within each field like Character, Environment and Texturing Artists, who may concentrate further in 2D, 3D or VR; or have a wider skill set that includes design and animation.

For most occupations in the Creative Digital Interface occupational group, the forecasted job growth is expected to outpace the occupational average in the region (4%). Software Developers will see the largest percentage growth (15%) over the next decade, followed by Software Quality Assurance Analysts and Testers (13%), and Web and Digital Interface Designers (10%). Each year over the next decade there will be roughly 6,900 job openings across the detailed occupations in the group. Software Developers will have the largest number of openings each year (4,935) followed by Software Quality Assurance Analysts and Testers (688) and Web Developers (492). The median hourly wage across the Creative Digital Interface occupational group is $55.33, notably above the regional self-sufficiency wage. No detailed occupation has a median wage below the regional self-sufficiency wage, and detailed occupations pay above the self-sufficiency wage even at the 25th percentile.

Figure 2.3: Projected Job Growth for Select Creative Digital Interface Occupations | 2022-2032

	CALIFORNIA			LOS ANGELES		
Select Occupations	**2022 Jobs**	**2032 Jobs**	**2022 - 2032 % Change**	**2022 Jobs**	**2032 Jobs**	**2022 - 2032 % Change**
Software Developers	2,52,891	3,09,774	22%	53,696	61,494	15%
Software Quality Assurance Analysts and Testers	36,175	43,875	21%	7,645	8,647	13%
Web Developers	17,302	19,287	11%	6,007	6,442	7%
Web and Digital Interface Designers	15,564	17,608	13%	5,006	5,526	10%

Source: U.S. Bureau of Labor Statistics (BLS) Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program.

Figure 2.4: Projected Job Openings for Select Creative Digital Interface Occupations in Los Angeles | 2022-2032

Select Occupations	**2022-2032 Openings**	**Average Annual Openings**
Software Developers	49,355	4,935
Software Quality Assurance Analysts and Testers	6,882	688
Web Developers	4,918	492
Web and Digital Interface Designers	4,313	431

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program; BLS Employment Projections Program Separations, Lightcast.™

Figure 2.5: Hourly Wages for Select Creative Digital Interface Occupations by Wage Percentile in Los Angeles | 2021

Select Occupations	25th Percentile	Median Hourly Wage	90th Percentile	Self-Sufficiency Wage
Software Developers	$46.60	$60.96	$82.78	
Software Quality Assurance Analysts and Testers	$35.71	$47.71	$70.12	
Web Developers	$23.63	$35.78	$62.59	$18.10
Web and Digital Interface Designers	$23.99	$36.80	$66.36	
Total Occupations, Creative Digital Interface	$39.98	$55.33	$81.08	

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); BLS Occupational Employment Statistics (OES); Lightcast.™

Examples of Major Firms with Creative Digital Interface Occupational Talent:

RIOT GAMES, NBC, DELL Technologies, SPACEX, The Walt Disney Company, amazon, Snap Inc., ACTIVISION BLIZZARD, CoStar Group™, Electronic Arts, SONY

Examples of Software and Technology:

- Maya
- Mocha
- Arnold
- Nuke
- Houdini
- Mantra
- CAD
- IBK
- Primatte
- Keylight
- Autodesk Flame
- F-Track
- Adobe Suite
- Final Cut Pro
- Compressor Episode
- Quicktime Pro

ART AND DESIGN

Los Angeles MSA

7,349
Annual Job Openings
2022-2032

$26.39
Median Hourly Earnings

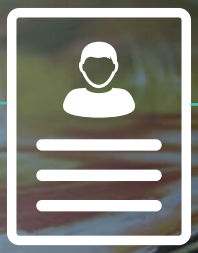
6%
10 Year Forecast Job Growth
2022-2032

$16.03
Entry Hourly Earnings

45,939
Payroll Employment 2022

30,300
Self Employed 2022

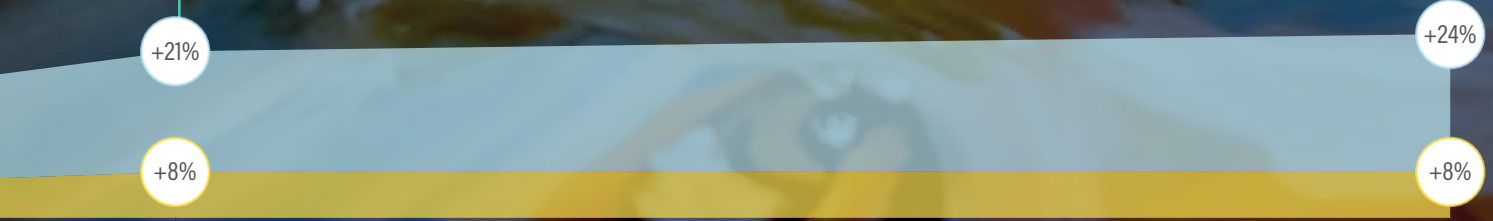
47,595
2022 Gig Engagements



76,239
Total Jobs in 2022

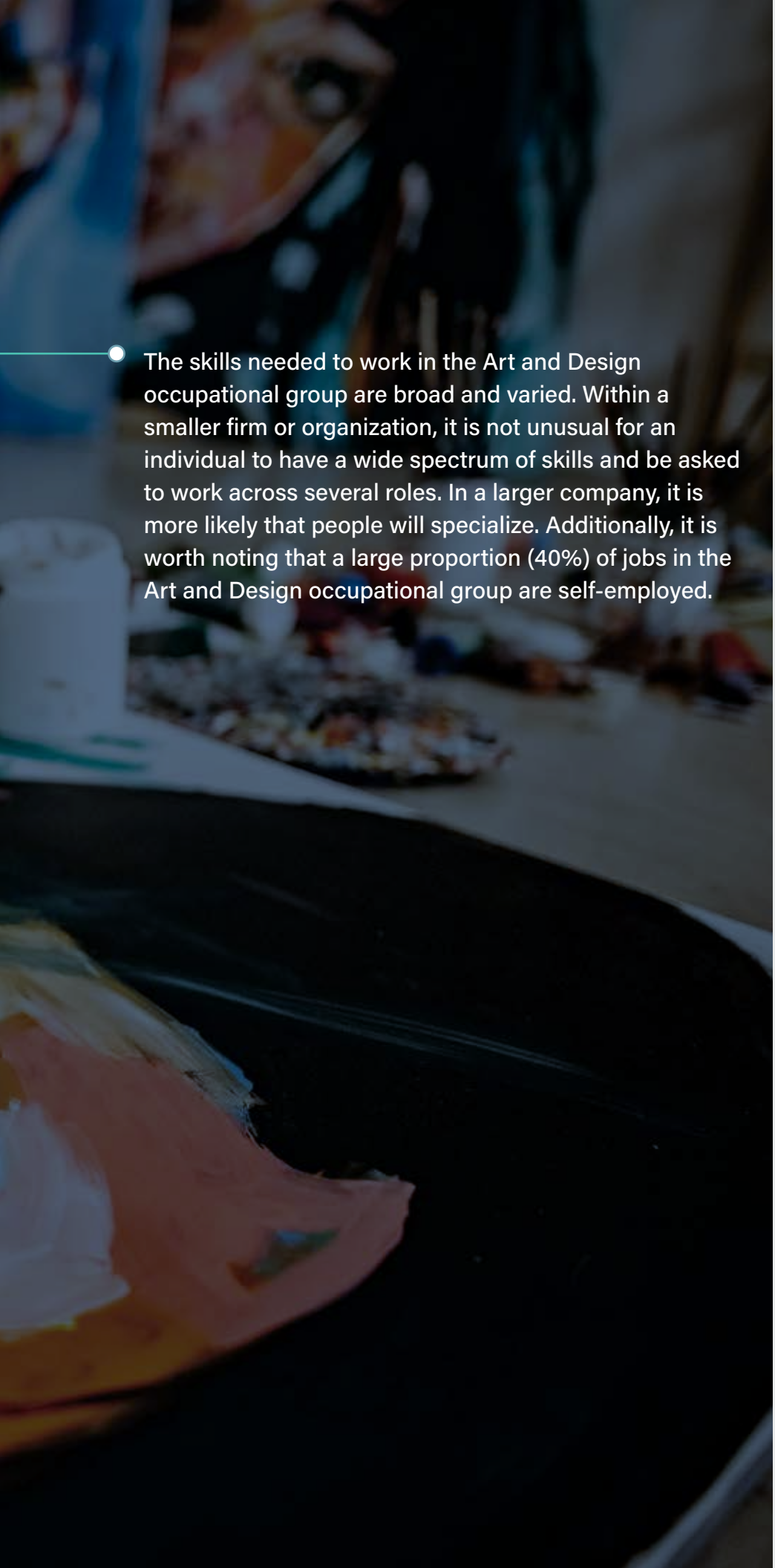
10 Year Historical Change
2012-2022

20 Year Historical Change
2002-2022



All Occupations Art and Design

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program; Bureau of Economic Analysis (BEA) State Personal Income, BEA Local Area Personal Income (LPI).



The skills needed to work in the Art and Design occupational group are broad and varied. Within a smaller firm or organization, it is not unusual for an individual to have a wide spectrum of skills and be asked to work across several roles. In a larger company, it is more likely that people will specialize. Additionally, it is worth noting that a large proportion (40%) of jobs in the Art and Design occupational group are self-employed.

