Strong Workforce Program
Information and Communication Technologies
Artificial Intelligence in the Workplace
Regional Workforce Advisory Meeting Proceedings
November 7, 2024
Hybrid

Introduction

The Los Rios Community College District, in partnership with Valley Vision and in collaboration with Sierra College, Yuba Community College District, and Lake Tahoe Community College, invests in Strong Workforce funding to organize and convene Regional Advisories. The objectives of the Regional Advisories are to build strong relationships between employers, educators, and the workforce that:

- Provide timely information on skills gaps and workforce needs, informing partners on major industry trend information;
- Improve the efficiency of the advisory process for educators and employers;
- Reflect a regional view of workforce needs and assets;
- Provide opportunities for more systemic, ongoing engagement, including workforce partners in key industry sectors.

Regional Advisory meetings provide crucial insights for guiding investments and improvements in Career Education (CE) programs to meet the rising demand for middle-skill positions. This report summarizes the Fall 2024 Regional Advisory meeting, which focused on careers in the Information and Communication Technologies (ICT) sector, emphasizing the impact of Artificial Intelligence (AI) in the workplace. It includes key findings, best practices, and detailed minutes from the discussions.

Valley Vision supports a robust talent pipeline through our multiple 21st Century Workforce initiatives. We prepare our regional workforce for the future by addressing skills gaps, advancing research, aligning efforts, and strengthening systems. Valley Vision's workforce efforts are supported by the Sacramento Employment and Training Agency (SETA), Golden Sierra Workforce Development Board (WDB), North Central Counties Consortium, Yolo WDB, Los Rios Community College District, and others.

The Strong Workforce program provides Career Education opportunities to increase social mobility and fuel regional economies with skilled workers.

Key Findings

- The demand for AI-related skills is growing across various occupations and industries in the Sacramento region with over 42,000 tech-related jobs in the area, not just in tech. This widespread impact underscores the need for upskilling and reskilling programs for technical and non-technical workers to prepare for future job opportunities.

- Key occupations with high employment concentrations include computer user support specialists and software developers. The demand for computer user support specialists is strong, emphasizing the need for a well-prepared workforce in the Sacramento region. Software developers are expected to see significant job growth over the next five years.

- Employers for tech roles preferred candidates with 4 to 6 years of experience, sometimes up to 10 years, while non-tech roles typically required 2 to 3 years. Job postings highlighted a demand for skills like natural language processing, data visualization, and machine learning, though few mentioned specific generative AI tools like ChatGPT. Soft skills like agile methodology, project management, and effective communication are essential for managing generative AI systems efficiently.

- The California Government Operations Agency has identified seven key AI-related roles for the public sector: Generative AI Specialist, Data Analyst, Generative AI User Researcher, Generative AI Program Lead, Engineer, Generative AI Equity Officer, and Data Scientist. They also highlighted essential skills for these roles and introduced courses like "Gen AI 101" and "Gen AI 201" to teach the basics and applications of generative AI technologies.

- The demand for AI-related skills extends beyond traditional tech jobs; it is evident across various occupations and industries in the Sacramento region. This indicates that the impact of generative AI is widespread. As a result, upskilling and reskilling efforts should focus on the needs of both technical and non-technical workers to adequately prepare the workforce for future jobs.

- AI and low-code/no-code tools are making technical roles more accessible. Companies are creating programs to recruit and train individuals from non-technical backgrounds for AI jobs, allowing those without computer science degrees to transition into tech roles more easily.

- Employers emphasized the importance of preventing bias and implementing AI responsibly. They highlighted the critical need for monitoring outputs to ensure accuracy and fairness, particularly in the government context. The discussion underscored the necessity of continuously evaluating ethical implications and establishing safeguards as AI technologies rapidly evolve.

Meeting Proceedings

Welcome and Introduction

Valley Vision Project Coordinator Liz Kilkenny welcomed the audience to the Information and Communication Technologies (ICT) advisory meeting focused on Artificial Intelligence (AI) in the workplace. She introduced Valley Vision as a civic leadership organization bringing communities together to tackle our region's biggest challenges and ensure a more livable future. Caitlin Blockus, Project Manager at Valley Vision, then introduced members of the planning team: Alena Anberg, the Director of Employer Partnerships over Business, Communication, Information, and Technology at the Los Rios Community College District, and Dr. Caleb Fowler, Computer Information Science Department Chair and Professor at Folsom Lake Community College, who provided additional context and welcomed the attendees.

