

# CIN-DAY CYBER CORRIDOR

## Regional Consortia Approach to Cybersecurity Education and Workforce Readiness

March 9, 2017

- Cybersecurity workforce market needs and opportunities analysis aligned with NICE Framework and Cybersecurity Jobs Heat Map
- Cybersecurity Regional Educational Program Inventory and Gap Analysis

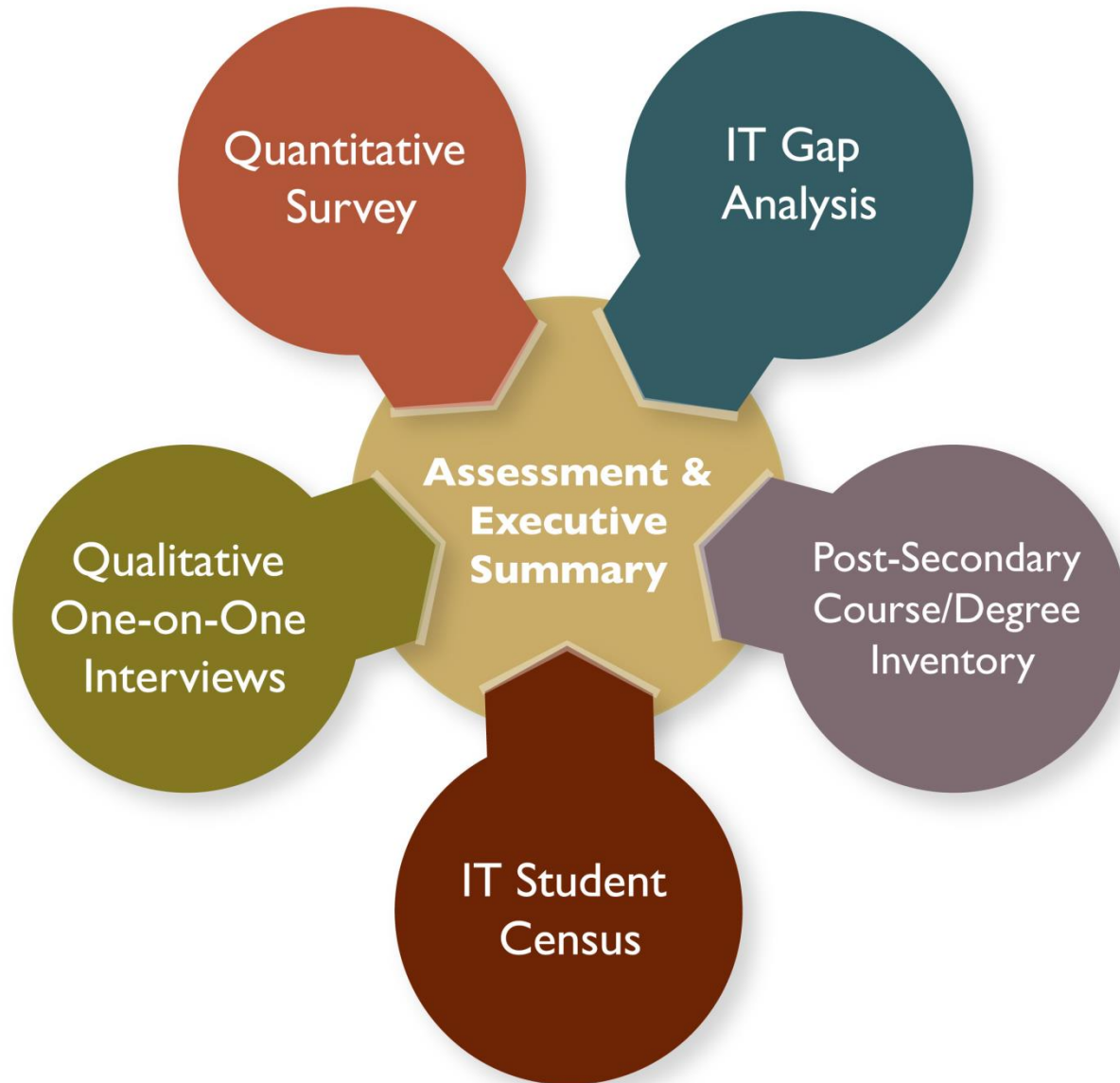


# RESEARCH OVERVIEW

## Partners / Resources

- Technology First - Ann Gallaher / Marcia Albers: *Executive Directors*
- Center for Workforce Development: Cassie Barlow, PhD: *Executive Director, WSU Aerospace Professional Development Center and; Chad Watchorn: Director of Operations, Aerospace Professional Development Center*
- Richard Stock, *Director, Business Research Group, University of Dayton*
- David Snipes, *Montgomery County Business Solutions Center*
- Dr. Mary Haley: *Director, Office of Small Business, AF Life Cycle Management Center*
- Jane Dockery: *Assistant Director, Applied Policy Research Institute, WSU*
- Richard Harknett, PhD: *Professor/Political Science Department Head, UC*
- REDI Cincinnati - Kimm Coyner: *Vice President, Business Development & Project Management*
- The Circuit, Cincinnati via Technology First and REDI Cincinnati

# PROJECT STATUS



# IT GAP ANALYSIS

JobsOhio Southwest (Cincinnati) and West (Dayton) Regions

- After “double-counting” has been eliminated, more completions (graduates) than (job) openings
  - 15-1134 – Web Developers
  - 15-1131 – Computer Programmers
  - 15-1122 – Information Security Analysts i.e.

# JOBSONIO IT OCCUPATION GROWTH PROJECTIONS

## 2015-2025

<b>WEST/Dayton</b>	<u>2015</u>	<u>2025</u>	<u># / +</u>	<u>% / +</u>	<u>RATIO</u>
<sup>15-1122</sup> Information Security Analysts	150	207	57	38%	
TOTAL, All IT Occupations	14,795	16,901	2106	14%	<b>3.28</b>

## **SOUTHWEST/Cincinnati**

Information Security Analysts	756	862	106	14%
TOTAL, All IT Occupations	27,357	30,258	3,561	13%

## **WEST + SOUTHWEST**

Information Security Analysts	906	1,069	163	18%
TOTAL, All IT Occupations	42,152	46,158	5,666	13%

