

OREGON CYBERSECURITY CENTER OF EXCELLENCE

***FY2024
FY2025***

**BIENNIUM
REPORT**



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Governor Tina Kotek signing House Bill 2049 establishing the Oregon Cybersecurity Center of Excellence

WHO WE ARE

Established by Oregon House Bill 2049 (2023), the OCCoE is jointly administered by Portland State University, Oregon State University, and the University of Oregon, with a joint mission to enhance cybersecurity across Oregon.

HOW WE COLLABORATE

- Workforce development and training
- Services and advisory
- Public awareness and outreach
- Research, innovation, and development

OUR MISSION

The mission is to bridge the gap between cutting-edge research and real-world cybersecurity applications. Through collaborative educational and workforce development programs,

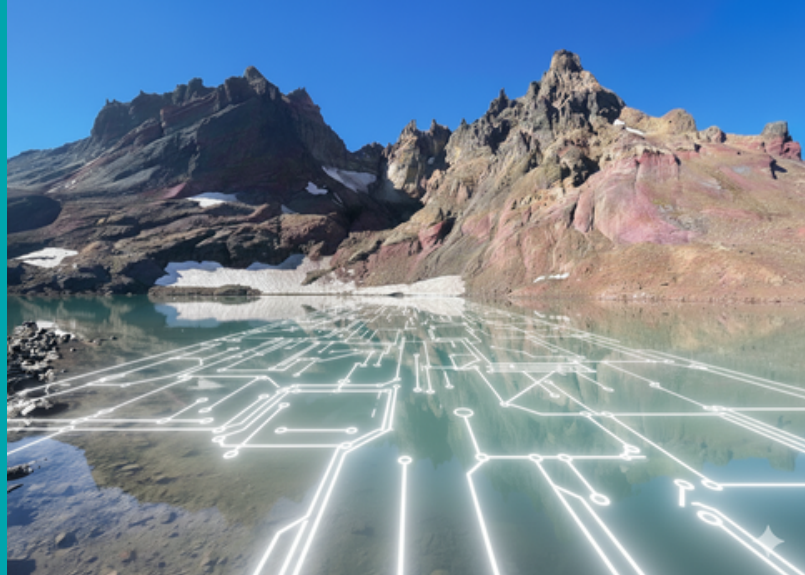
research initiatives, industry outreach programs, and educational workshops, we aim to empower individuals, local governments, regional governments, special districts, tribal governments, educational service districts, public school districts, and other public entities with the knowledge and tools to combat cyber threats and improve their cyber resilience. In short, OCCoE's mission is to:

- **Enhance Cybersecurity:** Support the State CISO in tackling the increasing digital threats.
- **Innovate:** Leverage cutting-edge research and solutions.
- **Collaborate:** Unite world-renowned experts, industry leaders, and passionate students.

A blue ink signature, likely of Birol Yesilada, written in a cursive style.

Birol Yesilada
Professor & Director, Oregon Cybersecurity Center of Excellence

The **Oregon Cybersecurity Center of Excellence** founding institutions include Oregon State University, Portland State University, and the University of Oregon - all of which have degree programs for students seeking careers in cybersecurity.



ACADEMICS



Oregon State
University

In Fall 2023, **Oregon State University** began offering a Cybersecurity Option with the Computer Science

Bachelor's Degree. In addition, OSU's graduate degrees (M.Eng., M.S., Ph.D.) all currently offer a cybersecurity focus. Finally, dedicated graduate degrees in Cybersecurity are being developed.

547 BS Students

30+ MS & PhD Graduates



Portland State
UNIVERSITY

Portland State University offers a Graduate Certificate in Cybersecurity and a Security Track in the Computer Science Masters Program.

14 MS & PhD Graduates

PSU is developing an interdisciplinary Bachelor and Graduate degree in Cybersecurity Policy and Management.



UNIVERSITY OF
OREGON

University of Oregon launched the first BS degree in Cybersecurity in Fall 2023.