Large Language Models

In Dr. Caleb Fowler's context-setting introduction, he explained the core concepts of AI aimed to create a general understanding of large language models. Using ChatGPT as an example, he metaphorically described it as an "Excel spreadsheet" with numerous interconnected cells that learn from their training data. He noted that the primary function of these models is to recognize patterns in words and predict the next word in a sequence.

He emphasized the critical importance of high-quality training data, pointing out that models trained on mediocre or poor-quality data will produce similarly lackluster outputs. This underscores a vital consideration when employing these models: the quality of input data directly influences the effectiveness and reliability of the output.

In his effort to foster a broad understanding of large language models, Dr. Fowler outlined two main ways organizations leverage these tools:

- Tool Automation: This involves directly utilizing the model's outputs for tasks such as generating emails, drafting reports, or performing data analysis. This application streamlines routine processes, boosting efficiency and allowing human resources to focus on more strategic tasks.
- Abstraction: This use of the model involves shifting perspectives, simulating various scenarios, and generating novel questions and insights. By employing models, organizations can think creatively and explore new possibilities, leading to innovative solutions and strategic advantages.

Dr. Fowler cautioned that relying solely on tool automation does not guarantee a competitive edge, as these capabilities will likely become common across industries. The real value, he asserted, lies in the abstraction use case. By leveraging large language models to gain new

insights and perspectives, organizations can achieve a deeper understanding of complex issues and identify unique opportunities.

Additionally, he discussed the implications for students, noting that in the era of advanced AI tools like ChatGPT, homework assignments will need to focus more on the unique value students can add beyond what AI can produce. This shift emphasizes critical thinking, creativity, and the ability to apply knowledge in novel ways rather than just rote memorization or basic task completion.

Keynote Address

James Regan, Deputy Secretary of Workforce Development at the California Government Operations Agency, delivered an insightful presentation on the state's initiatives to equip the government workforce with AI skills, explaining the agency's role in enhancing government efficiency and improving public services. AI is viewed as a vital tool to achieve these goals, with a strong emphasis on supporting and upskilling the existing workforce to adapt to technological advancements.

Regan shared that his team conducted extensive research to identify the top AI-related roles and skills needed in the public sector. They pinpointed seven trending roles and mapped out the foundational, emerging, refined, and mastery-level skills required for each (Figure 1.1). This approach aims to ensure that employees can progress through different stages of expertise, from novice to expert.

