



**Registered Apprenticeship** is a program of the United States Department of Labor and State Apprenticeship Agencies that connects job seekers looking to learn new skills with employers looking for qualified workers. Employers, employer associations, and joint labor-management organizations, known collectively as “sponsors,” provide apprentices with paid on-the-job learning and academic instruction that reflects industry needs. The goal of such instruction is to provide workers with advanced skillsets while they earn money. A

## Remote Registered Apprenticeships: Opportunity That Goes The Distance

Nationally, there were 505,000 cybersecurity job openings in the private and public sectors during the 12-month period between October 2018 and September 2019. Of these openings, 127,000 entry-level positions for Information System Analyst remained unfulfilled, a prevalent position to a cybersecurity career. The vast majority of employers say less than 25% of cybersecurity applicants are qualified.<sup>1</sup> On May 3, 2019, the White House issued an Executive Order on the need for a better trained Cybersecurity Workforce.

Having a sizable amount of employees suddenly working remotely can be a major change for organizations and presents numerous problems with regard to cybersecurity. One issue involves a lack of authentication and authorization. Because people are not seeing each other face-to-face, there is an increased need for two-factor authentication, monitoring access controls and creating strong passwords. There is also a risk of increased attacks like phishing and malware, especially since employees will now likely receive an unprecedented amount of emails and online requests.

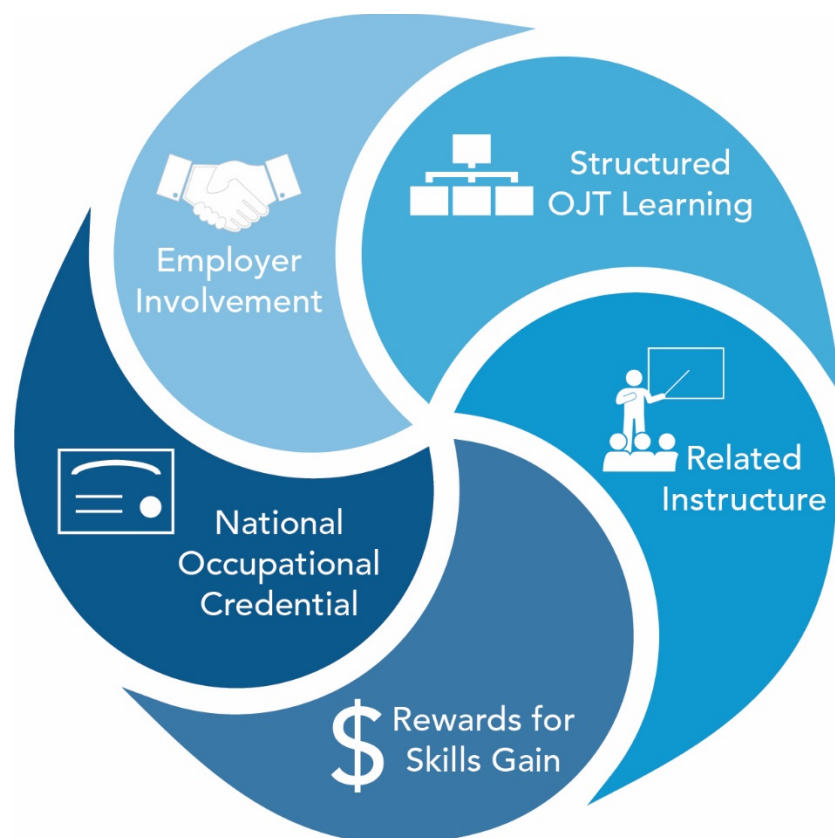
Moreover, remote working can effectively widen an organization’s attack surface. This is because employees who use their own devices for work can introduce new platforms and operating systems that require their own dedicated support and security. With so many devices being used, it is likely that at least some will fall through the security cracks

<sup>1</sup> Richards, K. (23 February 2017). Cybersecurity Skill Shortage Demands New Workforce Strategies. TechTarget. Retrieved from: <https://searchsecurity.techtarget.com/feature/Cybersecurity-skills-shortage-demands-new-workforce-strategies#:~:text=More%20than%20half%20of%20the,%3A%20Implications%20for%202015%22%20study.>

Finally, these same security considerations apply to an organization's supply chain. This can be challenging, because often smaller companies lack the necessary know-how and human resources to implement necessary security measures. Hackers are aware of this and can start targeting third-party suppliers with the goal of penetrating upstream partners.