# HIGHER EDUCATION INVENTORY

Schools, Programs, Certificates and Degrees

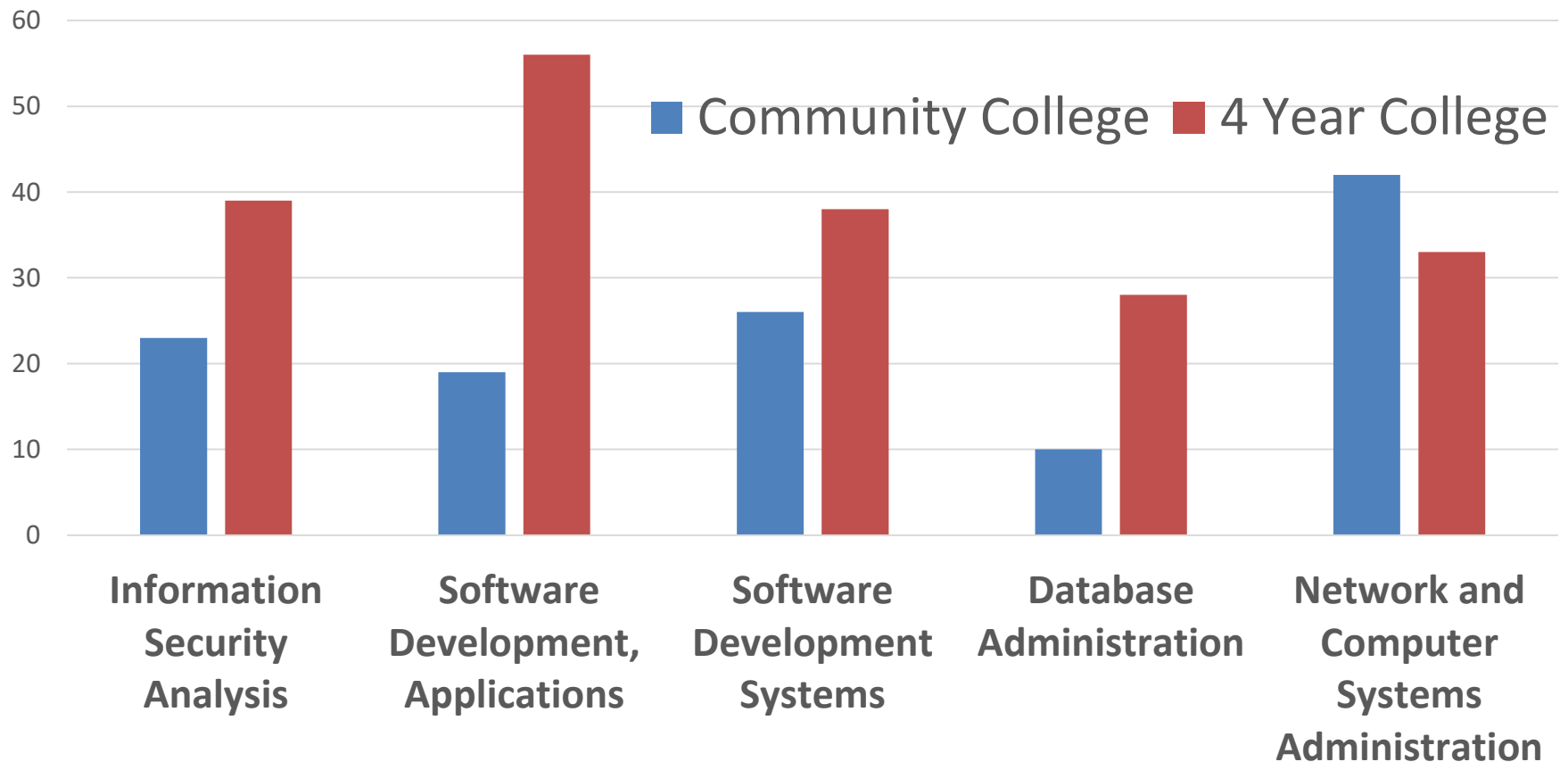


# WEST AND SOUTHWEST COLLEGES AND UNIVERSITIES WITH IT PROGRAMS AND DEGREES

- AFIT
- Antioch College
- Cedarville
- Central Michigan University
- Central State
- Cincinnati State Technical and Community College
- Clark State
- Edison Community College
- Miami University
- Mount St Joseph University
- Northern Kentucky University
- Sinclair Community College
- Southern State Community College
- Thomas Moore College
- University of Cincinnati
- University of Dayton
- Urbana University
- Wilberforce
- Wilmington College
- Wittenberg
- Wright State
- Xavier University

# Number: Courses, Degrees & Certifications by Occupational Area Colleges/Universities Dayton MSA

Jan 2017\*



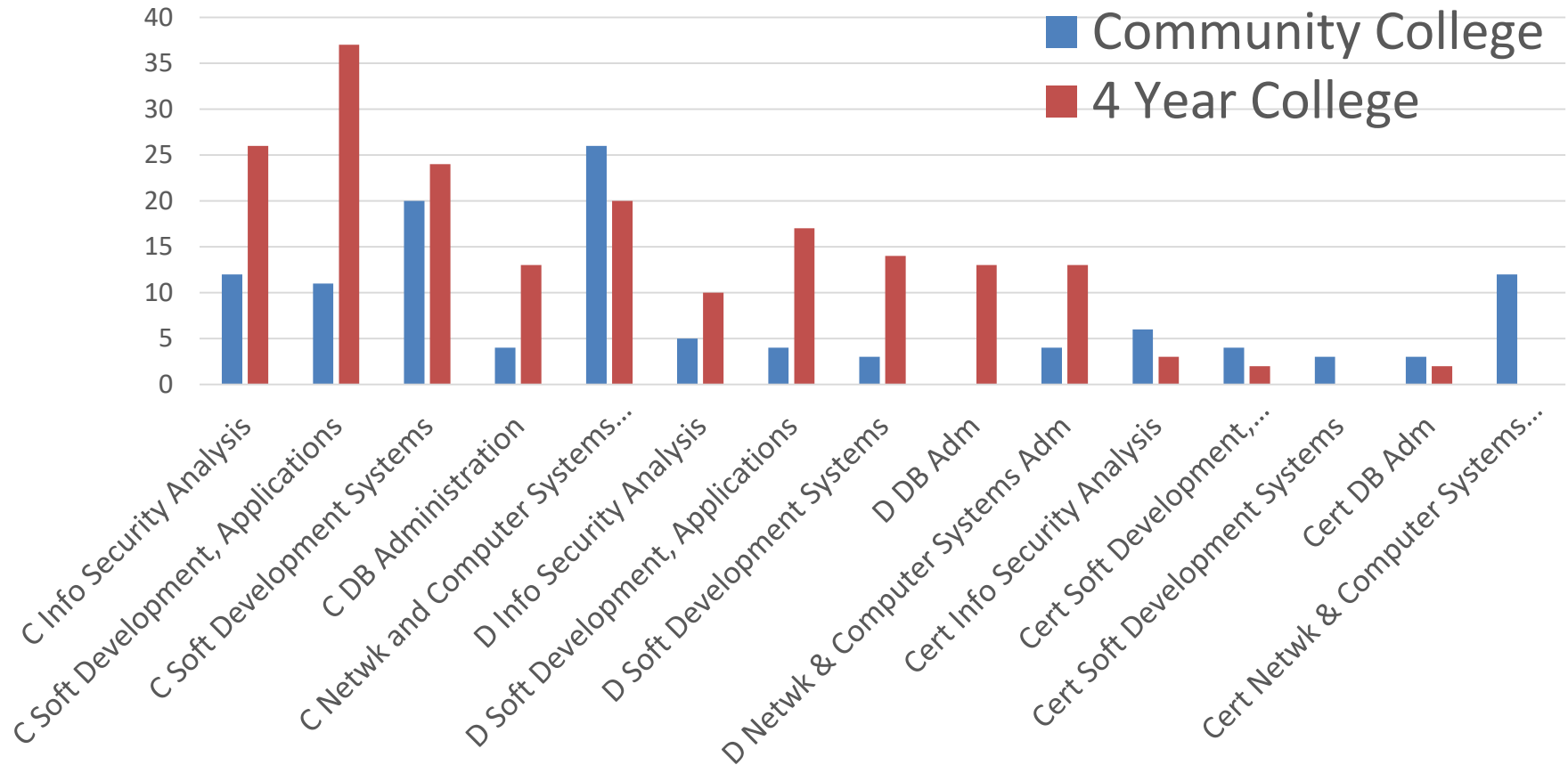
\*Colleges surveyed: Cedarville, Central State, Miami, Wittenberg, Wright State, University of Dayton, Clark, Edison, Sinclair



# Number: Courses, Degrees & Certifications in Colleges/Universities

## Dayton MSA

Jan 2017\*



\*Colleges surveyed: Cedarville, Central State, Miami, Wittenberg, Wright State, University of Dayton, Clark, Edison, Sinclair

