

Strong
Workforce
Program

Information and Communication Technology Regional Advisory Meeting Proceedings Report Spring 2020

Regional advisories support a strong talent pipeline, are a collaborative effort, and help inform investments in Career Education to help fill the growing need for “middle-skill” jobs.

LOS RIOS
COMMUNITY COLLEGE DISTRICT


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SIERRA
COLLEGE

YCCD
YUBA COMMUNITY
COLLEGE DISTRICT

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

Regional Advisory meetings help inform decisions on needed investments and enhancements for Career Education (CE) programs to help fill the growing demand for “middle-skill” positions.

Valley Vision supports a robust talent pipeline through our 21st Century Workforce Impact Area. 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 (NCC), Yolo WDB, and local community college districts.

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





Key Findings

- The cloud changes approximately every six months across the three major cloud providers: AWS, Microsoft Azure, and Google Cloud. Prospective entry-level candidates could potentially learn current cloud infrastructure within just a few weeks with a strong computer science background.
- Projected 1,000 annual analytics/data management positions available in the Sacramento-Roseville-Folsom, Metropolitan Statistical Area (MSA) including the following titles; management analysts, operations researchers, and data analysts. Some position descriptions list a required master's degree.
- Serverless computing practices are becoming more common in the sector.
- Organizations use a variation of both on-premise and cloud technology, therefore, knowledge of both is crucial in the field.
- Soft skills such as flexibility/agility, eagerness to learn/curiosity, teachability, and persistence are important hiring considerations for entry-level candidates due to a rapidly changing environment. More importantly, strong interpersonal/communication skills are needed to ensure proposed technical solutions are able to translate to business partners and functions.



Meeting Minutes

Welcome & Introductions

On Friday, April 3, 2020, Valley Vision hosted the Spring 2020 Information and Communication Technology (ICT) Regional Advisory in partnership with Sacramento County Office of Education ICT Coordinator, Jared Amalong, and Greater Sacramento Regional Director for ICT/Digital Media Employer Engagement, Markus Geissler. Dr. Geissler has served as the Regional Director since January 2018 and will be leaving this role in June 2020. The Greater Sacramento ICT/DM Regional Director position will remain with the Los Rios Community College District and more info about the position will be available soon.

This report includes key findings, best practices, and minutes from the Spring 2020 Information and Communications Technology Regional Advisory.

For information relating to the event please use the links provided below.

[Agenda](#)

[Participant List](#)

[Powerpoint Presentation](#)

[Meeting Questions & Responses](#)



Introduction to Cloud Computing

Dr. Geissler began the meeting with an introduction to cloud computing. He shared that cloud computing can support business continuity by providing reliable information virtually, through on-demand delivery of database storage, applications and other IT resources.

There are three models of cloud computing:

1. Software as a Service (SaaS)

- Computer programs that are primarily stored on and run from Internet-based servers
- Examples include Zoom, Canvas, Gmail, and Microsoft Office 365
- Benefits include simultaneous collaboration and data safeguarding
- Limitations include lower adoption rates of cloud programs in rural areas due to lower broadband connectivity

2. Platform as a Service (PaaS)

- Provides a platform allowing users to develop, run, and manage applications
- Benefits include flexibility to pay for IT resources only when they are needed
- Limitations include cost variation

3. Infrastructure as a Service (IaaS)

- Basic building blocks for cloud IT
- Provides access to networking features, computers, and storage
- Benefits include flexibility, economy of scale, and IaaS provider manages hardware resources
- Limitations include cost variation and vulnerability to hackers (resources in a homogenous environment)

Sacramento State Business Analytics Program

Dr. Joseph Taylor, Information Systems & Business Analytics Department Chair at California State University, Sacramento (CSUS), shared the changes their department is taking to prepare for the next generation of IT workers. Starting Fall 2020, CSUS will be providing a new Business Analytics Concentration within the Bachelors of Science in Business Administration program. Required classes for this concentration include SQL & Data Visualization, Management Science, and Data Mining. These courses will provide a solid foundation in analytics, while elective courses fall across different business domains to allow students to explore their interests within the field.

CSUS is also updating their MIS Concentration by broadening required core courses and moving discipline-focused, core courses to electives to ensure students have the flexibility to pursue disciplines that align more with their interests. Lastly, CSUS will be offering a new Master of Science in Business Analytics program to support the large-scale adoption of the Internet of Things (IoT) and workforce forecasts. According to a study conducted on the employment market for analytics/data management professions requiring a masters degree in the Sacramento-Roseville-Folsom Metropolitan Statistical Area (MSA), 1,000 analytics/data management jobs will be available every year. The broader analytics/data management field include occupations such as titles management analysts, operations researchers, and data analysts.

All of these program changes were driven by the following objectives:

1. Improving Speed to Graduation

- Streamline curriculum to give students more flexibility (i.e. provide more opportunities for elective courses)
- Class sequencing to let students explore their interests (i.e. offering prerequisite and core courses that introduce diverse disciplines within the field)

2. Workforce Preparation

- Focus on in-demand skills in curriculum
- Emphasis on experiential learning
- Student clubs focused on employer engagement

3. Community Engagement

- Outreach to companies regarding programs to boost recruitment
- Engaging educational partners regarding curriculum

These objectives provide a strong framework for not only ICT programming, but other Career Technical Education programs, to ensure students are able to join the workforce swiftly and confidently.



“The cloud environment is ever changing, with cloud changes about every six months across the three major cloud providers: AWS, Microsoft Azure, and Google Cloud.”

– Martin Holste, Chief Technology Officer, FireEye, Inc.