All of this calls for a need for additional cybersecurity staff. Narrowing the gap in cybersecurity through remote registered apprenticeship can be instrumental in reducing the risks associated with having a remote workforce. In the field of cybersecurity, registered apprenticeships are gaining ground as a solution that works for employers, sponsors, education providers, and students. It adds valued employees at a lower cost to the employer.

### What are the 5 components of a Registered Apprenticeship Program?



### **1. Employer Involvement**

Employer involvement is fundamental! Employers are the foundation of every Registered Apprenticeship Program. They must be willing to support the on-the-job training (OJT) and support.

### **2. On-the-Job Training**

A registered apprenticeship program is required to have 2,000 hours of OJT. Apprentices receive on-the-job training from an experienced mentor for typically not less than one year.

### **3. Related Training and Instruction**

Apprentices combine on-the-job learning with technical education from education providers such as: high school, community colleges, technical schools, apprenticeship training schools. Instruction can be provided online, in the classroom, or at the job site.

### **4. Rewards for Skill Gains**

Apprentices receive increases in wages as they gain higher level skills.

### **5. National Occupational Credential**

Registered Apprenticeship programs result in a nationally recognized credential—a 100% guarantee to employers that apprentices are fully qualified for the job.

### **What are the Benefits of Registered Apprenticeship Programs for Employers?**

- Ability to create workforce-ready pipeline
- Increase retention and engagement
- Increase productivity and knowledge transfer
- Greater opportunity and access to those in underrepresented communities
- Ability to train for skills needed
- Access to federal and state training and wage offsets

In addition, 24 states provide tax incentives or rebates to employers or the apprentice. In addition, federal support for apprenticeships, particularly in non-traditional fields, has been growing as outlined in Exhibit II.

EXISTING EXPANSION INVESTMENTS – COLLABORATION			
FY 2016 \$90 million	FY 2017 \$95 million	FY 2018 \$145 million	FY 2019 \$160 million
<ul style="list-style-type: none"> <li>• State Grants</li> <li>• National Industry &amp; Equity Partnerships</li> <li>• Promotion</li> <li>• Technology</li> </ul>	<ul style="list-style-type: none"> <li>• State Grants</li> <li>• National Industry &amp; Equity Partnerships</li> <li>• Promotion</li> <li>• Apprenticeship.gov</li> </ul>	<ul style="list-style-type: none"> <li>• New State Grants</li> <li>• Marketing</li> <li>• Innovation Fund</li> <li>• Youth Intermediaries</li> </ul>	<ul style="list-style-type: none"> <li>• Plan in Development</li> </ul>

Looking, with the FY 2019 appropriation of \$160 million, DOL will continue to invest in partners and initiatives that will help grow, diversify, and scale apprenticeship to address America's skills gap.

## What are the Benefits of Registered Apprenticeship Programs for Job Seekers?

- Ability to learn relevant industry skills
- Earn while you learn
- Received nationally recognized credentials
- Acquire industry recognized credentials and certifications
- Career Advancement
- Greater pathway to employability
- Access to a dedicated mentor to help accelerate the development of skills

## Is an Internship the same as a Registered Apprenticeship?

An apprenticeship is much different than traditional internships or co-op programs in that: First, as a pre-requisite for participation, an apprentice does not need to be actively enrolled in an educational institution nor does the apprentice need to attain a degree. Second, the program duration is significantly longer; it can be no shorter than 2,000 concurrent hours of paid on-the-job training, whereas internships are typically 200 – 500 hours in length. Third, an apprenticeship requires a structured approach to both related technical instruction (RTI), in addition to on-the-job training. Finally, apprentices must master the competencies as outlined in the occupational standards as a condition of graduation from the apprenticeship.