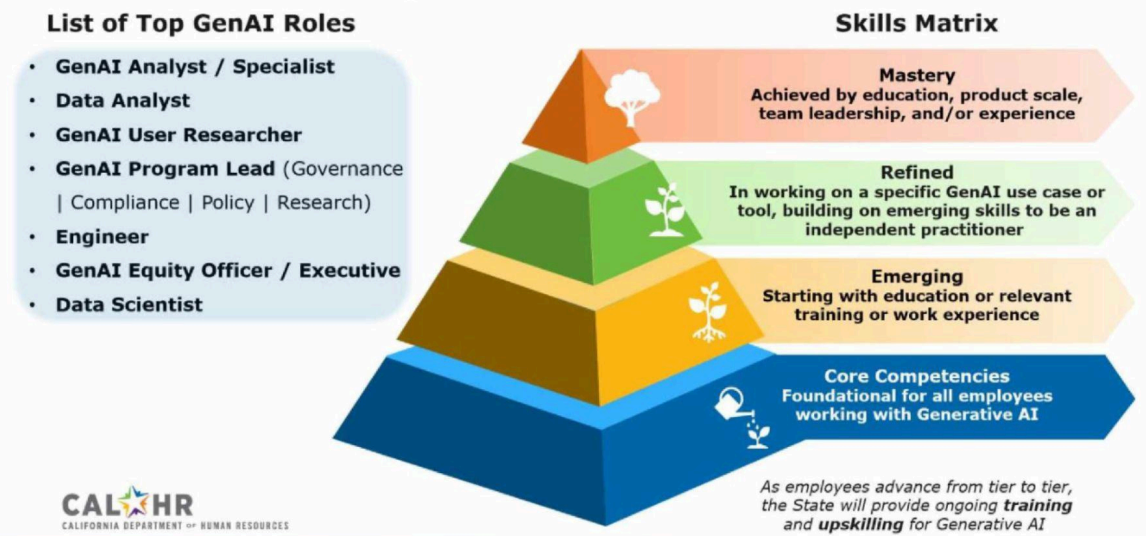


Figure 1.1 Top Roles for GenAI

In Figure 1.2, Regan outlined the skills necessary for a data analyst role. He demonstrated how the requirements evolve from basic data manipulation and analysis to more advanced tasks, such as understanding the impacts of data quality on training generative AI models. This

progression highlights the importance of continuous learning and development to keep pace with the rapidly evolving field of AI.

Data Analyst	Knowledge	Skills
Emerging	• Macros, data manipulation and formulas, pivot tables… • Tableau/PowerBI dashboards	• Querying databases in one programming language (Python, Java, JavaScript…) • Filtering data
Refined	• Degree or relevant work experience • At least one programming language • Statistical methods • Understanding data quality impacts to GenAI systems	• Product mindset • Prompting data visualization • Bias detection • Generating data from unstructured content using GenAI

Figure 1.2 Data Analysis Roll

Regan's address emphasized the significance of not only technical skills but also soft skills, such as agile methodology, project management, and effective communication. These skills are critical for managing and iterating on generative AI systems, ensuring that projects are completed efficiently and meet their intended objectives.

Various training pathways, created in collaboration with national nonprofits and higher education institutions, were showcased as key strategies to support the state's workforce. These initiatives include courses like "Gen AI 101" and "Gen AI 201," which cover the fundamentals and use cases of generative AI technologies. By providing structured learning opportunities, the state aims to ensure that its workforce is well-prepared to leverage AI in their roles.

Regan also discussed the broader implications for students and educators. He noted that in the era of advanced AI tools like ChatGPT, traditional homework assignments must evolve. Educators need to focus on assignments that encourage critical thinking, creativity, and the ability to apply knowledge in novel ways. This shift is essential for ensuring that students can add unique value beyond what AI can produce.

Throughout his presentation, Regan highlighted California's proactive approach to preparing its public sector workforce for the rise of AI. Rather than viewing AI as a threat to jobs, the state is focusing on upskilling existing roles to enhance their capabilities, ensuring they remain relevant in the modern workplace. This forward-thinking strategy aims to create a more efficient, innovative, and resilient public sector that can meet the evolving needs of the community.

Labor Market Information and Job Posting Insights

After the introductory segment and keynote presentation, Ebony Joy Benzing, Director of the North/Far North Center of Excellence (COE) for Labor Market Research, provided a thorough overview of the impact of generative AI on the Sacramento workforce. Benzing began by explaining the role of the Centers of Excellence (COEs) within California's community college system. The COEs focus on supporting the development of career-oriented education programs that lead to high-skill, in-demand, and living-wage jobs.

Benzing then showed an analysis of the tech industry in the Sacramento region, looking at both tech-specific employment and tech occupations across various industries. Despite an 8% decline in tech sector employment over the past five years, as shown in Figure 1.3, she highlighted that there are still over 42,000 tech-related jobs in the area, emphasizing the ongoing relevance and opportunities within the sector.