This degree includes a course for freshmen titled "Foundation of computer security" that meets the general education requirement for all students. This course has enhanced "cyber literacy" of 770+ students from all majors at UO.

40 BS Students

620 Freshman

University of Oregon is launching a new Masters and a new graduate certificate in cybersecurity in Fall of 2026.

RESEARCH

OCCoE facilitates [Research Seminar Series](#) that provide a platform for professors from various higher education institutions across the nation to share their research and findings with other faculty and student populations in Oregon.

In addition to educating students, a critical part of universities is the research capabilities they can apply to complex problems. There were two research projects funded through additional grants, and a description of them follow.

LEVERAGING PREFIX STRUCTURE TO DETECT VOLUMETRIC DDoS ATTACK SIGNATURES

Volumetric Distributed Denial of Service (DDoS) attacks continue to be one of the most pervasive threats to online services and service providers alike. State-of-the-art switch-based DDoS defenses suffer from high and unpredictable error rates in the face of realistic attack traffic distributions. To improve the accuracy and efficiency of DDoS attack signature detection, the

Oregon Network Research Group at UO developed a dynamic approach called ZAPDOS that leverages for the first time key insights about the inherent clustering of benign and attack traffic in the address space. ZAPDOS combines programmable switch hardware, machine learning classification, and several novel algorithmic components to efficiently generate signatures of modern-day volumetric DDoS attacks using a fixed resource budget.

This research was published in a top-tier security conference, IEEE Symposium on Security and Privacy in 2024.

CYBERSECURITY RISK MANAGEMENT AND ROADMAPPING FOR SMART GRID CRITICAL INFRASTRUCTURE

The Pacific Northwest Power Grid Ransomware Readiness Technology Roadmap was developed with local and national subject matter experts through multiple workshops funded by the US DoD/NSA. Ransomware has been playing a significant role in disrupting critical infrastructure functions. Roadmaps were developed for all five NIST areas and gaps in the power grid ecosystem were identified.