Examples of Jobs in the Art and Design Occupational Group:

- Art Directors (Associate, Assistant)
- Creative Directors (Associate, Assistant)
- Directors of Creative Services
- Digital Art Directors (Associate, Assistant)
- Brand Creative Directors
- Creative Design Directors
- Game Directors
- Animation Directors
- Conceptual Designers
- Fashion Directors
- Motion Graphics Designers
- VFX Artists
- Visual Effects Coordinators
- Effects Editors
- Compositors
- Nuke Compositors
- After Effects Artists
- Riggers
- Animators
- Animation Directors
- Storyboard Artists
- FX Artists
- 2D/3D Animators
- Gameplay Engineers
- Interaction Designers
- 3D Modelers
- Digital Modelers
- Digital Sculptors
- Interactive Art Directors
- Animation Producers
- Technical Artists
- Mac Artists
- Lash Artists
- Lighting Artists
- Artists
- 3D Artists
- Layout Artists
- Technical Illustrators
- Flame Artists
- Lighting and Composition Artists
- Previsualization Artists
- Sculptors
- Texture Artists
- Scenic Artists
- Fine Artists
- Patent Illustrators
- Airbrush Artists
- Mural Artists
- CAD Artists
- Product Designers
- Industrial Designers
- Digital Product Designers
- UI/UX Product Designers
- Product Development Technicians
- Visualization Specialists
- Mobile Product Designers
- Graphic Designers
- Production Artists
- Graphic Artists
- Marketing Graphic Designers
- Set Designers
- Set Decorators
- Set Dressers
- Exhibit Designers
- Prop Masters
- Publicity Coordinators
- Retail Project Merchandisers
- Visual Merchandisers
- Interior Designers
- Design Consultants
- Residential Interior Designers
- Fashion Designers
- Costume Designers
- Footwear Designers
- Jewelry Designers
- Sportwear Designers

Artistic output in the Art and Design occupational group can take a myriad of forms, but digital continues to expand including content for on-demand and subscription services, commercials, educational or other industrial videos, games, visual effects (VFX) and virtual reality. For most occupations in the Art and Design occupational group, the forecasted job growth is expected to outpace the occupational average in the region (4%). Fine Artists will see the largest percentage growth (26%) over the next decade, followed by Special Effects Artists and Animators (16%), and Interior Designers (14%). Meanwhile, the number of Commercial and Industrial Designers and Fashion Designers is expected to decline slightly over the next decade. Each year over the next decade there will be roughly 8,000 job openings across the detailed occupations in the group. Graphic Designers will have the largest number of openings each year (1,819) followed by Art Directors (987) and Fine Artists (982).

Figure 3.1: Projected Job Growth for Select Art and Design Occupations | 2022-2032

	CALIFORNIA			LOS ANGELES		
Select Occupations	**2022 Jobs**	**2032 Jobs**	**2022 - 2032 % Change**	**2022 Jobs**	**2032 Jobs**	**2022 - 2032 % Change**
Art Directors	17,336	17,994	4%	9,087	9,551	5%
Fine Artists, Including Painters, Sculptors, and Illustrators	12,338	15,269	24%	7,033	8,871	26%
Special Effects Artists and Animators	11,734	13,071	11%	6,757	7,853	16%
Commercial and Industrial Designers	5,672	5,530	-3%	2,679	2,499	-7%
Fashion Designers	6,846	6,706	-2%	4,541	4,195	-8%
Graphic Designers	43,056	44,272	3%	19,494	19,802	2%
Interior Designers	15,049	16,570	10%	6,367	7,229	14%
Set and Exhibit Designers	4,774	4,848	2%	2,362	2,485	5%

Source: U.S. Bureau of Labor Statistics (BLS) Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program.

Figure 3.2: Projected Job Openings for Select Art and Design Occupations in Los Angeles | 2022-2032

Select Occupations	**2022-2032 Openings**	**Average Annual Openings**
Art Directors	9,865	987
Fine Artists, Including Painters, Sculptors, and Illustrators	9,821	982
Special Effects Artists and Animators	8,443	844
Commercial and Industrial Designers	2,361	236
Fashion Designers	4,074	407
Graphic Designers	18,187	1,819
Interior Designers	6,978	698
Set and Exhibit Designers	2,403	240

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program; BLS Employment Projections Program Separations, Lightcast.™

The median hourly wage across the Art and Design occupational group is $26.39, notably above the regional self-sufficiency wage. Only Fine Artists have a median wage below the regional self-sufficiency wage, earning $5 less on average. However, several occupations in the Art and Design occupational group has a wage distribution that does not resemble the distribution of other occupations across the economy. For those occupations where the 25th Percentile (starting) wage are not above the self-sufficiency wage (indicated in red)—the disaggregation of the wage data indicates that various occupations have non-traditional work arrangements, where payroll jobs have a different wage structure at different points in an occupational career than self-employed jobs, as seen in Figure 3.4. It is important to note that wage data are not collected and estimated for self-employed individuals in the same method as payroll or "W-2" jobs, which skews self-employment earnings lower than they may actually be.

Figure 3.3: Hourly Wages for Select Art and Design Occupations by Wage Percentile in Los Angeles | 2021

Select Occupations	25th Percentile	Median Hourly Wage	90th Percentile	Self-Sufficiency Wage
Art Directors	$21.08	$47.15	$99.77	$18.10
Fine Artists, Including Painters, Sculptors,and Illustrators	$5.16	$13.62	$45.94	
Special Effects Artists and Animators	$22.89	$35.78	$65.32	
Commercial and Industrial Designers	$29.13	$45.18	$64.17	
Fashion Designers	$27.85	$36.68	$63.81	
Graphic Designers	$20.62	$28.67	$52.97	
Interior Designers	$20.43	$29.27	$60.63	
Set and Exhibit Designers	$14.42	$24.74	$67.78	

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); BLS Occupational Employment Statistics (OES); Lightcast.™ Note: Red font indicates the wage is below the self-sufficiency wage.

Figure 3.4: Hourly Wages for Select Art and Design Occupations by Job Type in Los Angeles | 2021

Job Type	Occupations	25th Percentile	Median Hourly	90th Percentile	Self-Sufficiency Wage
W-2	Fine Artists, Including Painters, Sculptors, and Illustrators	$23.78	$30.57	$47.87	$18.10
W-2	Set and Exhibit Designers	$23.40	$26.63	$39.13	
Self-Employed	Fine Artists, Including Painters, Sculptors, and Illustrators	$4.12	$10.27	$45.08	
Self-Employed	Set and Exhibit Designers	$10.73	$21.46	$86.75	

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); BLS Occupational Employment Statistics (OES); Lightcast.™ Note: Red font indicates the wage is below the self-sufficiency wage.

PERFORMANCE

Los Angeles MSA

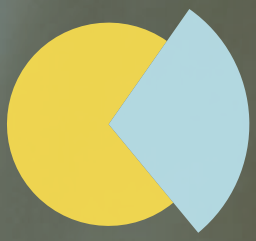
9,180
Annual Job Openings
2022-2032

$38.71
Median Hourly Earnings

14%
10 Year Forecast Job Growth
2022-2032

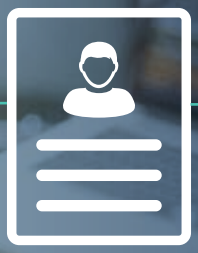
$23.74
Entry Hourly Earnings

60,832
Payroll Employment 2022



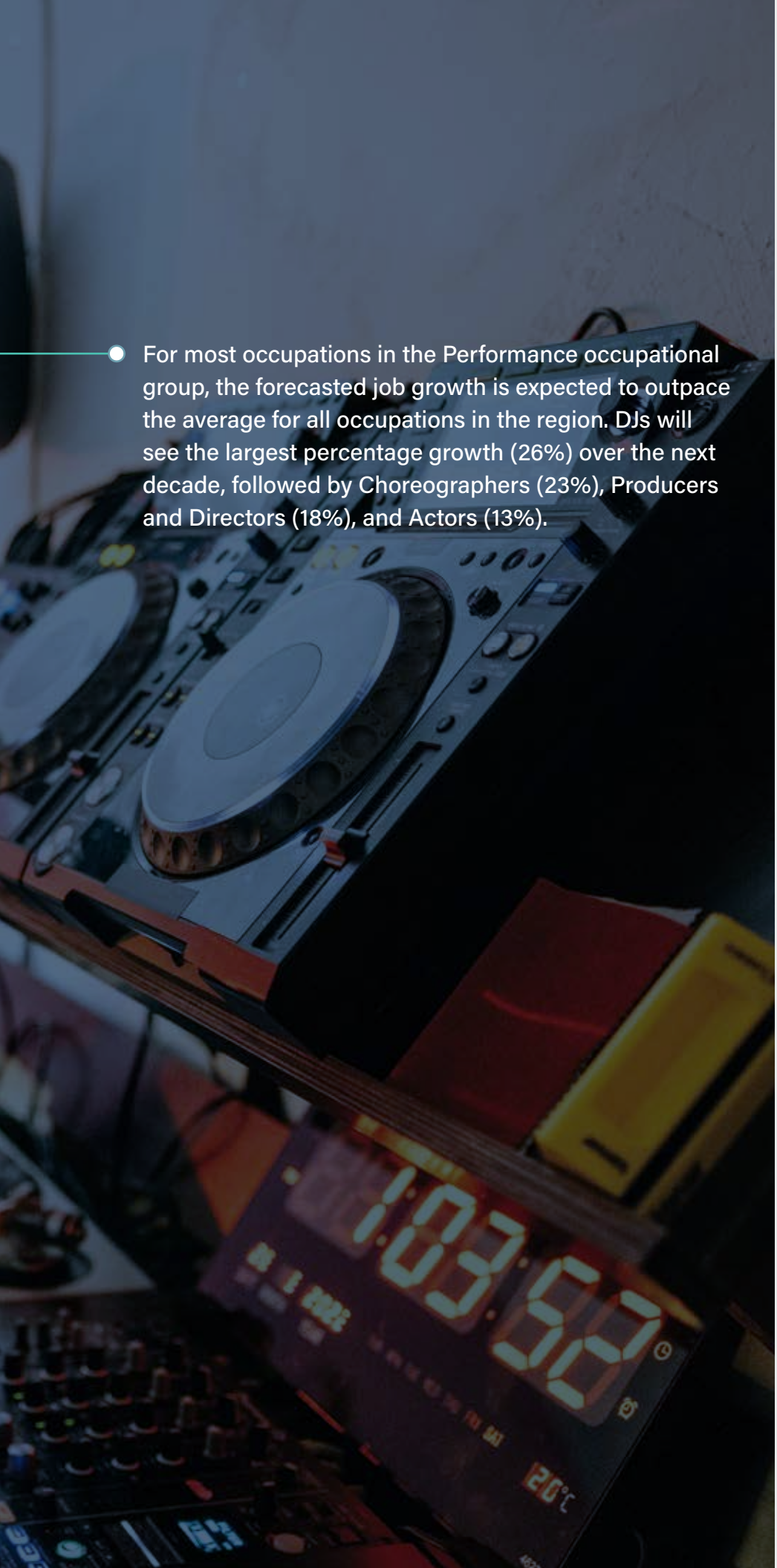
25,201
Self Employed 2022

37,556
2022 Gig Engagements



86,034
Total Jobs in 2022

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program; Bureau of Economic Analysis (BEA) State Personal Income, BEA Local Area Personal Income (LPI).