# QUALITATIVE RESEARCH



# QUALITATIVE RESEARCH

## Technology First

- +/- 12 one-on-one, in-depth interviews
- Senior IT execs, Cincinnati & Dayton markets
- Purpose: *In-depth conversations and tool to guide development of quantitative research instrument, identify and explore current & future issues of:*
  - Workforce, recruitment, & hiring
  - Budgets & corporate culture
  - Knowledge & understanding of higher T&E capabilities and offerings

# QUALITATIVE RESEARCH

## Findings / Verbatims

- “...disconnect: most companies want/need more security professionals but company culture and/or budget hasn’t caught up yet.”
- “Only organizations with FTE’s dedicated to security are:
  - mid- to large-size organization in range of several 1,000’s employees and/or...
  - ...in heavily regulated industry and/or...
  - ...provide security as a service to other companies”

# QUALITATIVE RESEARCH

## Findings / Verbatims

- “Most companies instead have blended professionals that might do application development but security is part of their job.”
- “May be more interest in MIS major with security minor than pure security grad.”
- Many companies spoke to their interest in hosting interns or co-op students but also mentioned that they haven't or don't hire new graduates for Cybersecurity.

# QUALITATIVE RESEARCH

## Findings / Verbatims

- Many companies interested in interns or co-op students but also stated they have not or do not hire new grads.
- Interest in and ability to host interns and co-ops can infuse the students into the local workforce.
- “Hiring new grads: Needing *security pro’s* vs hiring *new grads* can be two different situations.”

# QUALITATIVE RESEARCH

## Findings / Verbatims

- Frustration around training: constant, on-going need for training in security but many respondents found it unaffordable. Focused on tools / certificates.
- Conversely comments that too much focus on tools: broader problem solving-type thinking was missing in training offerings
- Important to understand how they want current staff trained – either affordably, on-line, or broader problem solving

# QUALITATIVE RESEARCH

## Findings / Verbatims

- Certificate (4-5 classes) vs. Master's Degree:  
Many times a company will pay for university (masters) fees before they will pay for training
- Alternative may be university-sponsored certificate program: may be more amenable to companies' policies