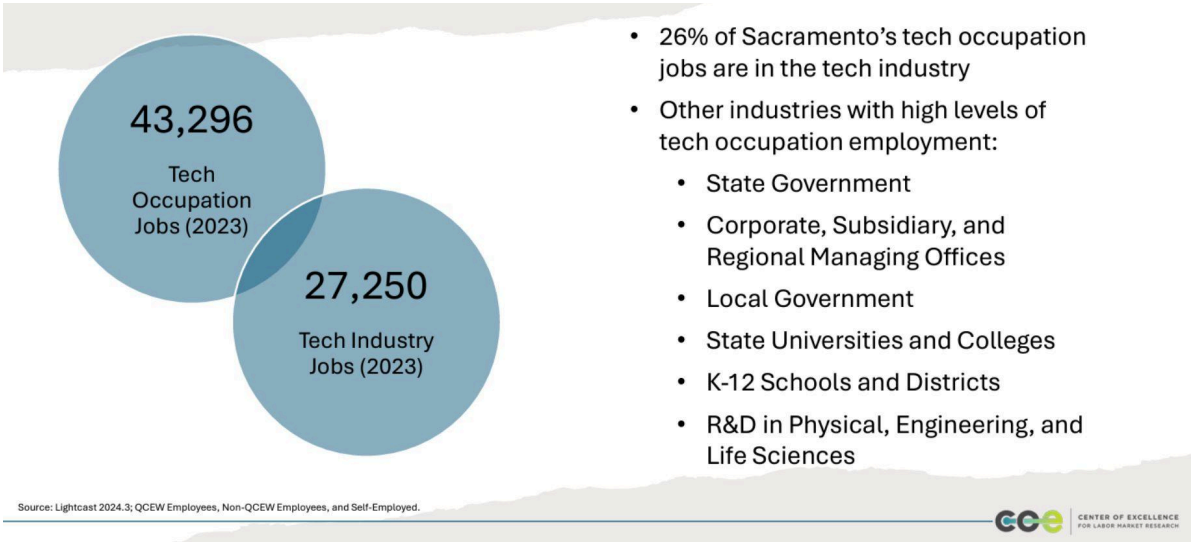


Figure 1.3: Sacramento's Tech Scene

She highlighted several key occupations with high employment concentrations, including computer user support specialists and software developers (Figure 1.4). Benzing highlighted that computer user support specialists play an important role in Sacramento's labor market, given their high employment concentration, emphasizing the need to prepare the workforce for this occupation. Likewise, she identified software developers as a key profession, characterized by both high employment concentrations and strong projected job growth over the next five years. This increased demand for software developers is driven primarily by the growth in the tech sector and the increased needs within state government.