For most occupations in the Performance occupational group, the forecasted job growth is expected to outpace the average for all occupations in the region. DJs will see the largest percentage growth (26%) over the next decade, followed by Choreographers (23%), Producers and Directors (18%), and Actors (13%).

Examples of Jobs in the Performance Occupational Group:

- Music Video Directors
- Actors/Actresses
- Background Actors
- Performers
- Casting Assistants
- Casting Coordinators
- Voice Over Actors
- Producers (Associate, Assistant, Executive)
- Digital Producers
- Creative Producers
- Video Producers
- Line Producers
- Podcast Producers
- Paid Media Managers
- News Producers
- Supervising Producers
- Segment Producers
- Localization Specialists
- Producers
- Technical Producers
- Development Producers
- Digital News Producers
- VFX Producers
- Live Event Producers
- Sports Producers
- Social Content Producers
- Field Producers
- Music Directors
- Film Composers
- Composers
- Music Producers
- Songwriters
- Composer's Assistants
- Musicians
- Accompanists
- Booking Managers
- Singers
- Vocalists
- Dance Choreographers
- Choreographers
- Dance Instructors
- Dancers
- Hip Hop Dance
- Instructors
- Ballet Dancers

For most occupations in the Performance occupational group, the forecasted job growth is expected to outpace the occupational average in the region (4%). DJs will see the largest percentage growth (26%) over the next decade, followed by Choreographers (23%), Producers and Directors (18%), and Actors (13%).

Figure 4.1: Projected Job Growth for Select Performance Occupations | 2022 -2032

	CALIFORNIA			LOS ANGELES		
Select Occupations	**2022 Jobs**	**2032 Jobs**	**2022 - 2032 % Change**	**2022 Jobs**	**2032 Jobs**	**2022 - 2032 % Change**
Actors	12,133	13,523	11%	8,300	9,365	13%
Producers and Directors	58,128	68,024	17%	45,777	53,803	18%
Dancers	1,439	1,511	5%	651	676	4%
Choreographers	503	626	24%	202	249	23%
Music Directors and Composers	7,524	8,050	7%	3,841	4,169	9%
Musicians and Singers	24,349	25,528	5%	12,042	12,696	5%
Disc Jockeys, Except Radio	2,623	3,237	23%	1,652	2,089	26%

Source: U.S. Bureau of Labor Statistics (BLS) Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program.

Each year over the next decade there will be roughly 10,500 job openings across the detailed occupations in the group. Producers and Directors will have the largest number of openings each year (5,000) followed my Musicians and Singers (1,485) and Actors (1,056).

Figure 4.2: Projected Job Openings for Select Performance Occupations in Los Angeles | 2022-2032

Select Occupations	**2022-2032 Openings**	**Average Annual Openings**
Actors	10,558	1,056
Producers and Directors	49,999	5,000
Dancers	1,097	110
Choreographers	423	42
Music Directors and Composers	4,927	493
Musicians and Singers	14,854	1,485
Disc Jockeys, Except Radio	2,193	219

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program; BLS Employment Projections Program Separations, Lightcast.™

The median hourly wage across Performance occupational group is $38.71, notably above the regional self-sufficiency wage. No detailed occupation has a median wage below the regional self-sufficiency wage. However, several occupations in the Performance occupational group have wage distributions that don't resemble the distribution of other occupations across the economy. For those occupations where the 25th Percentile (starting) wage are not above the self-sufficiency wage (indicated in red)—the disaggregation of the wage data indicates that various occupations have non-traditional work arrangements, where payroll jobs have a different wage structure at different points in an occupational career than self-employed jobs, as seen in Figure 4.4.

Figure 4.3: Hourly Wages for Select Performance Occupations by Wage Percentile in Los Angeles | 2021

Select Occupations	25th Percentile	Median Hourly Wage	90th Percentile	Self-Sufficiency Wage
Actors	$23.70	$29.79	$83.60	
Producers and Directors	$34.36	$56.54	$133.77	
Dancers	$15.14	$21.77	$50.93	
Choreographers	$17.60	$27.82	$62.97	$18.10
Music Directors and Composers	$14.65	$25.24	$66.43	
Musicians and Singers	$14.60	$26.98	$106.35	
Disc Jockeys, Except Radio	$14.78	$19.52	$52.75	

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); BLS Occupational Employment Statistics (OES); Lightcast.™ Note: Red font indicates the wage is below the self-sufficiency wage.

Figure 4.4: Hourly Wages for Select Performance Occupations by Job Type in Los Angeles | 2021

Job Type	Occupations	25th Percentile	Median Hourly Wage	90th Percentile	Self-Sufficiency Wage
W-2	Dancers	$15.49	$21.38	$25.70	
W-2	Choreographers	$20.99	$33.18	$39.13	
W-2	Music Directors and Composers	$15.98	$29.12	$61.00	
W-2	Musicians and Singers	$18.97	$46.16	$99.86	
W-2	Disc Jockeys, Except Radio	$15.10	$17.90	$32.53	$18.10
Self-Employed	Dancers	$12.13	$23.28	$79.34	
Self-Employed	Choreographers	$11.95	$22.94	$78.20	
Self-Employed	Music Directors and Composers	$10.60	$22.37	$97.60	
Self-Employed	Musicians and Singers	$11.44	$22.95	$111.09	
Self-Employed	Disc Jockeys, Except Radio	$12.79	$23.58	$91.86	

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); BLS Occupational Employment Statistics (OES); Lightcast.™ Note: Red font indicates the wage is below the self-sufficiency wage.

MEDIA AND COMMUNICATIONS

Los Angeles MSA

5,134
Annual Job Openings
2022-2032

$32.00
Median Hourly Earnings

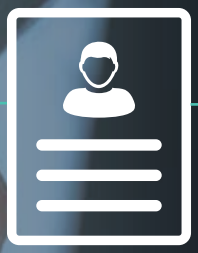
+7%
10 Year Forecast Job Growth
2022-2032