Panel Discussion

The advisory panel discussion featured:

- Kevin Flash, Dean of Learning Resources, Sacramento City College
- Richard Gillespie, Cloud, Infrastructure, Compute and Storage Services Chief, California Department of Technology (CDT)
- Martin Holste, Chief Technology Officer, FireEye, Inc.
- Jamaal Price, Cloud & Security Architect, California Department of Technology (CDT)

Entry Level Skills

The industry panel consisted of both private and public partners, all operating in California’s ICT sector, with varying career and educational backgrounds. Despite these differences, panelists expressed similar soft skills needed for entry-level hiring considerations, including flexibility/agility, eagerness to learn/curiosity, teachability, and persistence due to the rapid changes within the sector, and cloud technology in general. Panelists also expressed the need for strong interpersonal/communication skills to ensure that proposed technical solutions are able to translate to business partners and functions. This skill was especially important when considering candidates advancing to mid-level positions.

The panelists offered different views about the need for specialized cloud computing skills. Richard Gillespie expressed entry-level candidates need familiarity with varying cloud service providers, coupled with the ability to differentiate their services. He also emphasized the ability to deploy and manage basic resources such as virtual machines and storage. With regards to individuals looking to advance to middle-skill positions, Gillespie identified the following skills as important hiring considerations: automation, orchestration, security requirement knowledge, and cloud dependencies knowledge. Conversely, Martin Holste shared that cloud computing skills are not usually a determinant in hiring entry-level positions for his company. Instead, he looks for a strong foundation in computer science with both Python and Java.

He noted that the cloud environment is ever changing, with cloud changes about every six months across the three major cloud providers: AWS, Microsoft Azure, and Google Cloud. Prospective hires could learn current cloud infrastructure within just a few weeks with the computer science background he described previously. Holste also shared the importance of having both on-premise and cloud skills as all organizations have varying use of both technologies. Jamaal Price rounded the conversation sharing that the CDT does not typically look for specialization when hiring for entry-level positions, but rather familiarity across platforms, such as Windows and Linux. Other skill considerations shared by Price include: a basic understanding of computer networking, information system security, scripting, and coding, especially containerization of applications and running serverless functions.

Serverless Computing

Martin Holste advocated for training students in serverless computing, a cloud computing execution model in which the cloud provider runs the server and dynamically manages the allocation of machine resources sharing. Holste explained that serverless computing requires less code, allowing companies to produce products more efficiently and providing more time for specific business logic, and is highly secure. However, he also shared that this method limits the program to its initial cloud vendor. As more companies like FireEye utilize serverless computing approaches, education and training programs should consider ways to familiarize students with these practices.

Talent Recruitment and Support Initiatives

Panelists were also asked to share their organization's initiatives to recruit and keep talent. Kevin Flash shared that Sacramento City College's Learning Resources Center has a team engaged in mentorship and gaming clubs to support their professional network development. The CDT provides their staff cloud skills training courses to support professional development. Gillespie added that the CDT's recruitment efforts are very limited and prescriptive due to the nature of the public sector, however, the CDT provides telework opportunities and utilizes job fairs to recruit talent. He also shared interest in supporting internship/apprenticeship opportunities for future recruitment. In contrast, FireEye has an extensive internship program and relies heavily on this program to understand inbound talent skills and ensure a talent pipeline for its organization.

Curriculum Review

The following curriculum was shared with registered attendees via Google Docs before the meeting to provide opportunities for industry, workforce, and educational partners to ask questions and provide feedback on proposed curriculum.

American River College: Windows Server Infrastructure: High Availability and Virtualization

- This will be one of the core courses in the ARC Networking Management Degree and Certificate and will be fundamental to networking concepts, principles, and practices. This will be one of two capstone courses preparing students for Microsoft's MCSE exam, and highly sought after IT certification.

Sacramento City College: Computer Information Security Essentials Certificate

- This certificate updates the security program to ensure students are job ready for the growing information security analyst field. It is aligned with the National Security Agency (NSA) and National Institute of Standards and Technology (NIST) cyber security education standard.

Course/Certificate/ Degree	Site	Description & Strong Workforce Considerations	Status
Windows Server Infra-structure: High Availability and Virtualization Course	American River College	This will be one of the core courses in the ARC Networking Management Degree and Certificate and will be fundamental to networking concepts, principles, and practices. This will be one of two capstone courses preparing students for Microsoft's MCSE exam, and highly sought after IT certification.	Approved
Computer Information Security Essentials Certificate	Sacramento City College	This certificate updates the security program to ensure students are job ready for the growing information security analyst field. It is aligned with the National Security Agency (NSA) and National Institute of Standards and Technology (NIST) cyber security education standards.	Approved

Resources for Industry and Education Partners

To conclude the advisory meeting, resources were shared among meeting participants. Jared Amalong, ICT Coordinator for the Sacramento County Office of Education (SCOE), shared two resources in response to needs identified in the Fall 2019 Community of Practice program. In response, SCOE has procured licenses with Nepris to connect educators within the region to industry partners and is rolling out an online community of practice platform, called the [Northern California ICT Hub Basecamp](#), where K-12 and community college ICT educators can collaborate online and share resources.

Additionally, Harsh Verma and Abida Mukerra, from the Association for Computing Machinery (ACM) Sacramento Chapter, shared they will be hosting a virtual Progressive Hackathon with awards, workshops, and distinguished speaker talks this spring as well as a Future Worlds Symposium on October 8th, 2020.

The next ICT Regional Industry Advisory Meeting topic will be Artificial Intelligence/Machine Learning held on Friday, October 30, 2020.



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