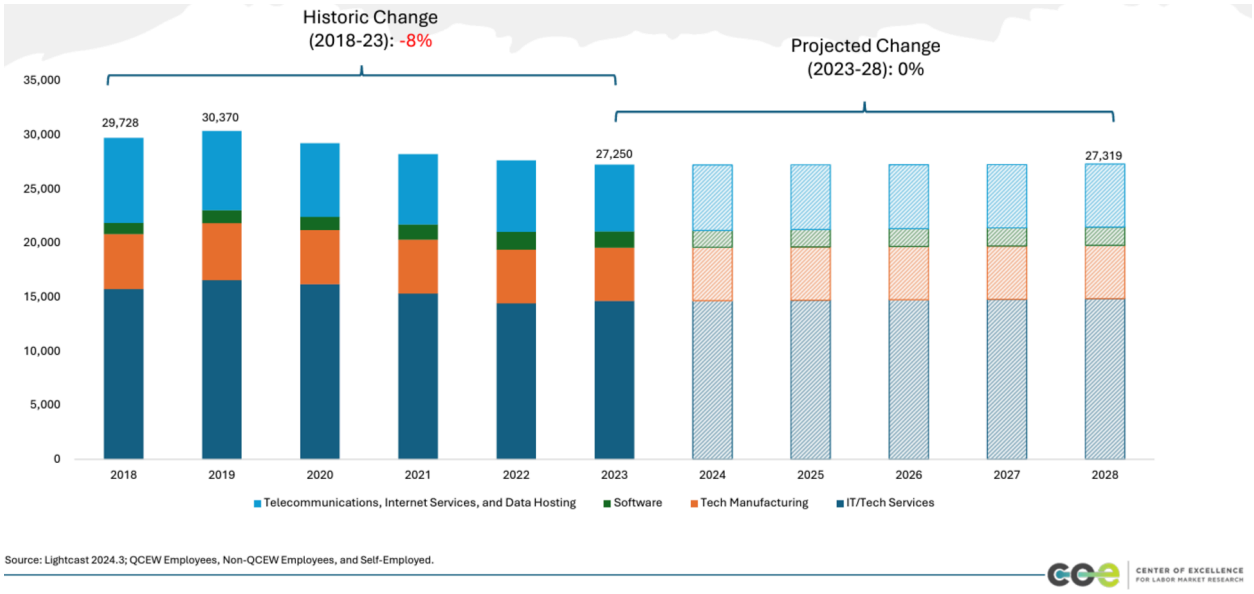


Figure 1.4: Sacramento's Tech Industry Employment

While discussing the impact of generative AI, Benzing referred to a recent McKinsey Global Survey on the current state of AI. The survey found that more than 75% of respondents are currently using generative AI tools in their work. The primary reasons for this adoption include optimizing business processes, enhancing productivity, and reducing costs. This widespread use highlights the transformative potential of generative AI across different business contexts.

Benzing also presented an analysis of job postings in the Sacramento region, identifying skills and roles related to generative AI. She analyzed over 2,200 job postings that were posted online between January 2023 and October 2024, looking to identify the occupations, employers, and skills related to generative AI. Of the more than 2,200 postings analyzed, 40% were for tech occupations, while the remaining 60% were for non-tech roles. Common tech occupations included data scientists and data architects, while common non-tech roles featured business analysts, writers, project managers, designers, and customer service positions. This distribution shows that generative AI is reshaping not only traditional tech roles but also influencing a wide range of other sectors.

Tech Occupations (904 Postings Total)	#
Data Scientists	220
Software Developers	217
Computer Occupations, All Other	196
Database Architects	97
Database Administrators	25
Computer Systems Analysts	22
Computer Network Architects	19
Computer and Information Research Scientists	18
Computer User Support Specialists	18
Web and Digital Interface Designers	14
Software Quality Assurance Analysts and Testers	13
Web Developers	13
Computer and Information Systems Managers	10

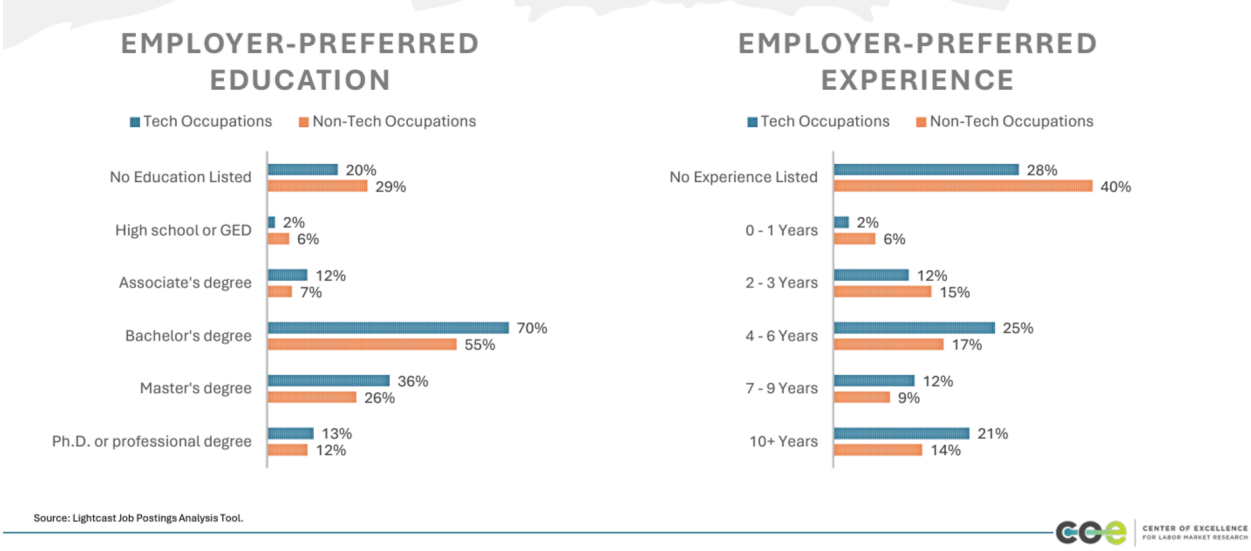
Non-Tech Occupations (1,356 Postings Total)	#
Marketing Managers	107
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	41
Sales Managers	37
Management Analysts	37
Project Management Specialists	35
Postsecondary Teachers	29
General and Operations Managers	28
Managers, All Other	28
Industrial Engineers	28
Accountants and Auditors	26
Writers and Authors	25
Medical and Health Services Managers	24
Market Research Analysts and Marketing Specialists	24

Source: Lightcast Job Postings Analysis Tool.