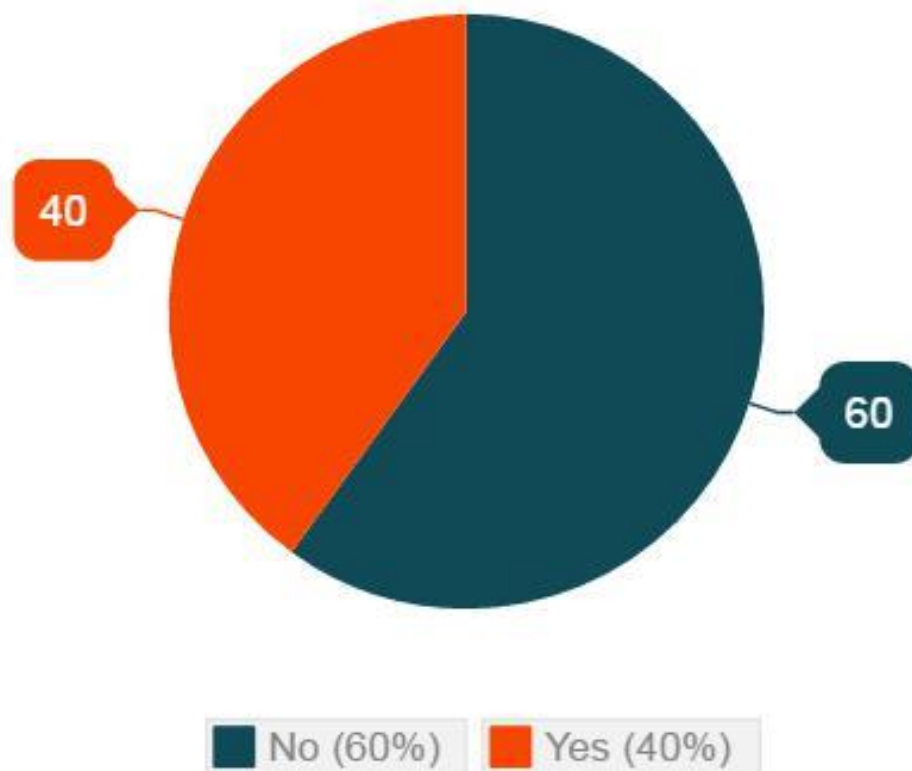
# QUANTITATIVE RESEARCH



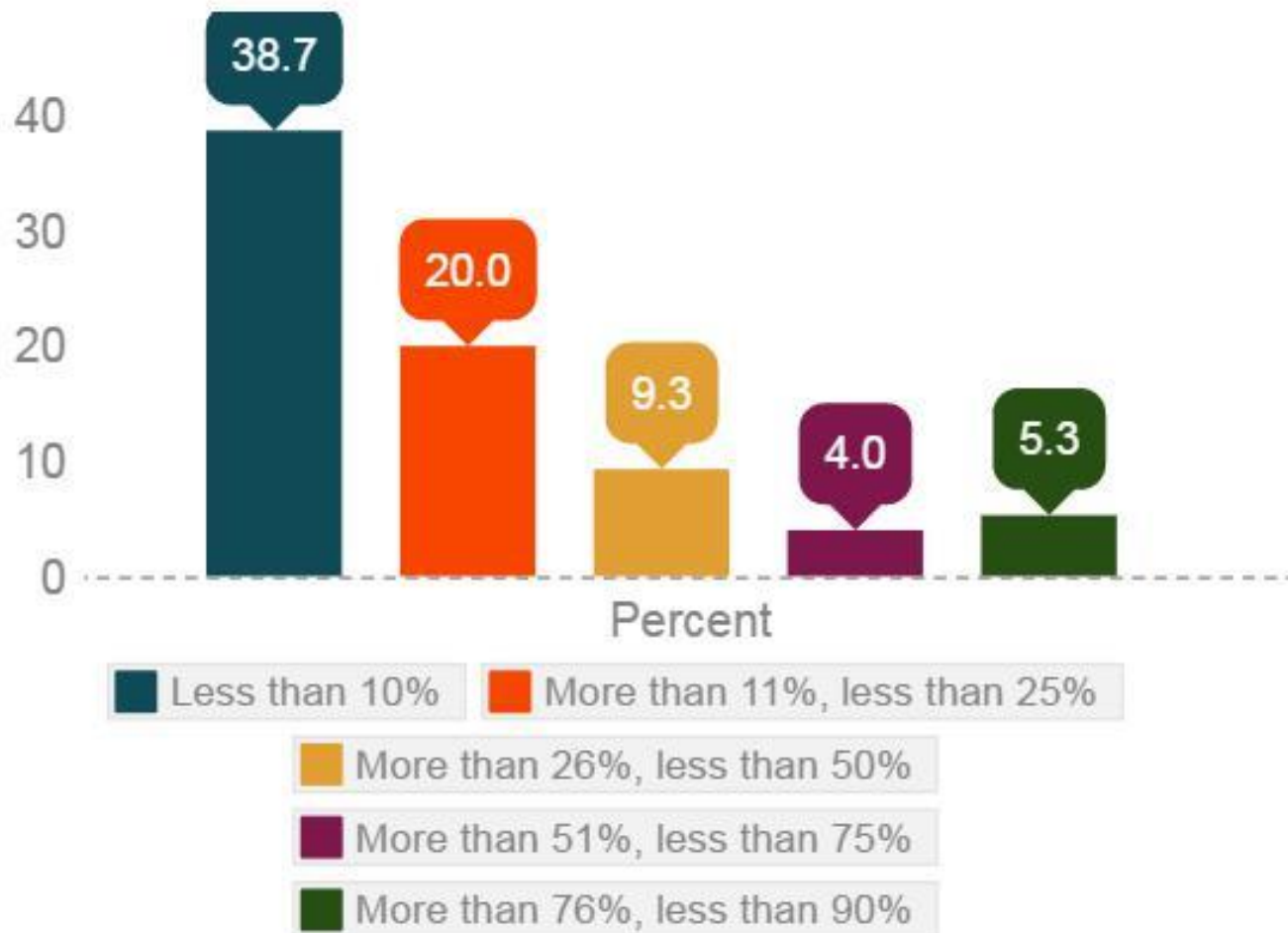
# QUANTITATIVE RESEARCH

- On-line survey distributed by Technology First, The Circuit, AF Lifecycle Management Ctr, and Wright State Research Inst.
- Target: organizations' members and relevant contacts
- November, 2016 – January 2017
- $n = 75$

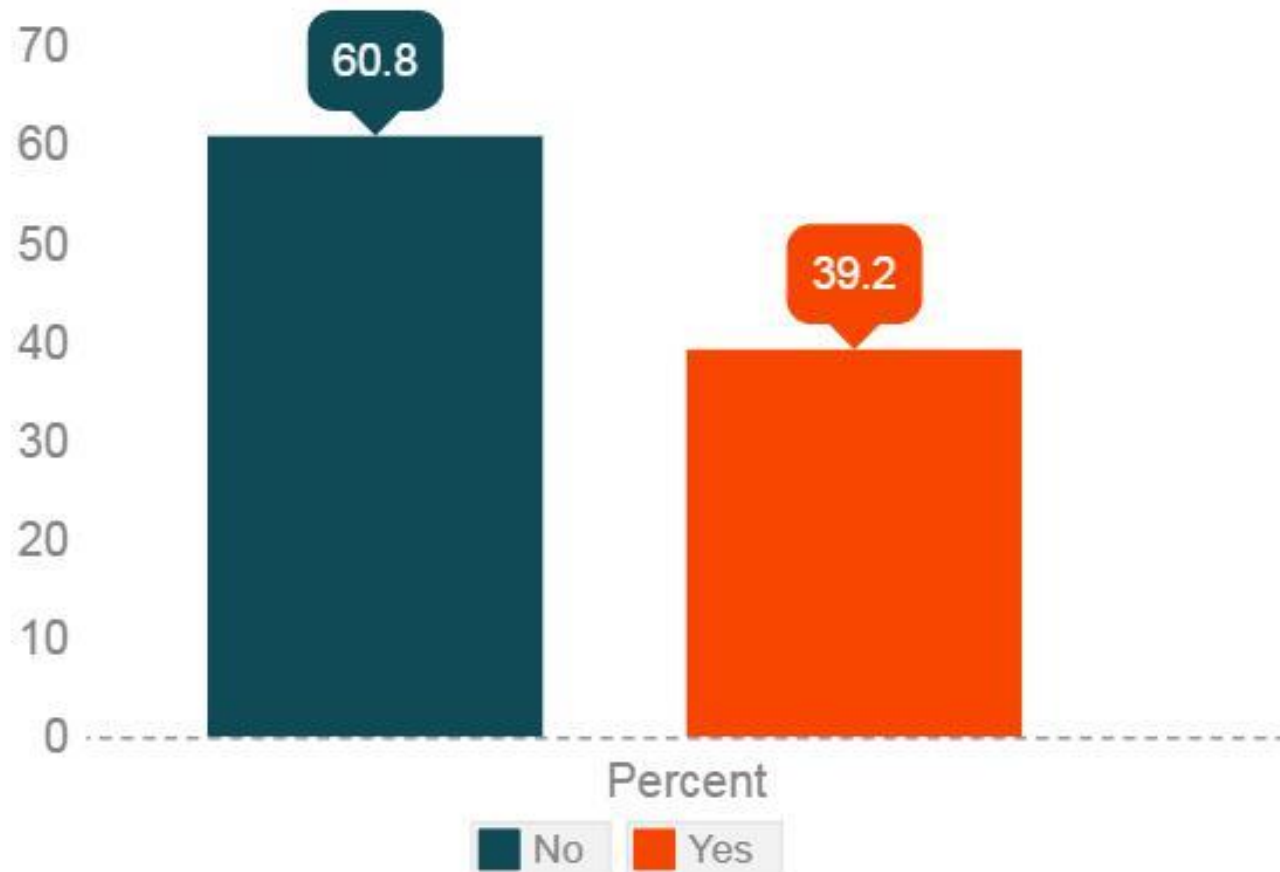
Does your organization differentiate between IT personnel/services versus Cybersecurity personnel/services?



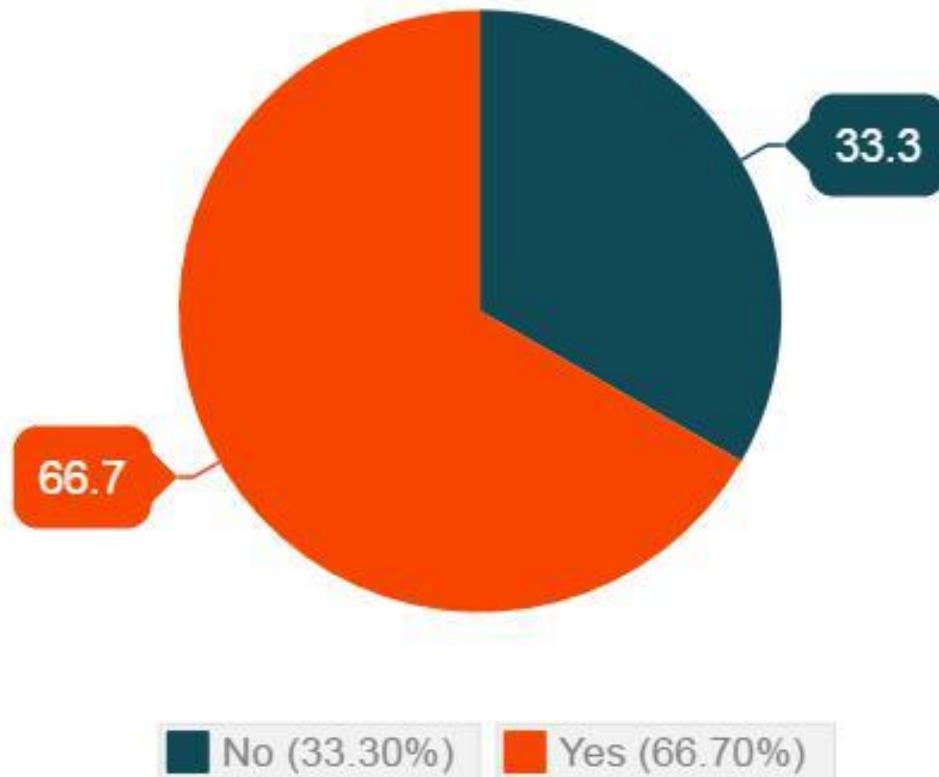
# What percentage of your IT staff's time is dedicated to Cybersecurity activities?



Does your company use outside consulting services or contractors for Cybersecurity?