$20.75
Entry Hourly Earnings

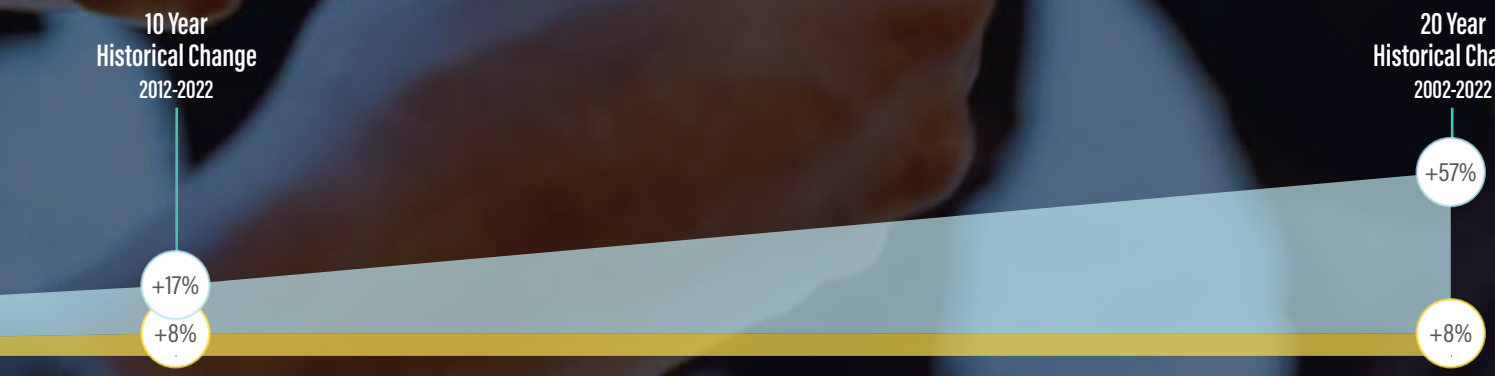
35,749
Payroll Employment 2022

17,004
Self Employed 2022

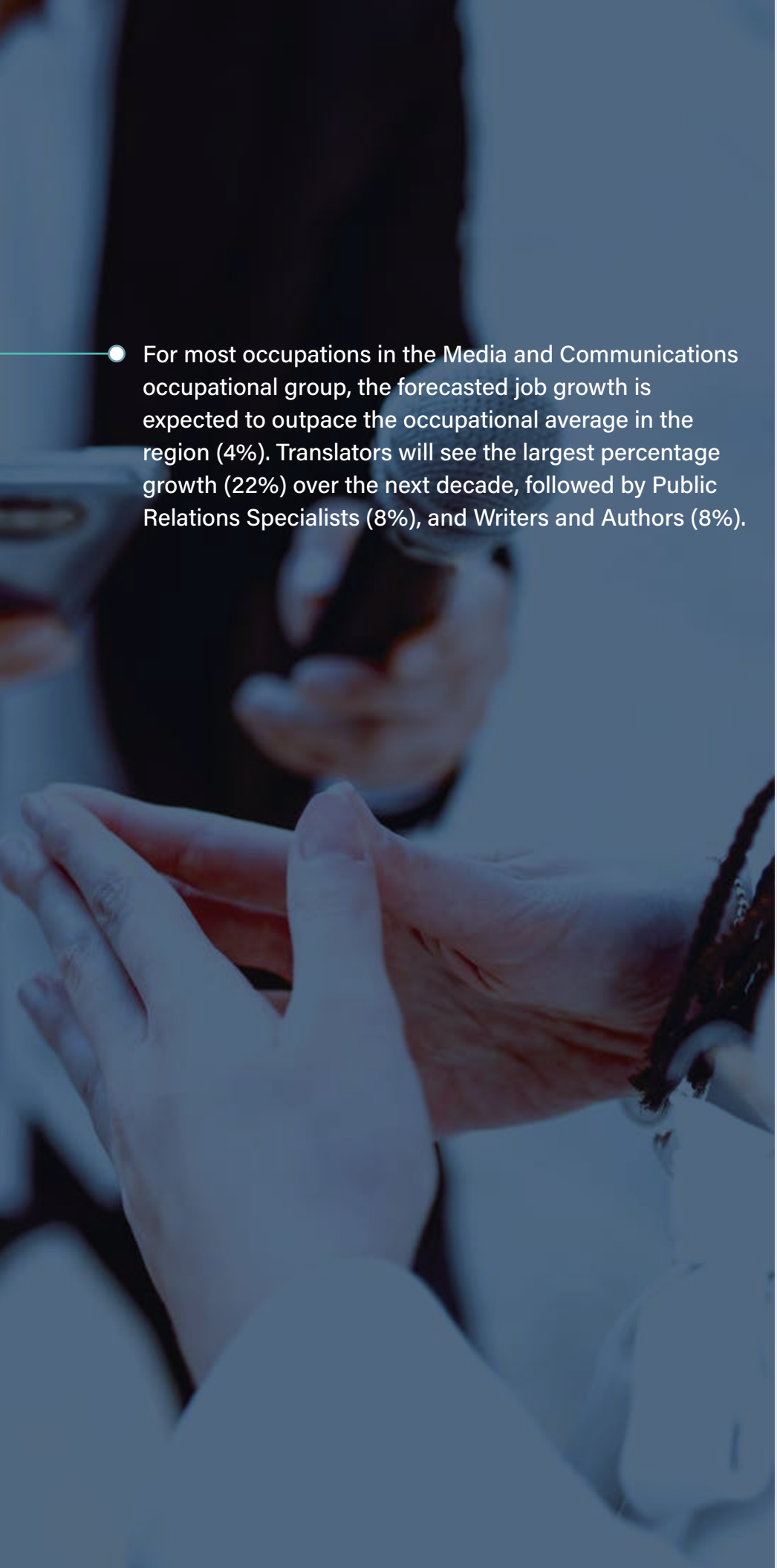
50,286
2022 Gig Engagements



52,754
Total Jobs in 2022



Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program; Bureau of Economic Analysis (BEA) State Personal Income, BEA Local Area Personal Income (LPI).



For most occupations in the Media and Communications occupational group, the forecasted job growth is expected to outpace the occupational average in the region (4%). Translators will see the largest percentage growth (22%) over the next decade, followed by Public Relations Specialists (8%), and Writers and Authors (8%).

Examples of Jobs in the Media and Communications Occupational Group:

- On-Air Personalities
- Sports Producers
- Voice Over Actors
- Talent Producers
- Broadcasters
- Reporters
- Staff Writers
- Data Journalists
- Digital Reporters
- Video Journalists
- Communications Specialists
- Communications Coordinators
- Media Planners
- Media Buyers
- Content Strategists
- Publicists
- Public Relations Specialists
- Marketing Communications Specialists
- Social Media Planners
- Paid Media Specialists
- Editors
- Editorial Assistants
- Copy Editors
- Photo Editors
- Podcast Editors
- Finishing Editors
- Online Editors
- Trailer Editors
- Audio Editors
- Technical Writers
- Proposal Writers
- Proposal Coordinators
- Copywriters
- Script Writers
- Grant Writers
- Product Copywriters
- Interpreters
- Translators
- Clearance Specialists
- Localization Specialists
- Subtitlers

For most occupations in the Media and Communications occupational group, the forecasted job growth is expected to outpace the occupational average in the region (4%). Translators will see the largest percentage growth (22%) over the next decade, followed by Public Relations Specialists (8%), and Writers and Authors (8%).

Figure 5.1: Projected Job Growth for Select Media and Communications Occupations | 2022-2032

	CALIFORNIA			LOS ANGELES		
Select Occupations	**2022 Jobs**	**2032 Jobs**	**2022 - 2032 % Change**	**2022 Jobs**	**2032 Jobs**	**2022 - 2032 % Change**
News Analysts, Reporters, and Journalists	5,155	5,439	6%	2,844	2,918	3%
Public Relations Specialists	29,885	32,739	10%	11,225	12,221	9%
Editors	17,093	17,245	1%	8,003	7,872	-2%
Technical Writers	6,473	7,176	11%	2,277	2,453	8%
Writers and Authors	28,358	30,139	6%	16,184	17,494	8%
Interpreters and Translators	13,719	16,322	19%	4,736	5,778	22%

Source: U.S. Bureau of Labor Statistics (BLS) Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program.

Each year over the next decade there will be roughly 5,600 job openings across the detailed occupations in the group. Writers and Authors will have the largest number of openings each year (1,731) followed by Public Relations Specialists (1,163).

Figure 5.2: Projected Job Openings for Select Media and Communications Occupations in Los Angeles | 2022-2032

Select Occupations	**2022-2032 Openings**	**Average Annual Openings**
News Analysts, Reporters, and Journalists	3,175	318
Public Relations Specialists	11,626	1,163
Editors	8,001	800
Technical Writers	2,255	226
Writers and Authors	17,314	1,731
Interpreters and Translators	5,935	593

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program; BLS Employment Projections Program Separations, Lightcast.™

The median hourly wage across the Media and Communications occupational group is $32.00, notably above the regional self-sufficiency wage. No detailed occupation has a median wage below the regional self-sufficiency wage. The only occupation where the 25th Percentile (starting) wages are not above the self-sufficiency wage is Reporters and Journalists (indicated in red). The disaggregation of the wage data indicates payroll jobs have a different wage structure at different points in an occupational career than self-employed jobs, as seen in Figure 5.4.

Figure 5.3: Hourly Wages for Select Media and Communications Occupations by Wage Percentile in Los Angeles | 2021

Select Occupations	25th Percentile	Median Hourly Wage	90th Percentile	Self-Sufficiency Wage
News Analysts, Reporters, and Journalists	$17.58	$23.27	$49.58	$18.10
Public Relations Specialists	$23.86	$31.53	$62.83	
Editors	$21.26	$31.78	$63.98	
Technical Writers	$31.42	$39.03	$68.52	
Writers and Authors	$19.32	$41.16	$68.85	
Interpreters and Translators	$21.65	$34.85	$64.86	

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); BLS Occupational Employment Statistics (OES); Lightcast.™ Note: Red font indicates the wage is below the self-sufficiency wage.

Figure 5.4: Hourly Wages for Select Media and Communications Occupations by Job Type in Los Angeles | 2021

Job Type	Occupations	25th Percentile	Median Hourly Wage	90th Percentile	Self-Sufficiency Wage
W-2	News Analysts, Reporters, and Journalists	$17.68	$24.61	$47.99	$18.10
Self-Employed	News Analysts, Reporters, and Journalists	$7.78	$19.46	$70.82	

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); BLS Occupational Employment Statistics (OES); Lightcast.™ Note: Red font indicates the wage is below the self-sufficiency wage.

CREATIVE EQUIPMENT TECHNICIANS

Los Angeles MSA

5,572
Annual Job Openings
2022-2032

$26.74
Median Hourly Earnings

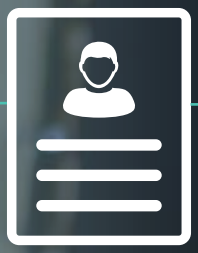
+19%
10 Year Forecast Job Growth
2022-2032

$18.34
Entry Hourly Earnings

34,684
Payroll Employment 2022

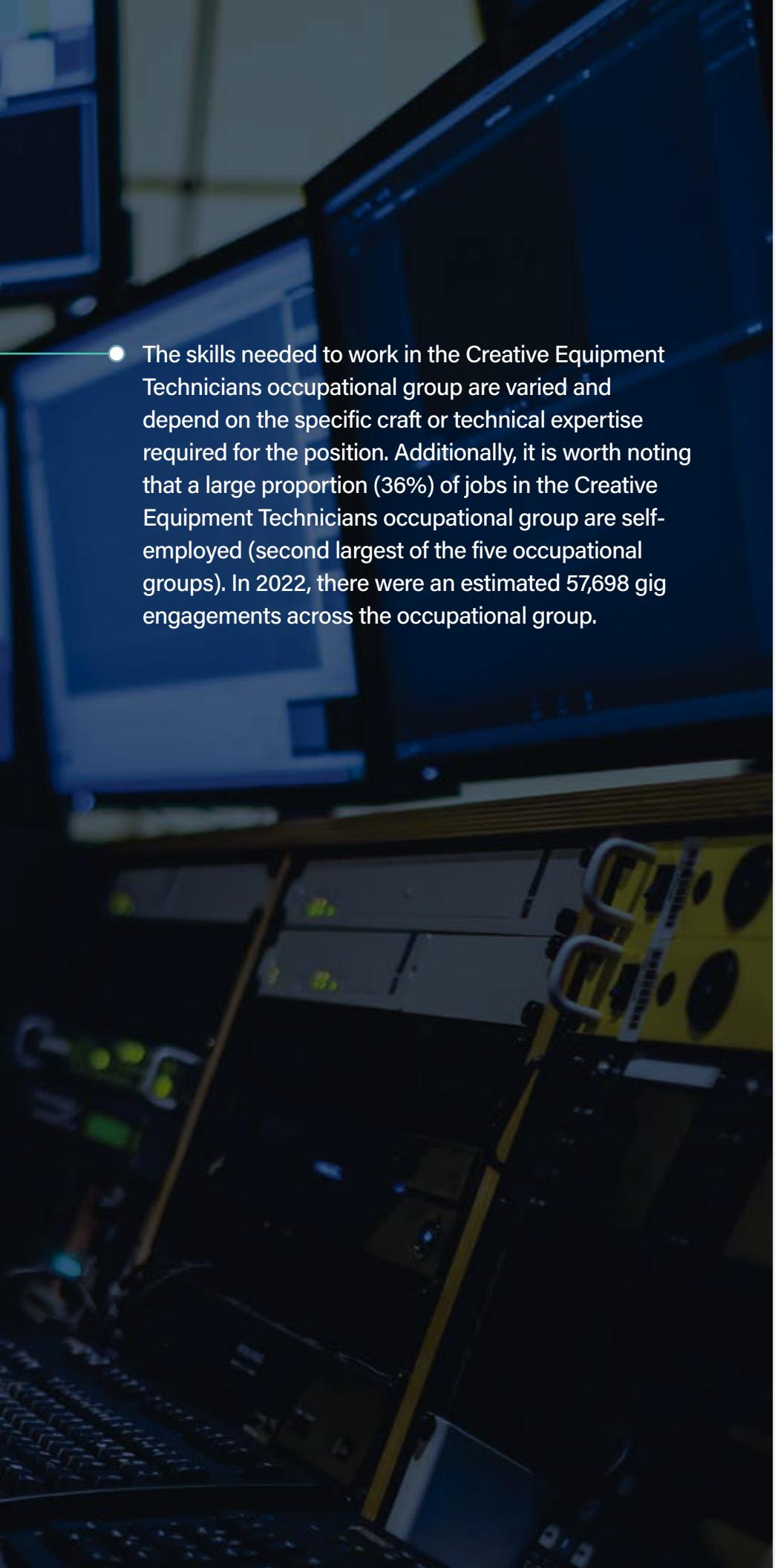
19,254
Self Employed 2022

57,698
2022 Gig Engagements



53,938
Total Jobs in 2022

Source: Lightcast



The skills needed to work in the Creative Equipment Technicians occupational group are varied and depend on the specific craft or technical expertise required for the position. Additionally, it is worth noting that a large proportion (36%) of jobs in the Creative Equipment Technicians occupational group are self-employed (second largest of the five occupational groups). In 2022, there were an estimated 57,698 gig engagements across the occupational group.