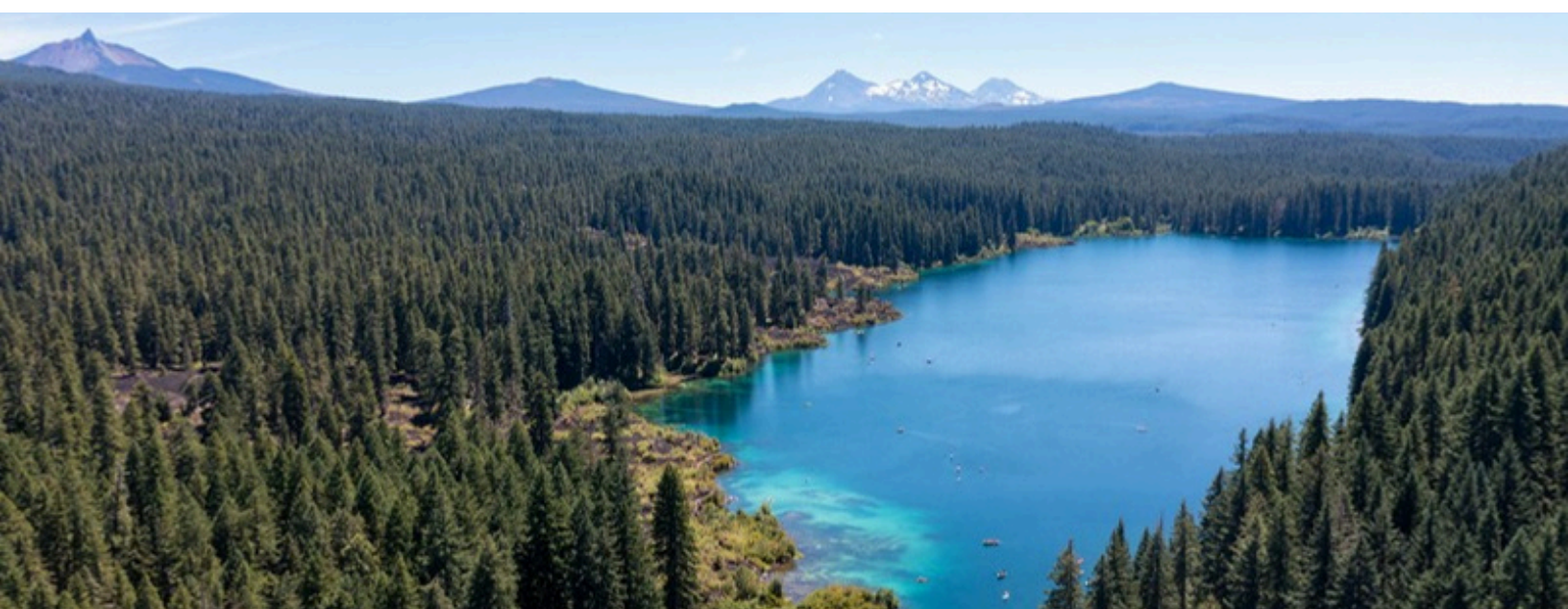
OUTREACH

Oregon Cybersecurity Center of Excellence has a mandate to bring more awareness to cybersecurity by attending, presenting, and participating in panel discussions at conferences, summits, and events where various public sector communities convene. OCCoE attended **20+ events** not including legislative meetings, Advisory

Council meetings, or research symposiums. Here are the multiple audiences OCCoE has reached:

- Local government IT, leadership and other staff
- Special Districts
- Cities
- Counties
- Tribes in Oregon
- Colleges/Universities
- K-12

See Appendix for more details.



PRIVATE PARTNERSHIPS

Oregon Cybersecurity Center of Excellence has pursued private partnerships with the following companies resulting in curriculum, hardware, software, and financial donations. Also, internships are being discussed for students and professionals.

FORTINET



PUBLIC SECTOR PARTNERSHIPS

The Oregon Cybersecurity Center of Excellence has developed partnerships with Federal, State and Local agencies to strengthen our reputation, reach, and funding of our programs through the following agencies:



GRANTS

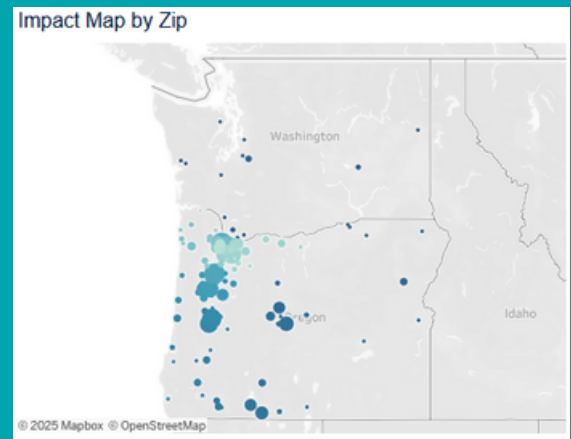
2X
REVENUE
GROWTH

Amplified Center’s funding by doubling the investment the state has made through various sources.

GRANT	SOURCE	AMOUNT
NW Region Cybersecurity Risk Management and Roadmapping for Smart Grid Critical Infrastructure	NSA	\$2M
GenCyber Camp 2023	NSA	\$250K
Cybersecurity Resilience Training (Local Government)	DOE	\$600K
GenCyber Camp 2024	NSA	\$552K
Workforce Ready Round III: Technology (Tribes)	HECC	\$604K
NICE: Nurturing Inclusive Cybersecurity Education	HECC	\$500K

Our Impact by Program

OCCoE is affiliated with multiple programs that help expose, educate, and enhance cybersecurity knowledge in addition to offering security services to Oregon's public sector entities.



CLICK ON IMAGE ABOVE TO
ACCESS INTERACTIVE MAP

CERTIFICATE IN BUILDING CYBER RESILIENCE

PSU's highly collaborative, no-cost certificate program covers how to identify, assess and communicate common cyber risks, and conduct a risk assessment for public sector. Participants have access to regular peer meetings in Oregon's public sector to share information and resources.