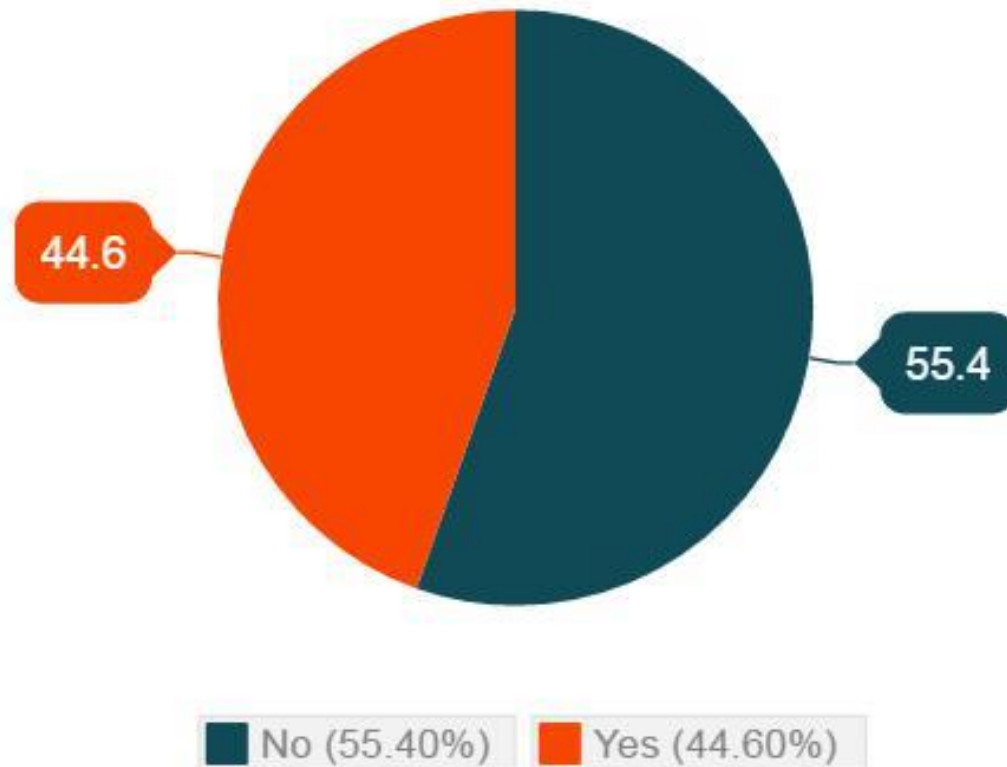
Are you planning to add Cybersecurity personnel over the next three years?



As you consider your Cybersecurity needs over the next three years, please estimate the number of additional personnel you plan to add.

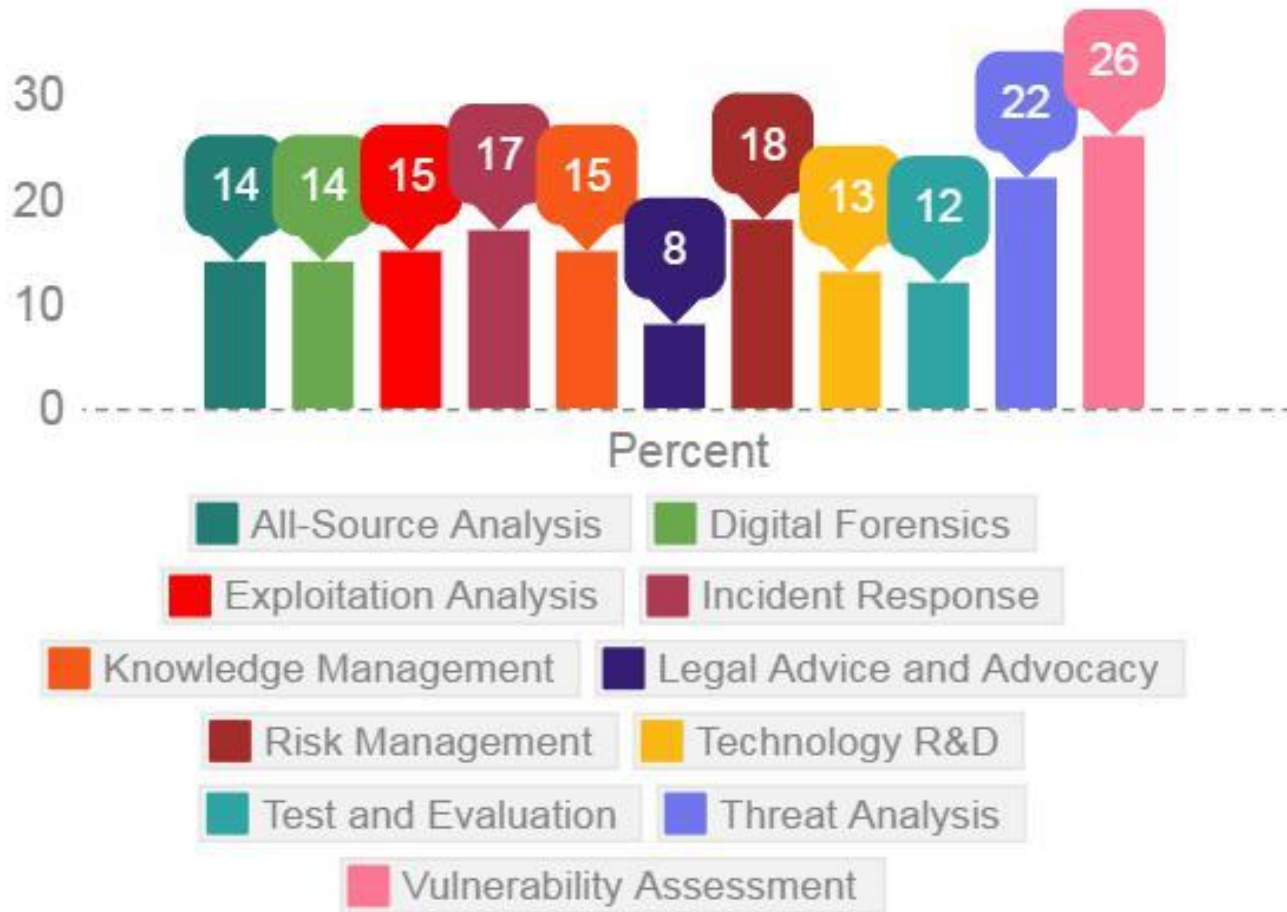


Are you planning to increase your use of outside Cybersecurity consulting or contract services over the next three years?