Examples of Jobs in the Creative Equipment Technicians Group:

- Audiovisual Technicians
- Video Technicians
- Stagehands
- Entertainment Technicians
- Digital Media Technicians
- Audiovisual Specialists
- Video Systems Engineers
- Audio Mixers
- Video Production Specialists
- Event Technology Specialists
- Production Sound Mixers
- Audio Engineers
- Theater Technicians
- Broadcast Engineers
- Sound Designers
- Mixing Operators
- Sound Engineers
- Theater Technical Directors
- Digital Coordinators
- Audio DSP Engineers
- Live Audio Engineers
- Studio Engineers
- Journeyman Engineers
- Lighting Technicians
- Set-Lighting Technician
- Exhibit Technician
- Special Effects Technician
- Videographers
- Camera Operators
- Cinematographers
- Sports Videographers
- Directors of Photography
- Studio Camera Operators
- Podcast Editors
- Lead Video Editors
- Motion Graphics Designers
- Film and Video Editors
- After Effects Artists
- Boom Operator
- Gaffer
- Key Grip
- Dolly Operator
- Lighting Console Operator
- Lighting Technician
- Rigging Crew Member

The core skills for individual occupations in this group are transferable across projects of varying types but generally not easily transferred across occupations in the group. For example, since the skills needed in unscripted video content or television are similar to those for film and television drama, it is possible to transfer skills between the various types of screen content. However, there are significant ways in which the different work environments require skills and interest that that are unique from each other. On a documentary or reality television program, for example, it is important for a camera operator to respond quickly to unpredictable situations where anything can happen, whereas on a feature film, every shot is planned. There are similar differences in hair and makeup, costume, and the other traditional production crafts.

For those working in craft or technical roles in unscripted video content, television, or in television, film, or unscripted video content, it is likely the engagement will be on a freelance basis rather than a permanent payroll position. For example, television shows are made by production companies on a project basis. A team is put together to make a program and then disbanded once the program or series is complete. Depending the role, an individual could work on one production for just a few days, weeks or months and it is possible to find oneself working on more than one project at a time. Permanent payroll positions tend to be attached to facilities like studios, equipment hire or technical service companies, rather than production companies.

The jobs in the Creative Equipment Technicians occupational group are forecasted for strong occupational growth in the region over the next decade and the demand for talent will remain strong. Film and Video Editors will see the largest percentage growth (25%) over the next decade, followed by Camera Operators (24%), and Audio and Video Technicians (20%).

Figure 6.1: Projected Job Growth for Select Creative Equipment Technicians Occupations | 2022-2032

	CALIFORNIA			LOS ANGELES		
Select Occupations	**2022 Jobs**	**2032 Jobs**	**2022 - 2032 % Change**	**2022 Jobs**	**2032 Jobs**	**2022 - 2032 % Change**
Audio and Video Technicians	12,473	14,677	18%	6,868	8,249	20%
Broadcast Technicians	5,143	5,388	5%	3,374	3,642	8%
Sound Engineering Technicians	5,686	6,548	15%	4,309	4,904	14%
Lighting Technicians	1,349	1,525	13%	974	1,093	12%
Photographers	27,212	31,588	16%	12,714	14,717	16%
Camera Operators	8,993	11,050	23%	6,715	8,346	24%
Film and Video Editors	17,042	21,105	24%	13,482	16,833	25%

Source: U.S. Bureau of Labor Statistics (BLS) Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program.

Each year over the next decade there will be roughly 6,600 job openings across the detailed occupations in the group. Film and Video Editors will have the largest number of openings each year (1,749) followed by Photographers (1,163), and Audio and Video Technicians (880).

Figure 6.2: Projected Job Openings for Select Creative Equipment Technicians Occupations in Los Angeles | 2022-2032

Select Occupations	2022-2032 Openings	Average Annual Openings
Audio and Video Technicians	8,803	880
Broadcast Technicians	3,715	372
Sound Engineering Technicians	5,147	515
Lighting Technicians	1,135	114
Photographers	14,645	1,464
Camera Operators, Television, Video, and Film	8,654	865
Film and Video Editors	17,493	1,749

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program; BLS Employment Projections Program Separations, Lightcast.™

The median hourly wage across the Creative Equipment Technicians occupational group is $26.74, notably above the regional self-sufficiency wage. Only Broadcast Technicians have a median wage below the regional self-sufficiency wage, making about $3 less. The only two occupations where the 25th Percentile (starting) wages are not above the self-sufficiency wage are Broadcast Technicians and Photographers (indicated in red). The disaggregation of the wage data indicates payroll jobs have a different wage structure at different points in an occupational career than self-employed jobs, as shown in Figure 6.4. For those Photographers at the 90% percentage of wages, the gap between self-employed ($121.92) and payroll ($37.49) is stark. The same holds true for Broadcast Technicians ($74.44 versus $38.17).

Figure 6.3: Hourly Wages for Select Creative Equipment Technicians Occupations by Wage Percentile in Los Angeles | 2021

Select Occupations	25th Percentile	Median Hourly Wage	90th Percentile	Self-Sufficiency Wage
Audio and Video Technicians	$21.17	$28.25	$48.16	
Broadcast Technicians	$14.66	$15.25	$38.99	
Sound Engineering Technicians	$27.04	$30.64	$69.37	
Lighting Technicians	$19.14	$27.46	$38.84	$18.10
Photographers	$14.82	$24.41	$102.33	
Camera Operators, Television, Video, and Film	$20.68	$23.82	$52.05	
Film and Video Editors	$21.47	$30.04	$74.65	

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); BLS Occupational Employment Statistics (OES); Lightcast.™ Note: Red font indicates the wage is below the self-sufficiency wage.

Figure 6.4: Hourly Wages for Select Creative Equipment Technicians Occupations by Job Type in Los Angeles | 2021

Job Type	Occupations	25th Percentile	Median Hourly	90th Percentile	Self-Sufficiency Wage
W-2	Broadcast Technicians	$14.66	$15.02	$38.17	
W-2	Photographers	$17.48	$22.55	$37.49	$18.10
Self-Employed	Broadcast Technicians	$11.18	$20.76	$74.44	
Self-Employed	Photographers	$12.75	$25.90	$121.92	

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); BLS Occupational Employment Statistics (OES); Lightcast.™ Note: Red font indicates the wage is below the self-sufficiency wage.