96 Graduates

Feedback from participants...

"The certificate course provided excellent resources for creating a more resilient cybersecurity culture, establishing policies, implementing additional training and security controls, and taking steps toward performing basic risk assessments."

"I would recommend this certificate to all state employees at all levels of management. Cybersecurity is now an integral part of our daily lives. I'd also suggest community-based offerings to citizens of all ages through communities, high schools, and senior centers, as again, protecting our state requires the awareness and participation of everyone. I'm looking forward to the ongoing alumni sessions to keep my knowledge current and up-to-date."

As part of the Certificate in Building Cyber Resilience, the OCCoE organized several cybersecurity tabletop exercises (TTX). Exercises were free for participants, open to anyone in the community, and organized in collaboration with major Oregon and cybersecurity-related conferences.

148 Participants in TTXs

CYBERSECURITY EDUCATION FOR TRIBES IN OREGON

PSU has received grant funds from HECC to assist the nine federally recognized tribes in Oregon in creating and implementing cybersecurity education programs for tribal members and employees. The grant facilitates four components designed to develop interest in, accessibility to, and experience in cybersecurity:

- **Introduction to Cybersecurity Education Seminars:** In collaboration with Cisco, Seminars will be hosted in-person or online to introduce cybersecurity concepts and career paths.
- **Mentorship & Career Pathways Advising:** Based on NICE's framework, mentorship and advising is available to help explore a career in cybersecurity.
- **Certificate in Building Tribal Cyber Resilience:** A virtual certificate program will be available, modeled after the Certificate in Building Cyber Resilience and with curriculum adapted based on conversations and feedback from tribes.
- **Scholarships:** Funds are allocated to cover the cost of cybersecurity industry certification exams.



NURTURING INCLUSIVE CYBERSECURITY EDUCATION (NICE)

UO received a \$500K HECC grant from the Future Ready program to support a project titled Nurturing Inclusive Cybersecurity Education (NICE), which promotes and supports equitable cybersecurity education in Oregon high schools and post secondary institutions. Some of the main activities of this two-year (2024-2026) project include:

- **Training the Trainer:** This provides training workshops for high school teachers to prepare educators to teach cybersecurity courses.

NICE CONTINUED

Our first in-person workshop took place in the summer of 2025 at the University of Oregon, with 11 teachers in attendance, and was a great success; more are planned in the next biennium.

11 High school teachers

Feedback from teachers...

"This workshop was absolutely critical to helping me ramp up my cybersecurity skill set such that I feel confident in offering the class for the first time at my high school."

"I learned so much about Cybersecurity in one week! It opened my eyes to the breadth that Cybersecurity encompasses and makes me want to learn more."

- **In-School Field Trips:** The NICE project brings cybersecurity directly to Oregon high schools through engaging in-school field trips.

These sessions engage students through interactive, hands-on activities designed to spark curiosity and build awareness. Students learn how cybersecurity careers can align with their skills, interests, and values, while also exploring the growing demand and strong job opportunities in this rapidly expanding field. In addition, we provide information about cybersecurity degree programs across Oregon, including guidance on admissions and financial aid resources.

The in-school format makes these experiences accessible to all high schools, while the virtual option ensures we can reach students in every corner of the state—including those without a computer science teacher or existing cybersecurity courses.

Other activities of the NICE projects include hosting customized campus tours, engaging high school students in cybersecurity competitions.



CYBER CAMPS FOR MIDDLE SCHOOL TEACHERS

In addition to the Teacher Camps for High School teachers, additional funding from the NSA Gen Cyber Program expanded the reach to Middle School teachers increasing student awareness of cybersecurity.