CENTER OF EXCELLENCE FOR LABOR MARKET RESEARCH

Figure 1.5: Job Titles with the Most Generative AI Postings

The labor market analysis also revealed employer preferences and specialized skills in demand, as shown in Figure 1.6. For tech roles, employers preferred candidates with 4-6 years of experience and up to 10 years in some cases. For non-tech roles, 2-3 years of experience was more common. The job postings highlighted a need for skills such as natural language processing, data visualization, and machine learning. However, very few postings explicitly mentioned specific generative AI tools like ChatGPT. Benzing emphasized that the job postings showed demand for AI-related skills across both tech and non-tech occupations, suggesting that generative AI is impacting a wide range of roles, not just traditional tech jobs.



Source: Lightcast Job Postings Analysis Tool.

CENTER OF EXCELLENCE FOR LABOR MARKET RESEARCH

Figure 1.6: Education and Experience

Benzing identified the types of employers seeking candidates with generative AI-related skills, categorizing them into tech and non-tech occupations, as illustrated in Figure 1.7. Technology companies and the tech sector, in general, featured a significant number of job postings that required skills and experience with generative AI tools. State and local government organizations, including the California state government, were also advertising positions that involved working with generative AI. Local post-secondary educational institutions, such as the Los Rios Community College District and William Jessup University, were looking for faculty and staff with knowledge and experience in generative AI. Additionally, firms in the consulting and professional services industries, like Accenture, posted jobs for roles such as "Responsible AI Engineer" to establish AI standards and best practices. A common requirement among these employers was the need for individuals capable of working with and leveraging generative AI technologies to enhance their business operations, service delivery, and workforce development.

Tech Occupations (904 Postings Total)	#
Accenture	102
Deloitte	67
Intel	66
Pricewaterhouse Coopers	35
University of California	24
Ford	14
Canonical Group	13
Pearson Education	12
Micron Technology	12
Hewlett Packard Enterprise	12
Marriott International	11
Pacific Northwest National Laboratory*	10
Sutter Health	9

Non-Tech Occupations (1,356 Postings Total)	#
Accenture	86
Intel	74
University of California	70
Sacramento Native American Health Center	64
Deloitte	55
Micron Technology	48
CircleAI - Data Annotation	32
Pricewaterhouse Coopers	24
Jobworx U.S.*	20
Pearson Education	18
NTT Global Data Centers	18
Lumen Technologies	17
KPMG	17

Source: Lightcast Job Postings Analysis Tool.

*Located outside Sacramento

CENTER OF EXCELLENCE FOR LABOR MARKET RESEARCH

Figure 1.7: Employers with the Most GenAI Postings

Benzing highlighted that the demand for these AI-related skills was not limited to traditional tech jobs but was prevalent across a wide range of occupations and industries in the Sacramento region. This suggests that the impact of generative AI is being felt broadly and that upskilling and reskilling efforts need to address the needs of both technical and non-technical workers to prepare the workforce for the jobs of the future.

Benzing also addressed the uncertainty surrounding AI's long-term impact on jobs, noting that it could both disrupt and enhance the workforce. She stressed the importance of upskilling and reskilling programs to prepare workers for future jobs. Highlighting the proactive approach needed, she emphasized that ensuring the workforce remains relevant and capable amidst advancing AI technologies is crucial.

Panel Discussion

During the panel discussion, regional and national employers shared insights on the evolving landscape of the Information and Communication Technologies industries, focusing particularly on the role of Artificial Intelligence in the workplace. Employers such as ServiceNow and BuildWithin, who hire nationwide and operate on a larger scale, discussed the wide array of opportunities available for professionals in these fields. This broader hiring strategy indicates the growing demand for skilled technologists across various regions.