THRESHOLD
RATIO
MASTER
COMPRESSOR
MAXXBASS
LIMITER
0
46
0.0
0.0
POWER
SHAPE
SWEEP GEN
SHAPE
RATE
NORM
REV

INDUSTRY TRENDS

Emerging Opportunity: Entertainment Localization

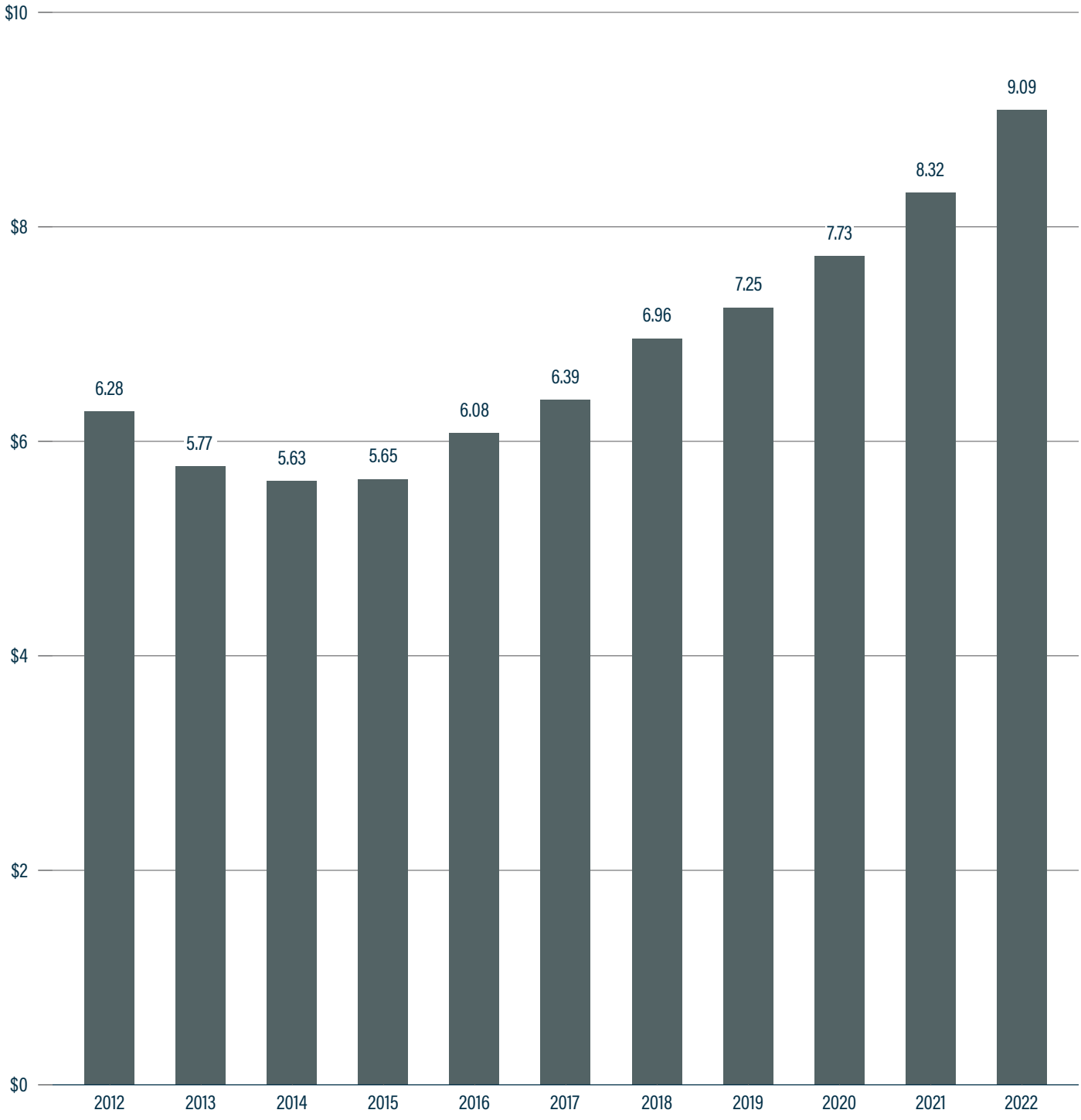
When an industry expands services into the global market, localization is essential. It is about adapting a product from a specific region or country. For the creative economy, it can be thought of as translating multimedia content such as software, video games, websites, as well as audio and video and is now more important than it has ever been. Streaming and gaming platforms need to attract viewers and subscribers from all over the world. That demand has fueled the prominent rise of entertainment localization. No longer considered an obscure niche of the translation industry, localization is an important component of the global entertainment industries.

Entertainment localization is extremely nuanced, shaped by the very complex cultural fabric of the regions it serves. For policymakers in California, an awareness and understanding of localization is essential. The artistic process that allows stories to effortlessly cross cultures and borders as well as enables creative goods and services to be consumed around the world is critical as the state looks to solidify its competitive advantages over the next decade as the market for services continues to expand.

The Netflix library has content across 62 languages and allows subscribers to choose to view the platform in more than 20 languages. A viewer can choose between subtitles (37 languages), dubbing (34 languages), or both to access and enjoy content on the platform. The challenges faced by Netflix to make content accessible around the globe is no different than that faced by Amazon Prime Video, YouTube Premium, or Disney+. Each of those companies are facing similar challenges and are working to improve the quality and expand the content they are sharing with their subscribers. This is a major change for the localization industry—a shift from film or television productions in one language pair to true multi-lingual, global and parallel productions in up to 30 languages at the same time. Framestore's (Oscar-award winning creative studio) Global Managing Director, sums up the landscape by noting, "The streamers have made no secret about their desire for regionally-focused content and how this feeds into their business strategies."[5]

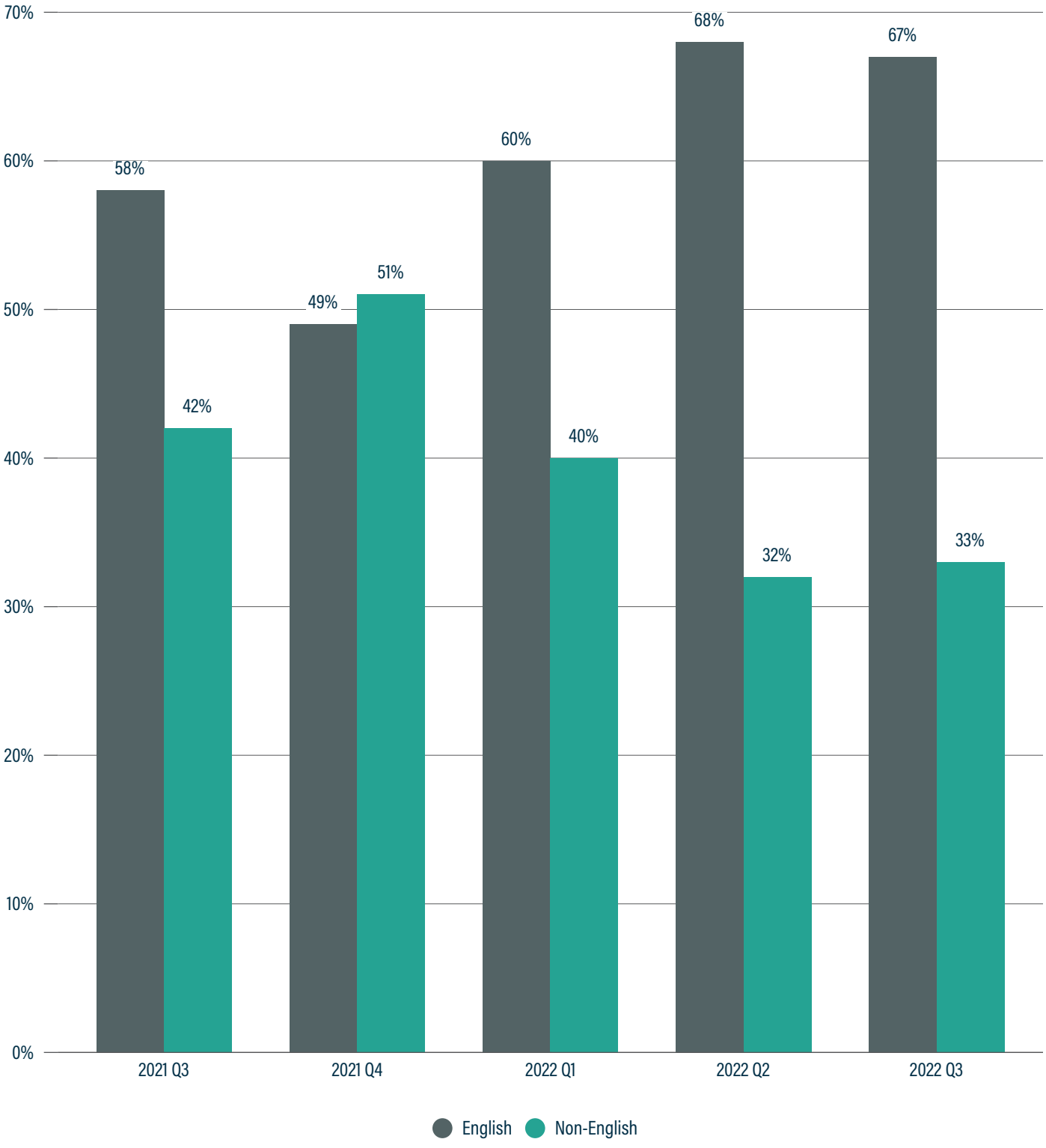
[5] "Globalization Lifts Vfx Industry to New Heights And New Horizons," *VFX Voice Magazine* (blog), April 6, 2022, https://www.vfxvoice.com/globalization-lifts-vfx-industry-to-new-heights-and-new-horizons/.

Figure 7.1: Market Size of Translation Services Industry in the United States from 2012 to 2022
(In Billion U.S. Dollars)



Source: IBIS World

Figure 7.2: Netflix top 10 list viewership: Q3 2021-Q3 2022



Source: Nielsen's weekly top 10 viewership.

Localization is complex to say the least. It requires consideration of cultural and diverging values. Not only do you have to worry about translating the material and performances, but the platform layout and appearances need a long list of parameters updated. For example, character sizes, fonts, and formats may not hold if a translation ends up being too long for the space allocated in a different language. The script driving the project work may need to shift from left to right to right to left.

Investments in local content production around the globe have upended the direction in which entertainment content travels. Historically, most of the new entertainment content was native in English. Content is now beginning to travel from all source languages around the globe. It is not uncommon now to see original productions being dubbed from German, Italian, Hebrew, and Turkish, for example, into English and any other language for consumption on global platforms.

Localization Talent Demand	Scripting, adapting for dubbing, voice acting, directing, dubbing, subtitling, closed captioning, hearing impaired mixing, sign language, audio description, audio postproduction, meta data localization, artwork localization, compliance.
Key Software:	VoiceQ, Mosaic, and ADR Master 2

"The talent pipeline is definitely a challenge right now due to the increase in original content production, as well as language expansion and new global platform launches. It is something that we're concerned about and are working to address on a variety of fronts."

Chris Reynolds,
Executive VP and GM, Worldwide Localization and Fulfillment
Deluxe

"As a community, we should actively engage with further educational institutions and universities to build this network of training courses and expertise."

Gordon Doran
President
ZOO Digital

Sample of Localization Firms:

- Lyundo-SDI Group
- VSI
- Deluxe
- ZOO Digital
- Plint
- Hiventy
- Spherex
- Dubbing Brothers
- Keyword Studios
- IDC
- Pixelogic Media
- Blu Digital Group
- Visual Data Media Services
- FFS Film & Fernseh Synchron
- TV+Synchron Berlin
- AC Create
- Captionmax
- Take 1
- Tanweer Studios
- EarCandy
- Sound and Vision India
- Haymillian
- Sentauro Group
- DINT Doblajes Internacionales
- Kantana Post Production

Figure 7.3: Select Occupational Growth in Entertainment Localization

	2022-2032 Growth
Audio and Video Technicians	+18%
Sound Engineering Technicians	+15%
Translators	+19%
Actors (including Voice Actors)	+11%
All Occupations	+4%

Source: U.S. Bureau of Labor Statistics (BLS) Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); California Employment Development Department (EDD) Employment Projections Program.