9 Middle school teachers



NW CYBER CAMPS FOR HIGH SCHOOL STUDENTS

NW Cyber Camps, with funding from OCCOE and the NSA GenCyber Program, help prepare the future cybersecurity workforce by introducing Oregon high school students to jobs in the sector through free, weeklong summer camps designed to build skills and interest in cybersecurity careers.

Camp completers are invited to play in online Capture The Flag competitions for teens and in-person Tabletop

Exercises like “Back Door and Breaches” alongside adults in cybersecurity.



Youth and adult participants in “Back Door and Breaches” cybersecurity game

Oregon Youth Cyber Con and a Fall Career Expo re-engaged students during the school year and introduced them to various educational paths and career opportunities in the field of cybersecurity.



High School student at Youth Cyber Con

Below are the results from the Summer of 2024 and 2025:

14 Locations

16 Camps

286 Students

28% Female

ORTSOC AT OSU

OSU's ORTSOC, the nation's first Cybersecurity Teaching Hospital™, is the region's premier cybersecurity workforce development program that is becoming a model for cybersecurity workforce development across the country. Professionally guided students in this program provide a plethora of managed security services to public, not-for-profit, and educational institutions across the region.

Students served.

57 Students

50% Year-over-year growth in students

200% Growth starting 2025-2027



Students practicing threat analysis to detect cyber threats

Feedback from our students...

"This is quite literally the best and most fun class I have had the pleasure of taking at OSU. Experiencing the environment of a security operations center firsthand is an incredibly effective way of teaching a wide range of skills that will help our future careers regardless of where we end up in the industry."

"My participation in ORTSOC was both meaningful and impactful. The program offered extensive hands-on experience with real-world client networks and data, providing a comprehensive cybersecurity training environment. Based on the knowledge and skills gained through ORTSOC, I consider it the most impactful academic experience of my time at Oregon State University."

"This course offered great hands-on experience that even my friends in industry thought was amazing."

ORTSOC CONTINUED

ORTSOC currently processes an average of half a billion events per day for the organizations we support. Over the last two and a half years, our sensors processed over 2 trillion events, and our students investigated over 480 security incidents; of those, 24 events were serious incidents, such as ransomware, that, if they had not been detected and acted upon, would have caused significant hardships for our client organizations.

Serving **15** Organizations

1. Education Service Districts (2)
2. Towns/Cities (4)
3. Counties (1)
4. Educational (6)
5. Other (2)

Feedback from organizations served...

“The ORTSOC program provides us a knowledgeable and capable additional layer of security that is invaluable to our small jurisdiction. Having support from a regional partner, knowing someone is monitoring, and providing real-life experience to the future IT generation goes along with our jurisdiction's values. The ORTSOC partnership benefits everyone involved!”

“We really appreciate ORTSOC and being a part of this program. We serve a lot of economically disadvantaged youth in the schools we support and don't have the personnel or resources to properly monitor cyber security in our IT resources. We are very grateful for ORTSOC to fill this need. Dave and his team have been great to work with in rolling out their services and we hope to work with them for a long time to come.”

ORTSOC is looking to expand with new clients and risk assessments and pen testing capacity in the next biennium.