## Advantages of Registered Apprenticeship Programs over Internships

The reality is, not every college graduate is equipped with the right skills needed to succeed in the real world. Whether it is soft skills, technical skills, communication skills, or the ability to work with a diverse workforce that spans across generations. When

“Businesses gain by having an onboarding pathway to find stellar graduates who can offer up their gifts and talents to help an organization succeed,” says Tim Elmore, President of Growing Leaders, and author of *Marching Off The Map*, which provides understanding and how to practically apply the latest research on Generation Z. “Millennials are the largest generation in the workplace and those organizations who can succeed in leading them well will have the upper hand. Apprenticeships literally give an organization a chance to observe a

an employer hires an apprentice, they provide further on-the-job training, while being able to mold the employee to fit their needs. While that seems to benefit the job seeker, it also benefits the employer, because it helps them create a pipeline of talent that could eventually be hired into a full-time role. If hired, the apprentices are already familiar with the company, business, products, services, clients, and colleagues. They can move right into a full-time role, saving time on training and reducing time spent recruiting.

### **Why is Cybersecurity well aligned for a Registered Apprenticeship Program?**

Job postings tend to show that cybersecurity roles often require more experience, education, and certifications than IT roles. In fact, 84 percent of postings studied required a bachelor's degree and 83 percent required at least three years of work experience. However, in working with Human Resource Directors we have found many employers do not specify clear tasks and corresponding knowledge, skills, and abilities (KSAs). Not all roles require the same amount of education and training, though jobs are posted as if they do.

"Soft skills such as communication, critical thinking, and teamwork are just as crucial as technical skills in cybersecurity," said Kelli Jordan, Director of Skills and Talent at IBM. By examining the actual skills needed to conduct a job, and not as much on the credentials, employers are able to find qualified candidates and fill these positions. It is a mindset shift to focus on skills and not degrees.

### **Remote Registered Apprenticeships**

Remote registered apprenticeships have special promises for helping employers, schools, and students overcome distance-related challenges. In a remote registered apprenticeship, the instruction, the on-the-job training, or even both are completed remotely, using technologies for distance learning and distance working.

Making some or all the registered apprenticeship remotely can work especially well for:



### Using remote registered apprenticeships can help employers access diverse skill sets

The optimal cybersecurity team is interdisciplinary, including expertise in a variety of information technologies, human behavior/social engineering, cryptography, and more.

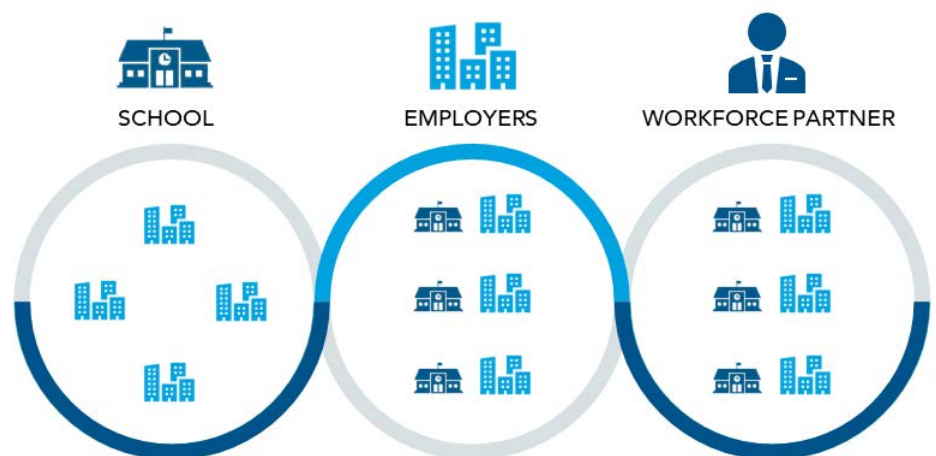
By giving employers access to more talent with varying educational backgrounds, remote registered apprenticeships can help employers get the right mix of skills and experience on their cybersecurity

- Employers that need to build cybersecurity teams, especially those that are in areas less dense with skilled professionals or especially tight job markets. Remote registered apprenticeships allow these employers to reach beyond their local area to access talent.
- Educational institutions that offer cybersecurity training but have a limited network of local employers and want to do more to connect students to jobs.