The panel included:

- James Regan - California Government Operations Agency, Deputy Secretary of Workforce Development
- Joel Maier - Cyber Proud, Inc., CEO & President
- Dr. Ximena Gates Hartsock - BuildWithin, CEO and Co-Founder
- Dr. Jeffrey Mrizek - Mrizek Global, LLC, Chief Executive Officer
- Laura LeBleu - ServiceNow, Creative Director and Senior Managing Editor

The panel was moderated by Caitlin Blockus, 21st Century Workforce Project Manager at Valley Vision.

AI Adoption and Use Cases

Regan discussed several innovative proofs of concept that the California state government is exploring for integrating generative AI across various departments. These include language access and real-time translation in Health and Human Services, which aims to bridge communication gaps between healthcare providers and patients who speak different languages. By leveraging AI for real-time translation, the state hopes to improve accessibility and ensure that all residents receive timely and accurate health information, regardless of their linguistic background. Another proof of concept is automating facility health inspections and reporting in Health and Human Services. This initiative focuses on streamlining the health inspection process by automating data collection and report generation, allowing health inspectors to focus more on critical analysis and ensuring compliance with health regulations.

Statewide transportation infrastructure is using AI to analyze traffic data and identify mobility issues. This application processes large volumes of traffic data to identify patterns and potential issues in the transportation network, enabling proactive measures to address congestion, optimize traffic flow, and improve overall transportation safety and efficiency. Additionally, AI is being used to protect vulnerable road users such as pedestrians and cyclists. By analyzing accident data, monitoring high-risk areas, and predicting potential hazards, this initiative aims to create safer environments for pedestrians and cyclists, reducing traffic-related injuries and fatalities.

In the state's tax department, AI is enhancing customer service and tax policy search/retrieval. AI-powered systems provide quick, accurate responses to taxpayer inquiries and assist in retrieving relevant tax information, streamlining the process for both citizens and tax officials.

Meyer elaborated on how Cyber Proud utilizes AI in its career services to offer personalized and efficient support to job seekers. Their approach includes generating tailored resumes optimized for applicant tracking systems, creating personalized cover letters that align with the candidates' writing style, providing mock interview questions based on job descriptions and company research, and conducting practice interviews to evaluate and improve candidates' responses and delivery. LeBleu shared insights into how ServiceNow leverages AI within their Talent Development product. By gaining a deeper understanding of employees' skills beyond just job titles, AI can identify opportunities to better utilize these skills and help organizations build a more well-rounded and capable workforce. This approach not only enhances individual employee growth but also contributes to the overall effectiveness and adaptability of the organization.

Skills and Roles in Demand

The panelists highlighted several key AI-related roles that are in high demand. Data scientists, for example, need to analyze complex data sets to draw meaningful insights, which can inform strategic decisions and optimize operations. AI research scientists are at the forefront of developing new algorithms and models, pushing the boundaries of what AI can achieve. AI systems engineers are essential for designing and maintaining the infrastructure that supports AI applications, ensuring systems are scalable, reliable, and efficient.

Product managers are needed to guide AI projects from conception to completion, ensuring that the final product meets user needs and aligns with business goals. Human-centered designers focus on creating AI solutions that are intuitive and user-friendly, emphasizing the importance of the user experience. Algorithm monitoring specialists ensure that AI systems operate correctly and ethically, identifying and addressing any issues that arise.

Graphic designers and content creators are vital for ensuring that AI-generated outputs align with a brand's visual and communicative standards, maintaining consistency and quality. These roles are critical as AI increasingly influences how content is created and consumed.

The panelists also emphasized the importance of human skills like critical thinking, agile methodology, and stakeholder engagement in managing and implementing AI systems. Critical thinking allows professionals to evaluate complex problems and devise innovative solutions. Agile methodology provides a framework for iterative development, enabling teams to quickly adapt to changes and continuously improve their work. Stakeholder engagement is important for aligning AI projects with the needs and expectations of different parties involved, ensuring that AI solutions are practical and beneficial.

It was noted that AI-related skills are becoming important across both technical and non-technical roles. For example, marketing professionals might need to understand how AI can be used for customer segmentation and personalized marketing campaigns, while legal professionals may need to navigate the ethical and regulatory implications of AI. This highlights the growing need for a diverse range of skills to effectively harness the power of AI in various fields.