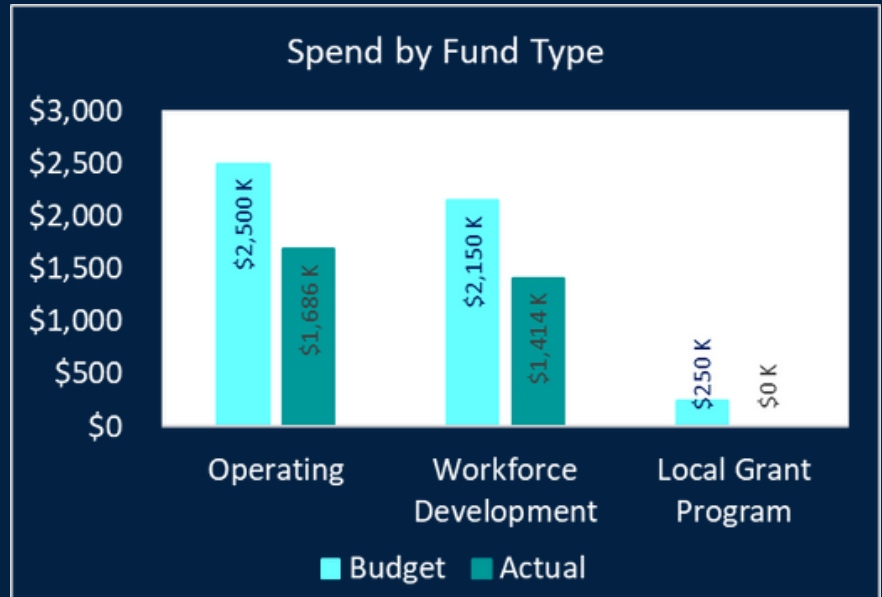
TSOC AT UO

The Teaching Security Operations Center (TSOC) is a university-based cybersecurity program designed to provide real-world monitoring and response using AI-integrated industry-leading EDR services. Staffed by security engineers and supervised student analysts, TSOC combines education with service to protect organizations across the state of Oregon against evolving threats. This new program is just launching and seeking new clients!

FINANCIAL STATEMENT

FY24-25 BIENNIUM

- **Total \$1,800K under spend**
 - Operating \$814K under
 - Workforce \$736K under
 - LGP \$250K under
- Operating and Workforce Development funds were below budget due to late transfer of funds and ramp-up of the Center's staffing and programs
- Underutilized LGP funds will be redeployed in the next biennium for risk assessments



ACCOMPLISHMENTS

Operating:

- Filled all staff positions:
 - Fiscal and Operations Manager
 - Outreach Coordinator
 - Office Specialist
 - Program Manager, Certificate
 - Sr. Program Manager, Cyber Camps
 - Program Manager
- Participated at 20+ events across the state to build cyber awareness
- Hosted a research seminar series to share educational methodologies

Workforce Development:

- Support and scale ORTSOC at OSU
 - 57 students have gone through
 - 15 public sector entities served

Workforce Development Continued:

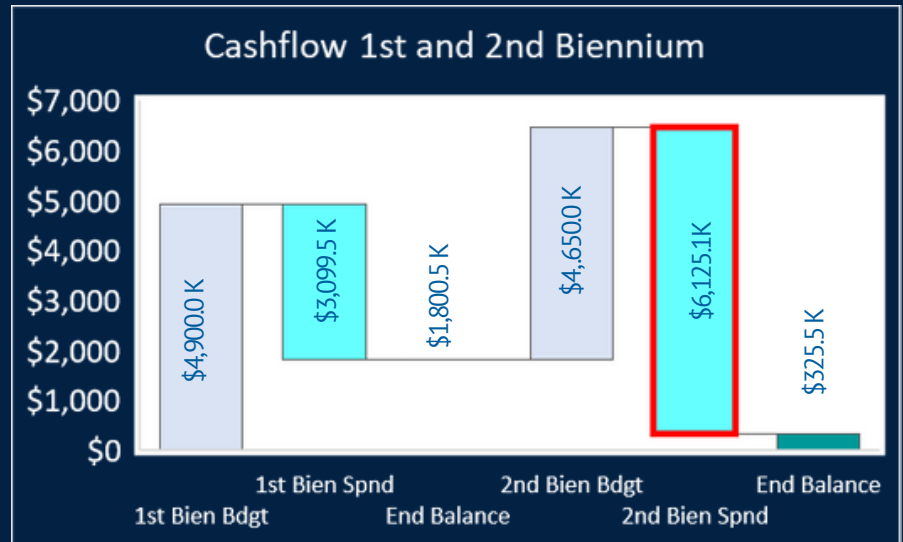
- Launched TSOC at UO
 - TSOC Engineer hired
 - Facility remodeled and furnished
 - Creating an experimental curriculum
 - Evaluating clients to serve
- Certificate Building Cyber Resilience
 - 96 graduates
 - 148 participants in TTX
- NW Cyber Camps
 - 16 student camps served 286 students
 - 11 High school teachers
 - 9 Middle school teachers
- MHCC Scholarship fund - 107 vouchers