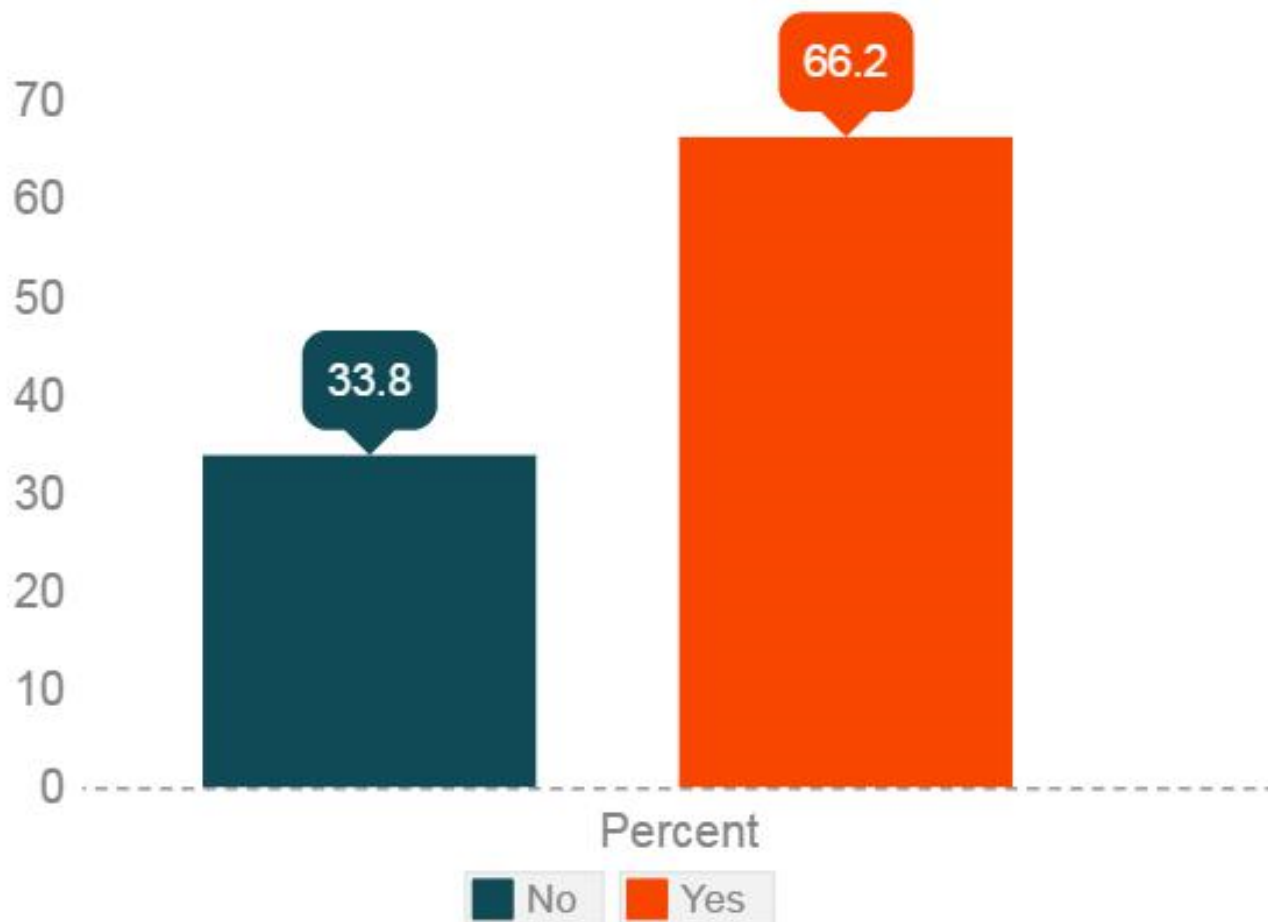




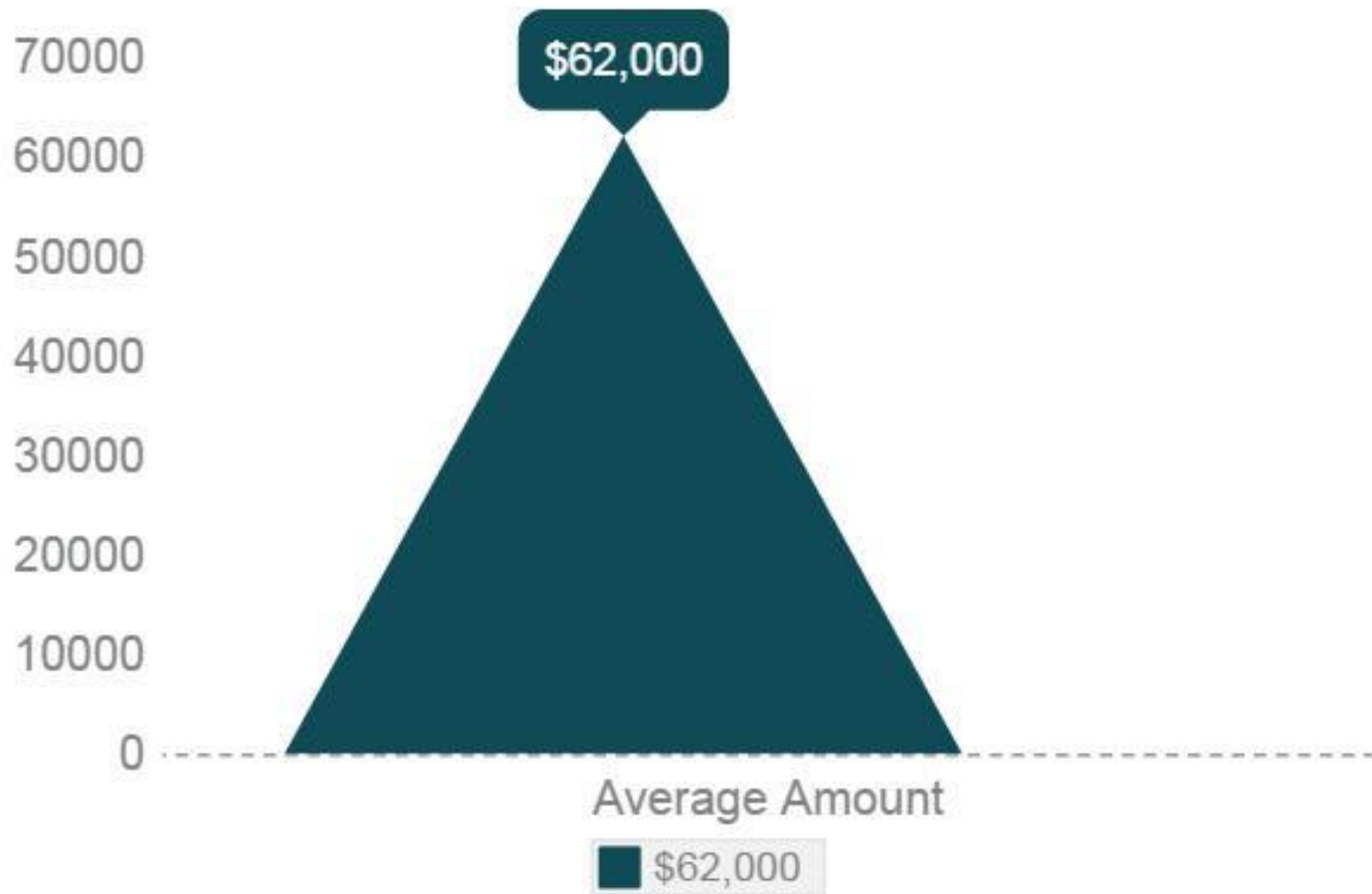
Please indicate which of these services you are planning to increase your use of over the next three years?