Figure 7.4: Select Occupational Wages in Entertainment Localization

	25th Percentile	Median Hourly	90th Percentile	Self-Sufficiency Wage
Audio and Video Technicians	$21.17	$28.25	$48.16	$18.10
Sound Engineering Technicians	$27.04	$30.64	$69.37	
Translators	$21.65	$34.85	$64.86	
Actors (including Voice Actors)	$23.70	$29.79	$83.60	

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); BLS Occupational Employment Statistics (OES); Lightcast.™

There is an opportunity to partner with industry and to provide more educational opportunities for people to learn about localization and develop skills that will help them pursue a sustainable and fulfilling localization career. Given the rapid expansion of entertainment localization, the time is right to lead on developing a consistent education and training process to support a stronger and wide-reaching network of new talent ready to become part of the localization and dubbing community. Course work should offer a combination of industry and academic knowledge and skills training to make entertainment content accessible to international audiences.

Emerging Opportunity: Virtual Production, VFX, and Gaming Engines

> "The explosion of streaming content alongside theatrical releases has now created a situation where there is too much work and not enough crew to cover everything."
>
> Diana Giorgiutti, VFX Producer

Virtual Production (VP) is a rapidly growing area of content production. By combining CGI, game-engines, and virtual and augmented reality technologies, Virtual Production enables completely new ways of making film and TV, from virtual scouting, to set design, to real-time, on-set visual effects. Virtual Production techniques will impact upon many core disciplines and departments within filmmaking—from cinematography, to production design, VFX, animation, directing and beyond.

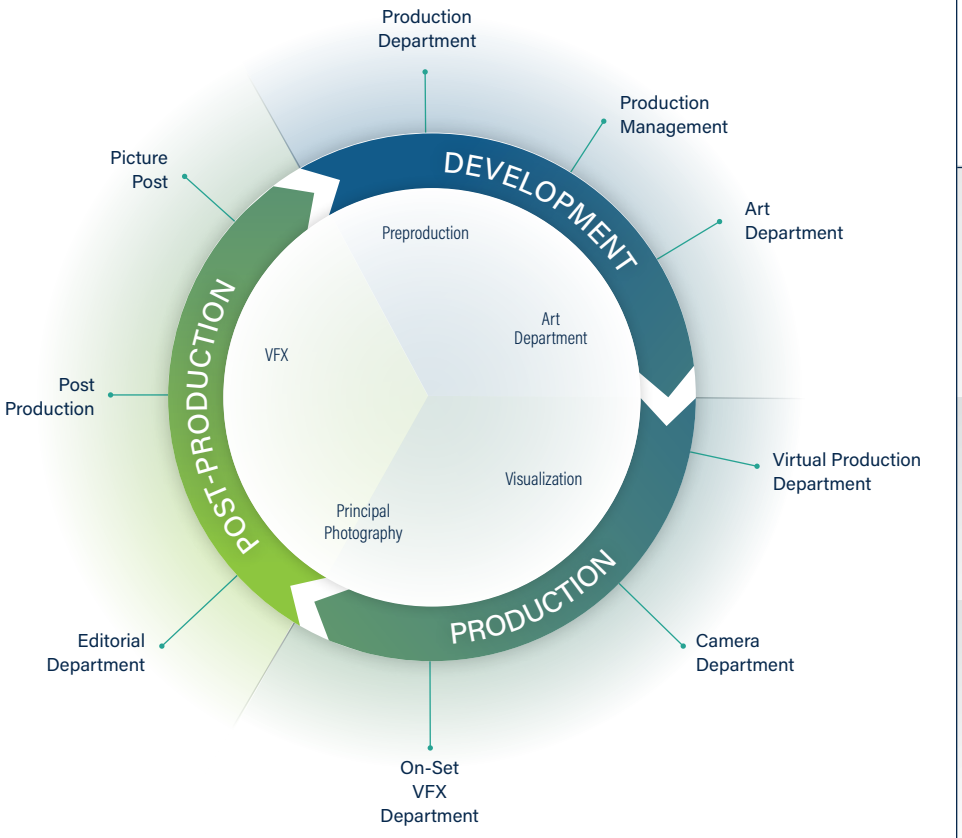
> "Flying in entire teams from abroad is not a business model. Investing in education and training is more important than ever."
>
> Florian Gellinger, Co-Founder and Executive Producer
> RISE Visual Effects Studios

VP offers efficiencies and enhancements for both live action (production) and visual effects (postproduction). It allows for a reduction of the costs and risks associated with VFX, which typically account for 10-20% of the overall budget. Instead of flying crews, equipment, actors and sets to locations across the world, producers can design and build locations in the computer, which are then played back on large LED screens known as volumes.

For workforce and higher education professionals in the Los Angeles region, the opportunity exists for a crossover of competencies allowing companies and talent to evolve between games, television, film, and more immersive types of media.

Traditional filmmaking pipeline with clearly identifiable and demarcated phases:

Virtual production combines physical and virtual elements to allow post-production and pre-production workflows to coexist during the physical production period.



Iterative Workflow with Flexible Relationships as Virtual Production Emerges through Departments

VP Visual Artist	▪ On-set story integration with LED panels ▪ Creating and prepping real-time assets ▪ Unreal object placement
Technical Artist Technical Director	▪ Previsualization ▪ Shot Design ▪ Blocking of virtual elements and virtual cinematography
LED Engineer	▪ Real-time color grading ▪ Virtual set color correction

Source: CVL Economics

The expanding use of real-time tools, game engines, and LED walls is not limited to the production of movies and television shows. Naturally, it turns out that the use of these virtual production technologies in commercials is growing at a similarly astounding rate.[6] When people, characters and vehicles need to be placed in a variety of settings that might not always be possible to film in, virtual production is perfectly suited to the quick-paced production of advertisements and produces stellar results.

> "We have too much work, which means we need more capacity, more artists and more supervisors."
>
> Tom Kendall, VFX Head of Business Development, Sales & Marketing
> Ghost VFX

The five creative career cluster occupation groups are, by their nature, deeply interdisciplinary, meaning no single current creative industry sector can fill the gap. Educational institutions and industry need to invest in the soft skills of interdisciplinary communication, collaborative working, and developing structures that do not create silos. This is particularly true in the growing area of virtual production which collapses boundaries between the different areas of production in film, television, and game design.

Sample of VFX Firms:

- Blizzard Entertainment
- Blur Studios
- BUF
- Cinesite
- Digital Domain
- Double Negative
- Dreamworks
- EA Games
- Framestore
- Laika
- Legend 3D
- Lucasfilm
- Mainframe Studios
- Marvel Animation
- Method Studios
- Moving Picture Company (MPC)
- Reel FX
- Riot Games
- Rising Sun Pictures
- SkyDance
- Spin VFX
- Stereo D
- Warner Media
- Weta Digital

Figure 8.1: Select Occupational Growth in Virtual Production, VFX, and Gaming Engines

	25th Percentile	Median Hourly	90th Percentile	Self-Sufficiency Wage
Digital Interface Designers	$23.99	$36.80	$66.36	$18.10
Software Developers	$46.60	$60.96	$82.78	
Art Directors	$21.08	$47.15	$99.77	
Camera Operators	$20.68	$23.82	$52.05	
Special Effects Artists and Animators	$22.89	$35.78	$65.32	
Producers and Directors	$34.36	$56.54	$133.77	

Source: U.S. Bureau of Labor Statistics Quarterly Census on Employment and Wages (QCEW); U.S. Census American Community Survey (ACS); BLS Occupational Employment Statistics (OES); Lightcast.™

The rapidly growing interest in virtual production and gaming engine technology means, now more than ever, a robust education and training process is needed to support an emerging set of occupations. Community colleges must collaborate with industry to understand the skills needed to work with VFX, virtual production, and gaming engine technologies and adjust their curricula accordingly.

[6] Virtual Production: Making a Real Impact in Commercials," *VFX Voice Magazine* (blog), June 1, 2022, https://www.vfxvoice.com/virtual-production-making-a-real-impact-in-commercials/.

CONCLUSIONS & RECOMMENDATIONS

Demand for creative talent in California remains strong and is only projected to grow over the next decade. If California wants to be at the forefront of the global creative economy then employers, policymakers, and educational institutions must gauge what kind of talent will be required and how large the creative workforce will need to be. Moreover, cultivating creative talent today will pay dividends in the form of a more dynamic and diversified labor force across all sectors for years to come. As the largest provider of publicly funded career education in the state, the California community college system is well positioned to lead on this front.

Yet investment in CTE pathways has not kept pace with growth of activity across the creative career cluster. Skills gaps and a shortage of qualified workers, especially among entry and mid-level roles, are restricting creative industry production, performance, and growth. Given that relevant in-demand creative skills take time to mature, the consequences of an underprepared creative workforce can take years to address. Compounding the situation is rapid technological advancement, which is prompting the creation of new roles and continually evolving skill sets.

Education and workforce development stakeholders generally do not feel equipped to highlight these opportunities or guide their students towards creative career pathways, and many find that their institution's understanding of the creative industries is out of date. These are significant barriers that need to be overcome if California is serious about building sustainable talent pipelines into the creative career cluster. The state's educational and workforce development infrastructure must reorient itself towards investing in the creative workforce, enabling creative people as entrepreneurs, and increasing collaboration among creative industry sectors as well as between the creative industries and community colleges. To help reframe the policy discussion, stakeholders should focus on four objectives.

Objective #1: Disaggregate the Creative Sectors from Information Communication Technologies and Digital Media Sectors

The 2021-2024 Strong Workforce Program Los Angeles Regional Plan, developed by the Los Angeles Orange County Regional Consortium, specifies eight California Community Colleges Chancellor's Office priority sectors:[7] (1) Advanced Manufacturing, (2) Advanced Transportation and Logistics, (3) Business and Entrepreneurship, (4) Energy, Construction, and Utilities, (5) Global Trade, (6) Health, (7) Life Sciences/Biotech, and (8) Information and Communications Technologies and Digital Media (ICT-DM).[8] The ICT-DM priority sector comprises five major program categories: (1) Business Applications Software, (2) IT-Networking Cybersecurity, (3) Computer Science, (4) Digital Media, and (5) Entertainment.[9]

Given that technology permeates all sectors of the economy, the idea of defining ICT-DM as its own industry vertical is becoming obsolete. The time has come to extract the relevant creative career cluster occupations and establish a standalone creative priority sector to promote more targeted state and regional policymaking. Clarity is key when it comes to translating between the organizational lexicons of educational institutions and employers in the creative industries. The current ICT-DM sector language prioritizes the technology systems application-agnostic while the bulk of the creative career cluster occupations also require training in specific art forms paired with a business knowledge of relevant creative sectors.