Local Grant Program - on hold

FINANCIAL OUTLOOK

FY24-25 & FY26-27 BIENNIUM

- The waterfall chart illustrates expenses and carryover for 1st and 2nd biennium
- Forecasted spend in the 2nd biennium of \$6.1M exceeds our budget leaving a 7% buffer
- If additional funding is not provided, there will be a significant reduction in programs

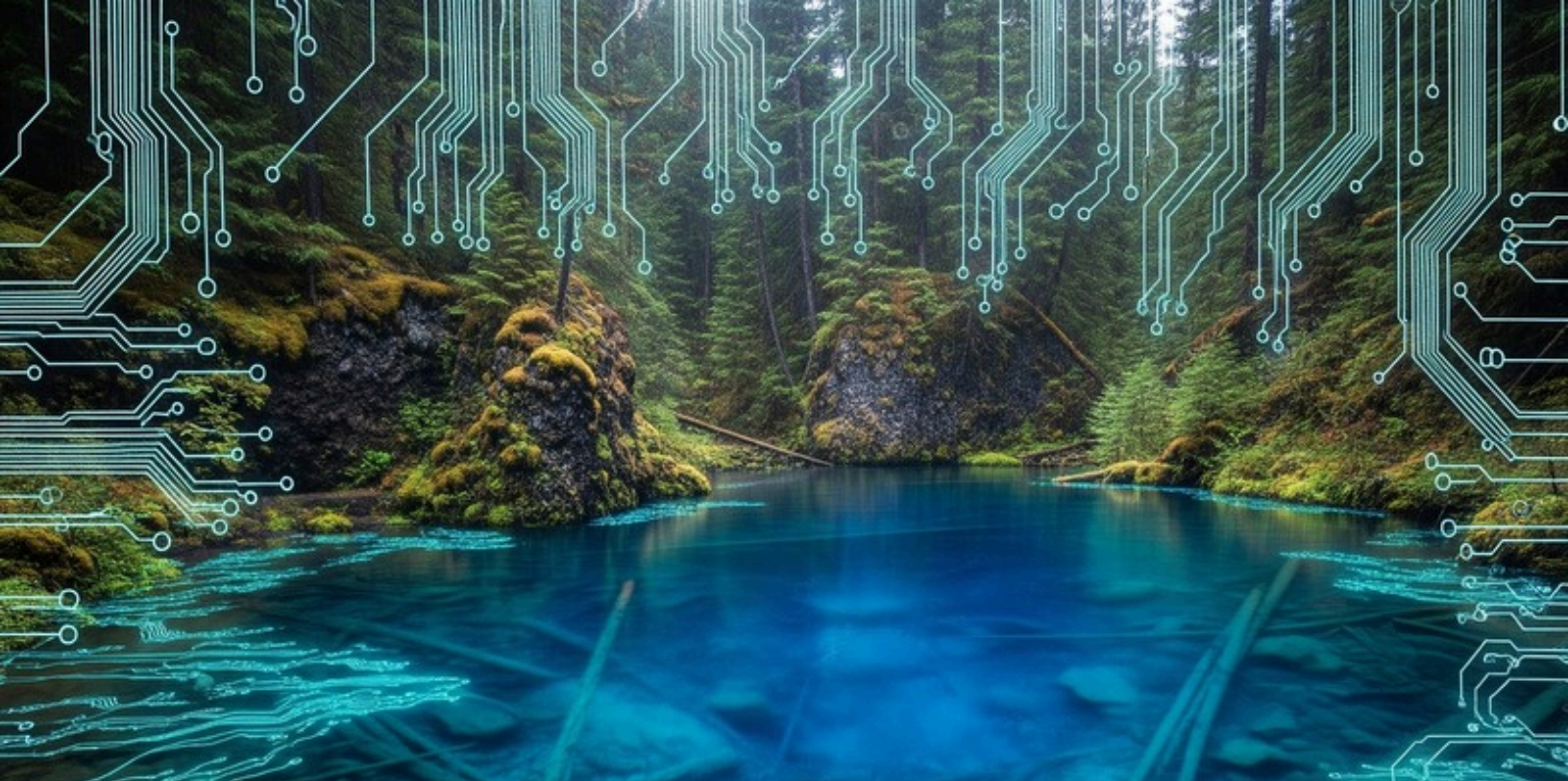


ADDITIONAL FUNDING NEEDED[^]

OCCoE has identified additional funding priorities totaling **\$6,375.9K** beyond current service level (CSL) adjustments. Critical items requiring funding include:

1. Expansion of Security Services at OSU and UO	\$1,648.5K
2. A Cyber range where cybersecurity exercises can be run for multiple programs	\$1,350.0K
3. A non-credit cybersecurity certificate for local and regional government staff	\$456.2K
4. Hiring security analysts for incident reporting, assessment, and information sharing	\$253.8K
5. Expansion of OCCOE to include other participating universities (ie. OIT)	\$610.0K
6. Expansion of outreach awareness programs targeting communities	\$50.0K
Total	\$4,368.5K

[^] Preliminary numbers subject to change



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APPENDIX - DETAILED BUDGET VS. SPEND

By Fund Type

Location	Expense Type	Budget	FY24	FY25	Total	Variance	%
OSU	Operating Funds	\$500,000	\$139,853	\$224,629	\$364,482	-\$135,518	-27%
PSU	Operating Funds	\$1,300,000	\$287,353	\$791,967	\$1,079,320	-\$220,680	-17%