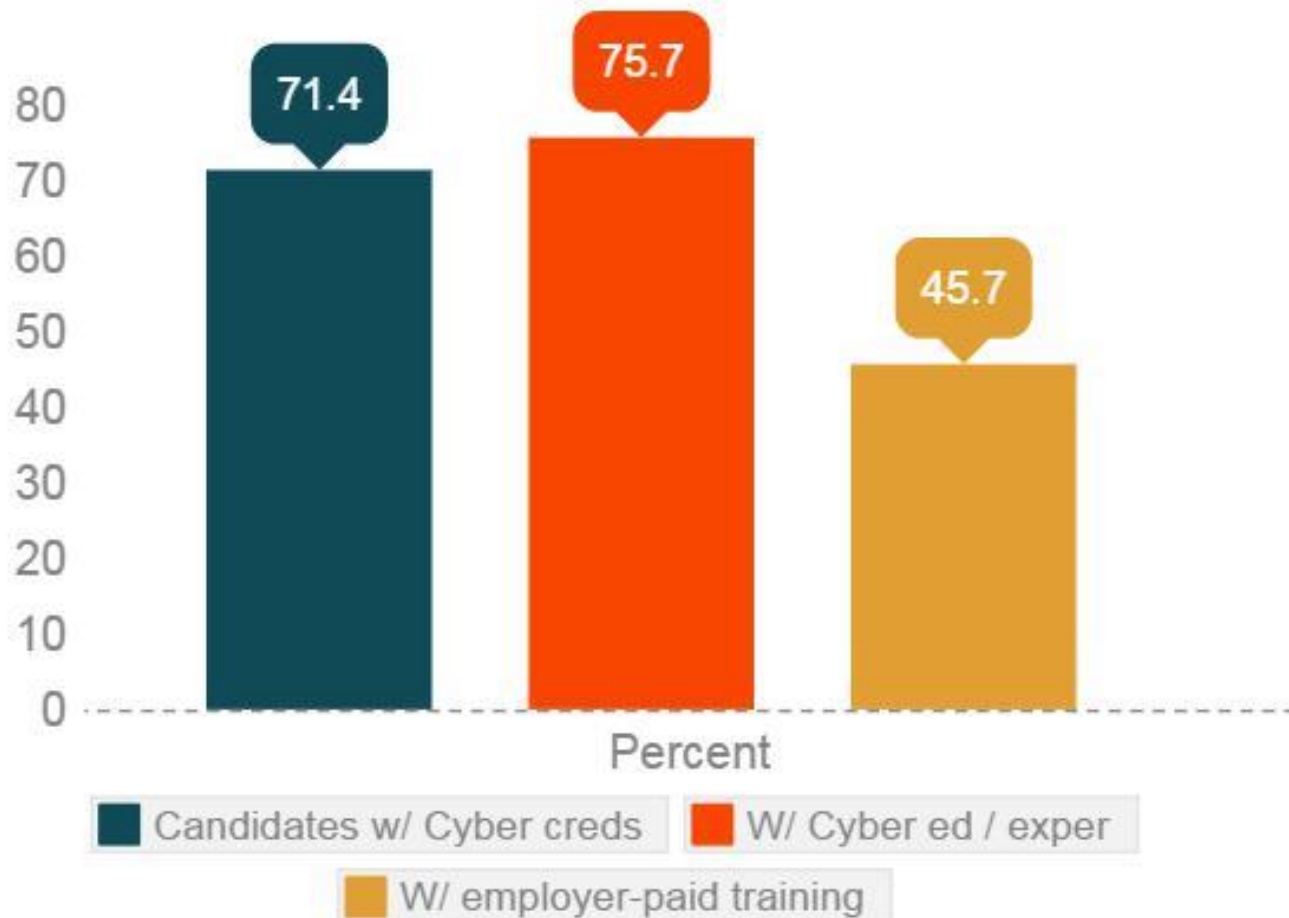
Does your company plan to increase the amount of spending for Cybersecurity training?



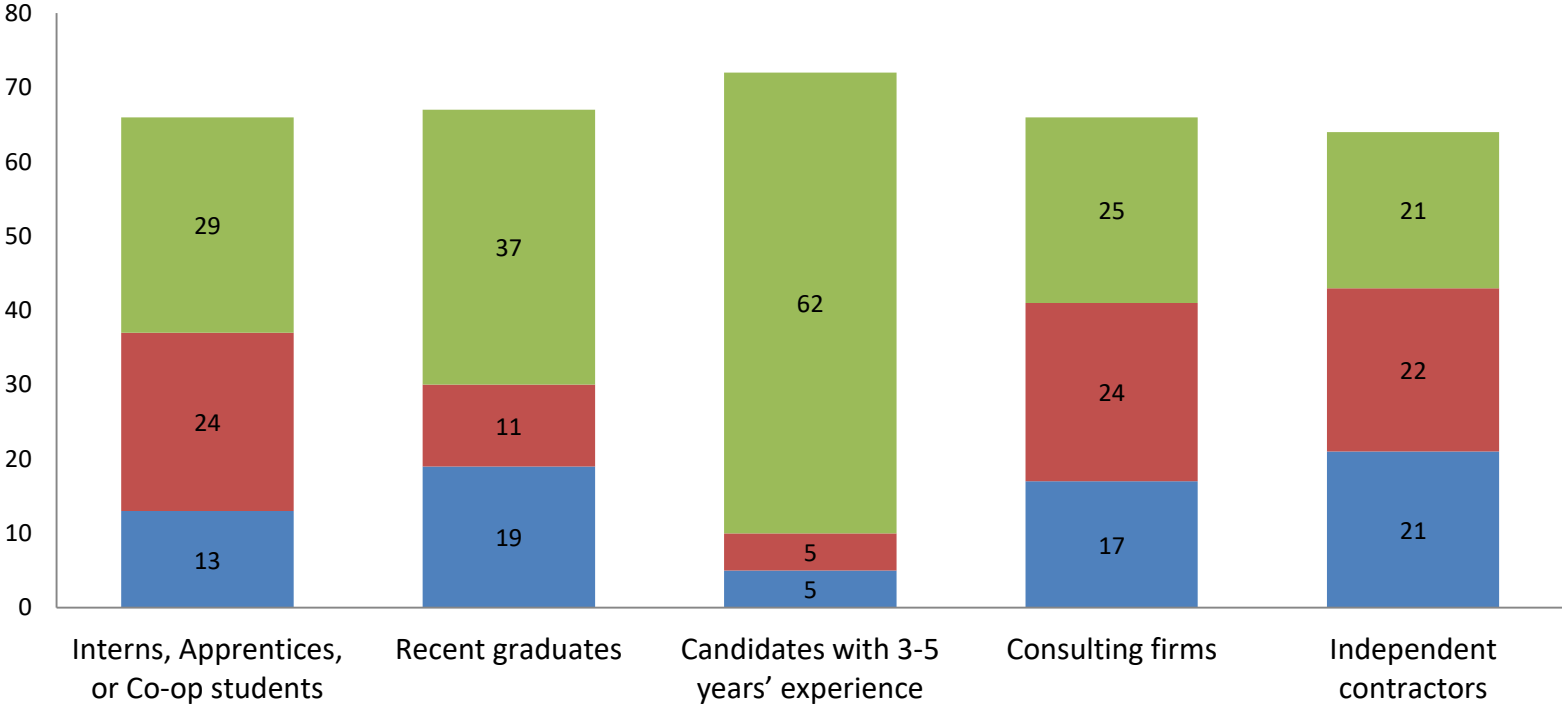
Please indicate the estimated amount you plan to spend on Cybersecurity training.