Objective #2: Foster Transferrable and Interdisciplinary Skill Sets

Today's employers are multidisciplinary organizations that need workers who offer a range of skills, perspectives, and expertise. The challenge for educators and workforce development providers is to translate the values, practices, and competencies of the creative career cluster into a language that both creative and non-creative sector employers can understand. For CTE and similar programs in the creative space, individuals are building proficiency in creative and critical thinking, problem solving, social intelligence, communication, resource management, and entrepreneurship. However, the benefits of these programs are rarely framed in such terms. Employers, educators, and students alike need to understand these are key transferable skills that are essential to all industry contexts.

[7] In addition, the plan included one emerging sector: Retail, Hospitality, and Tourism.

[8] ICT encompasses all rapidly emerging, evolving, and converging computer, software, networking, telecommunications, Internet, programming, information systems and digital media technologies.

[9] From 2013 to 2021, a statewide ICT Sector Team was in place to "anticipate and plan for student success in the accelerating areas of ICT industry technologies," including but not limited to IT, IoT, AI, Cloud, Cybersecurity, Coding, digital media, entertainment, and business office systems (remote and social media). The creative career cluster presented in earlier sections does not map cleanly ICT-DM program categories, though many creative career occupations can be found within Digital Media and Entertainment.

Research reveals creative value is generated through new combinations of creative capabilities and technological advancement, but the current educational and workforce development infrastructure can make multidisciplinary learning challenging to introduce. In addition to addressing discipline-specific skills gaps in community college certificate and program offerings, there is also a need to prepare students for work in interdisciplinary settings across a variety of professional contexts. This is not to imply a tradeoff between the technical instruction and soft skills development but rather how to integrate the two in novel ways.

Objective #3: Establish an Industry-Led Regional Collaborative

The community college system is designed to serve local populations and allow institutions to operate semi-autonomously. However, there are important advantages in aligning creative career cluster curricula with workforce needs at a regional level. The existing model—to forge individual institutional and/or programmatic relationships one at a time—is not feasible or realistic at this scale given the commitment, time, and resources it takes to develop partnerships between community colleges and employers. What is needed is a coordinated mechanism for brokering community college-employer partnerships to ensure instruction maps onto industry skills requirements, provide students with work-based learning opportunities, and connect students to jobs.

Herein lies the potential to create a new public-private partnership model to advance creative career opportunities among a greater swath of the region's talent pool. Regular convenings would not only allow for industry-led technical support that can inform curricula and develop programs that keep pace with evolving industry needs, but forge stronger relationships among creative industry employers, faculty, and administrators. A regional collaborative would also lay the groundwork for investment opportunities in shared workforce or CTE training facilities, ensuring that lesser-resourced community colleges are not left behind.

Objective #4: Conduct Ongoing Annual Creative Industry Skills Surveys

Gaining insights into rapidly shifting creative industry workforce needs and adjusting curriculum, pathways, and institutional information accordingly year-after-year is a herculean task. It is made even more difficult when there isn't a clear industry-led baseline in place. Traditional labor market information from California's Employment Development Department or Labor & Workforce Development Agency does not capture new and emerging areas of need and limits the ability of resources like the Centers of Excellence for Labor Market Research to guide decision-making.

The deployment of an annual survey to stakeholders (including, but not limited to, community college administrators, faculty members, workforce development agencies, state agencies, and industry groups) that tracks creative career cluster skills requirements would be of tremendous benefit, especially in framing conversations, competencies, and gaps. The resulting data could enhance a jurisdiction's ability to support creative industries and talent, help policymakers and administrators identify target areas for workforce investment, and inform and support industry diversity initiatives.

APPENDIX

The Creative Digital Interface occupational group includes occupations classified under the following 2018 Standard Occupational Classification (SOC) system codes:

- Software Developers (15-1252);
- Software Quality Assurance Analysts and Testers (15-1253);
- Web Developers (15-1254);
- Web and Digital Interface Designers (15-1255).

The Art and Design occupational group includes occupations classified under the following 2018 Standard Occupational Classification (SOC) system codes:

- Art Directors (27-1011);
- Craft Artists (27-1012);
- Fine Artists, Including Painters, Sculptors, and Illustrators (27-1013);
- Special Effects Artists and Animators (27-1014);
- Artists and Related Workers, All Other (27-1019);
- Commercial and Industrial Designers (27-1021);
- Fashion Designers (27-1022);
- Floral Designers (27-1023);
- Graphic Designers (27-1024);
- Interior Designers (27-1025);
- Merchandise Displayers and Window Trimmers (27-1026);
- Set and Exhibit Designers (27-1027);
- Designers, All Other (27-1029).

The Performance occupational group includes occupations classified under the following 2018 Standard Occupational Classification (SOC) system codes:

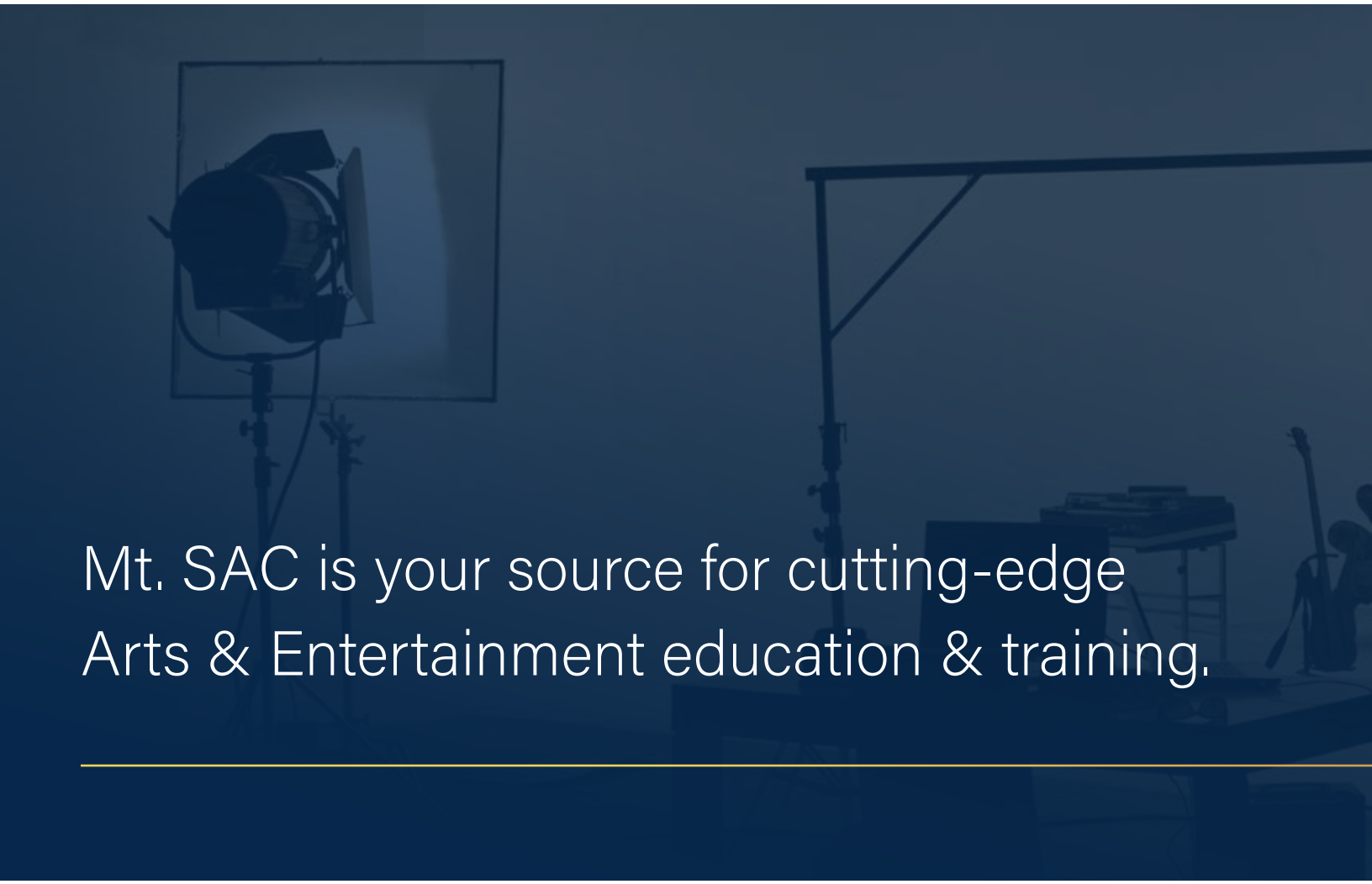
- Actors (27-2011);
- Producers and Directors (27-2012);
- Dancers (27-2031);
- Choreographers (27-2032);
- Music Directors and Composers (27-2041);
- Musicians and Singers (27-2042);
- Disc Jockeys, Except Radio (27-2091);
- Entertainers and Performers, Sports and Related Workers, All Other (27-2099).

The Media and Communication occupational group includes occupations classified under the following 2018 Standard Occupational Classification (SOC) system codes:

- Broadcast Announcers and Radio Disc Jockeys (27-3011);
- News Analysts, Reporters, and Journalists (27-3023);
- Public Relations Specialists (27-3031);
- Editors (27-3041);
- Technical Writers (27-3042);
- Writers and Authors (27-3043);
- Interpreters and Translators (27-3091);
- Simultaneous Captioners (27-3092);
- Media and Communication Workers, All Other (27-3099).

The Creative Equipment Technicians occupational group includes occupations classified under the following 2018 Standard Occupational Classification (SOC) system codes:

- Audio and Video Technicians (27-4011);
- Broadcast Technicians (27-4012);
- Sound Engineering Technicians (27-4014);
- Lighting Technicians (27-4015);
- Photographers (27-4021);
- Camera Operators, Television, Video, and Film (27-4031);
- Film and Video Editors (27-4032);
- Media and Communication Equipment Workers, All Other (27-4099).



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