UO	Operating Funds	\$700,000	\$60,674	\$181,228	\$241,902	-\$458,098	-65%
		<u>\$2,500,000</u>	<u>\$487,880</u>	<u>\$1,197,824</u>	<u>\$1,685,704</u>	<u>-\$814,296</u>	<u>-33%</u>
OSU	Workforce Development Funds	\$1,000,000	\$178,519	\$865,623	\$1,044,141	\$44,141	4%
PSU	Workforce Development Funds	\$375,000	\$106,946	\$137,446	\$244,392	-\$130,608	-35%
UO	Workforce Development Funds	\$425,000	\$0	\$106,494	\$106,494	-\$318,506	-75%
MHCC	Workforce Development Funds	\$350,000	\$0	\$18,808	\$18,808	-\$331,192	-95%
		<u>\$2,150,000</u>	<u>\$285,465</u>	<u>\$1,128,371</u>	<u>\$1,413,835</u>	<u>-\$736,165</u>	<u>-34%</u>
HECC	Local Grant Program	\$250,000	\$0	\$0	\$0	-\$250,000	-100%
		<u>\$250,000</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>-\$250,000</u>	<u>-100%</u>
	Grand Total	\$4,900,000	\$773,345	\$2,326,194	\$3,099,539	-\$1,800,461	-37%
		\$3,225,000					

By Institution

Location	Expense Type	Budget	FY24	FY25	Total	Variance	%
OSU	Total Funding	\$1,500,000	\$318,372	\$1,090,251	\$1,408,623	-\$91,377	-6%
PSU	Total Funding	\$1,675,000	\$394,299	\$929,413	\$1,323,712	-\$351,288	-21%
UO	Total Funding	\$1,125,000	\$60,674	\$287,722	\$348,396	-\$776,604	-69%
MHCC	Total Funding	\$350,000	\$0	\$18,808	\$18,808	-\$331,192	-95%
HECC	Total Funding	\$250,000	\$0	\$0	\$0	-\$250,000	-100%
	Grand Total	\$4,900,000	\$773,345	\$2,326,194	\$3,099,539	-\$1,800,461	-37%

APPENDIX - AUDIENCE REACH