In planning for your future Cybersecurity workforce, do you plan to hire (indicate all options that apply):

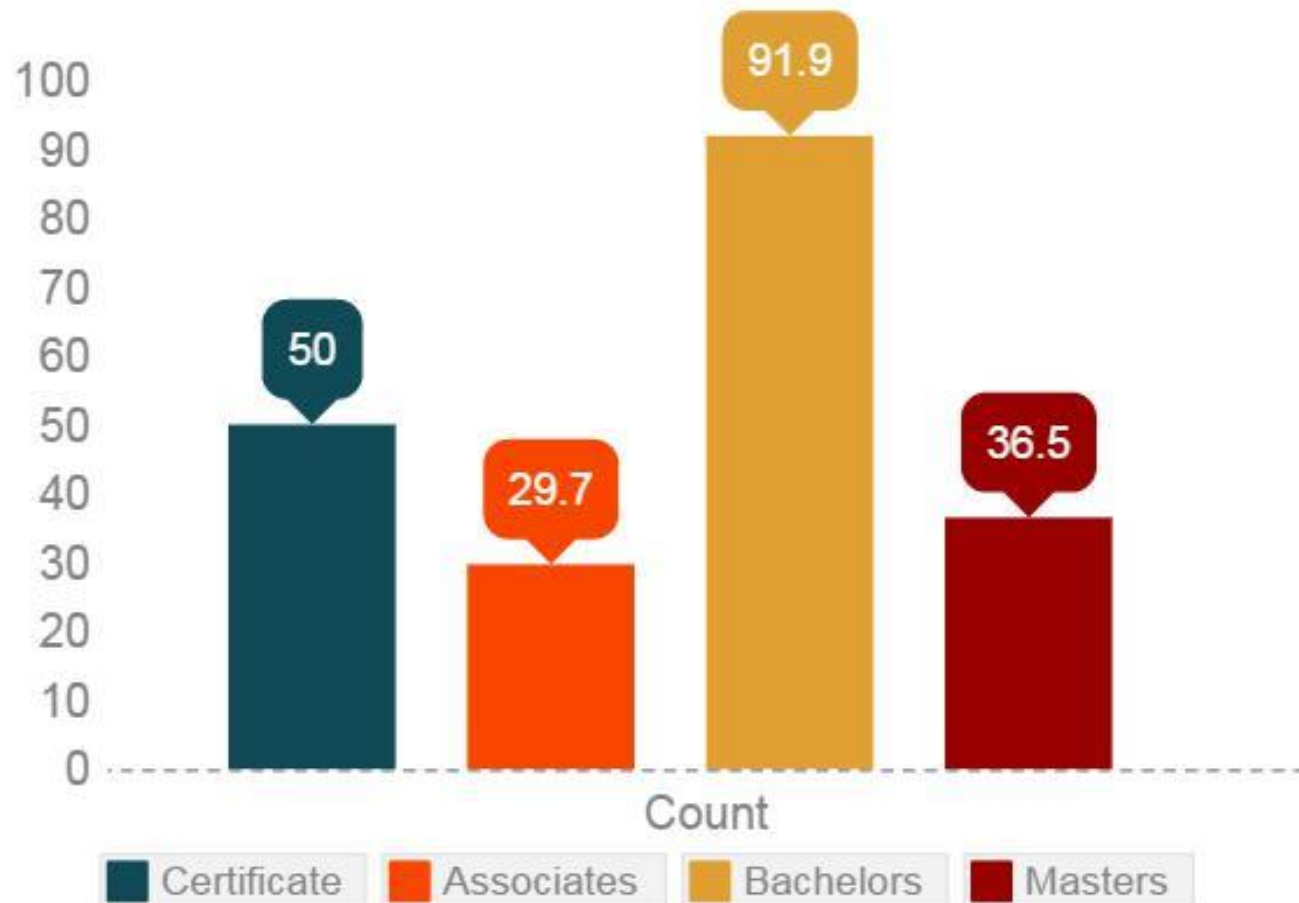


# Thinking about your future Cybersecurity workforce, will you hire? (Check all that apply)

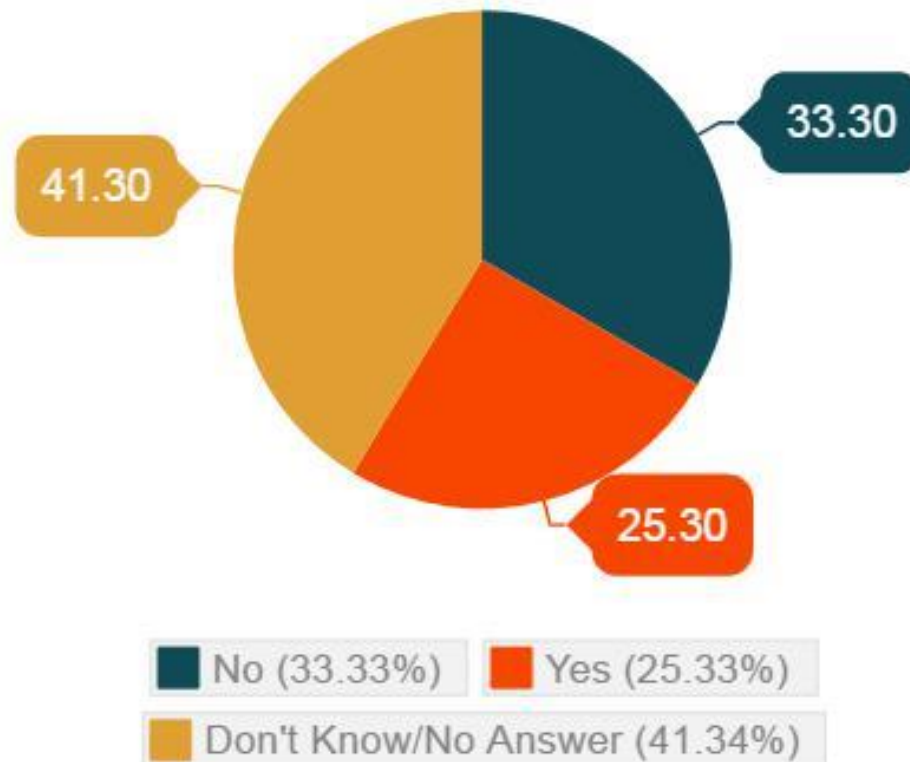


■ Maybe/Unsure   ■ No, will not hire   ■ Yes, will hire

Thinking about your future Cybersecurity workforce, what type of degreed graduates? (Check all that apply)



Is there an available skilled workforce of well-trained graduates to satisfy the Cybersecurity needs of organizations like yours?



# SUMMARY





# IT GAP ANALYSIS

## **Gap analysis: Important but not infallible**

- JobsOhio estimates look backward in time to project the future
- Intense focus on cybersecurity may create more demand than estimated now
- Assumption that “completions” are staying in region may not be correct
  - Especially if demand, compensation, other factors are greater, more attractive in other regions

# QUALITATIVE ANALYSIS

## **Culture eats strategy. So do budgets.**

- Disconnect: most companies want/need more security professionals but company culture and/or budget hasn't caught up yet
- Many companies spoke to their interest in hosting interns or co-op students but also mentioned that they haven't or don't hire new graduates for Cybersecurity

# QUALITATIVE ANALYSIS

## **Cybersecurity is special.**

- Too much focus on tools: broader problem solving-type thinking was missing in training offerings
- Important to understand how they want current staff trained – either affordably, on-line, or broader problem solving

# QUALITATIVE ANALYSIS

## **College & Universities Traditional Structure**

- On one hand: Many times a company will pay for university (masters) fees before they will pay for training
- On the other.... Alternative may be university-sponsored certificate program: may be more amenable to companies' policies

# QUANTITATIVE ANALYSIS

## **Hiring vs. Training Current Staff**

- Companies indicate plans to hire Cybersecurity personnel over next especially Bachelors-degreed
- Training budgets appear to be reasonable
- Use of outside consulting appears to be stable and comparable to current levels of usage

# QUANTITATIVE ANALYSIS

## The “Wildcard” Forces of Talent Retention and Demand Growth

- Cybersecurity virtually dominates daily news reports: need may spiral upward
- Demand for talent could decimate regional retention
- Industry and academia may need improved regular and formal planning

Is there an available skilled workforce of well-trained graduates to satisfy the Cybersecurity needs of organizations like yours?