Ethical Considerations

The panel discussion delved into the ethical implications of using AI to model or simulate specific individuals, particularly without their consent. Dr. Caleb Fowler, one of the speakers, raised this issue in response to a question about using AI to simulate a boss or other authority figure. Fowler acknowledged that modeling a public figure may be acceptable, as their information is publicly available. However, he stated that covertly collecting information to model a private individual would be problematic and likely cross ethical boundaries. The panelists emphasized the importance of understanding the legal and privacy implications of using AI to model or simulate people, especially those who have not given explicit permission.

In addition to the concerns around modeling individuals, the panelists stressed the need to address bias and ensure responsible AI implementation. Regan highlighted the importance of bias prevention and output monitoring when using generative AI systems. He noted that in a government context, where AI is being used to deliver public services, it is critical to maintain high accuracy and equity in the outputs. Regan stated that having 24/7 monitoring of the AI system's outputs is essential to catch and address any issues.

The panelists acknowledged that as these AI technologies rapidly evolve, there is a need to continuously assess the ethical implications and put safeguards in place to prevent unintended harm or bias. Overall, the discussion emphasized that as organizations and governments increasingly adopt AI, there must be a strong focus on understanding and addressing the ethical considerations, particularly around privacy, bias, and the responsible use of these powerful technologies.

Workforce Development and Upskilling

The panelists discussed the critical role that education and training programs play in preparing the workforce for jobs impacted by AI. Regan explained that the California state government has partnered with national nonprofits and higher education institutions to develop training pathways and curricula focused on generative AI. This includes courses like "Gen AI 101" and "Gen AI 201," which have already been taken by over 2,000 people. The goal is to equip the existing workforce with the skills needed to leverage and manage AI technologies effectively.

The panelists highlighted how AI and low-code/no-code tools have the potential to democratize access to technical roles. LeBleu explained that her company created a "ServiceNow University"

specifically to recruit and train people from non-technical backgrounds to fill AI-related roles. This initiative allows individuals without traditional computer science degrees to transition into tech jobs, as the skills required are becoming more accessible through AI-powered tools.

The need for continuous learning and adaptation was emphasized to keep up with the rapid advancements in AI technology. Regan noted that the state's AI training programs will require frequent updates as the capabilities of these technologies evolve quickly. Joel Meyer from Cyber Proud shared how he encourages his program participants to proactively learn and experiment with AI tools, like Teachable Machine, to build relevant skills. The overall sentiment was that both employers and workers need to adopt a mindset of lifelong learning to stay ahead of the curve as AI continues to transform the job market.

The panelists emphasized the significance of education and training programs in preparing the workforce for jobs driven by AI. They highlighted AI's potential to increase access to ICT careers and stressed the importance of continuous learning and adaptation. Additionally, they pointed out the opportunity to upskill underserved communities. These efforts are essential for building a more inclusive and well-prepared workforce that can thrive in an AI-driven economy.

Conclusion

At the conclusion of the advisory, faculty and employers were encouraged to continue fostering collaboration to strengthen the pipeline into careers within the region's Information and Communication Technologies industry and ensure graduates are well-prepared to enter the workforce.

Please click here to view the detailed event materials and access a video recording. You can also access comprehensive labor market data on the Information and Communication Technologies sectors compiled by the Center of Excellence for the Greater Sacramento region here. Additionally, if you're interested in staying updated on the latest news, insights, and opportunities in workforce development, you can sign up for Valley Vision's newsletter here. For more information about the report and labor market data provided, please contact:

- Hilary Tellesen, Workforce Development Director, Valley Vision, hilary.tellesen@valleyvision.org
- Caitlin Blockus, Workforce Project Manager, Valley Vision, caitlin.blockus@valleyvision.org
- Ebony J. Benzing, Director, North (Greater Sacramento) Center of Excellence for Labor Market Research, Ebony.Benzing@losrios.edu
- Alena Anberg, Director of Employer Partnership, North Far North, Communication, Information, and Technology, aanberg@shastacollege.edu