Workforce development organizations can play important roles, too, as intermediaries that connect employers, educational institutions, and students.

### Remote Registered Apprenticeships Models

Remote registered apprenticeships can be structured in multiple ways. The following models are all scalable (starting small and growing over time), and flexible according to structural needs.



#### Schools can administer remote registered apprenticeship programs.

A school can partner with employers across the country that need cybersecurity support, supplying them with remote apprentices. This model works with either on-campus or distance learning, depending on the school's preferences and capabilities.

#### Employers can administer remote registered apprenticeship programs.

Partnering with one or more schools, an employer can supply remote apprentices to its sites across the country. Employers may choose to work with educational institutions in a single state to avoid challenges related to differing state educational requirements.

### **Workforce partners can administer remote registered apprenticeship programs.**

An organization dedicated to strengthening the workforce can act as an intermediary between one or more schools and one or more employers. Examples of workforce-focused organizations that can play this role include:

- Trade, industry, and employer groups or associations
- Corporations and other organized entities
- Educational institutions, such as universities or community colleges
- State and local government agencies or entities
- Non-profit organizations
- Unions
- Joint labor-management organizations
- Certification and accreditation bodies or entities for a profession or industry
- A consortium or partnership of entities such as those above

Workforce-focused organizations using this model may choose to work with educational institutions in a single state to avoid challenges related to differing state educational requirements.

### **Why is it critical now?**

Research indicates a range of benefits of remote education and employment, even as emergencies and disasters make it a necessity. Research on working remotely has identified the benefits in the form of:<sup>2</sup>

- Increased productivity
- Enhanced performance / Higher quality work
- Higher engagement / Lower absenteeism
- Better retention / Less turnover
- Increased profitability

New technologies are helping educational institutions and employers offer learning and employment remotely, including videoconferencing platforms, cloud-based file-sharing and storage platforms, collaborative online workspaces, project

<sup>2</sup> Farrer, L. (2020, February 12). 5 Proven Benefits of Remote Work for Companies. *Forbes*. Retrieved from: [forbes.com/sites/laurelfarrer/2020/02/12/top-5-benefits-of-remote-work-for-companies](https://forbes.com/sites/laurelfarrer/2020/02/12/top-5-benefits-of-remote-work-for-companies).

management tools, instant messaging applications, and both informal and structured teambuilding. Organizations have options and can select the technologies that meet their security requirements, culture, and objectives.

### How do you do it well?

Arguably, while there are benefits to being able to work from wherever you want, there also are additional responsibilities that the remote apprentice and the employer must adopt in order to make the apprenticeship successful:<sup>3</sup>

- **The apprentice must be able to work independently**  
Without having a mentor or supervisor glancing over their shoulders like in the traditional office environment, as a result, there must be a greater level of accountability for the apprentice to be productive and more resourceful in getting things done without a team always around to engage with or to collaborate with on tasks.

Pearson notes that a remote apprenticeship is still an apprenticeship, and the employer will still demand **a high level of integrity and reliability** from the apprenticeship. Learning and development opportunities which in the more traditional mentor/apprenticeship relationship may not be as available. According to Pearson, it will require the apprentice to be proactive by “asking for feedback and reading and studying on your own time.”<sup>4</sup>

- **The apprentice will need to be more disciplined and need to create the structure to their day-to-day life.**  
This includes having a dedicated/schedule of working hours and daily work routines to maintain some consistency. These expectations can be reinforced by the mentor and company policies or practices about production and level of service needed from the apprentice during their periodic check-ins, but the apprentice will need to establish an appropriate pace that will allow them to be accessible and complete their work in a timely manner that is consistent with the needs of the employer.

<sup>3</sup> See, Pearson, T. The Ultimate Guide to Apprenticeships (or How to Find your First Remote Job). (Pearson, T. The Ultimate Guide to Apprenticeships). Blog. Retrieved from: [taylorpearson.me/entry-level-remote-jobs](https://taylorpearson.me/entry-level-remote-jobs); Rubenstein, C. (2020, April 10). Beware: Remote Work Involves These 3 Cyber Security Risks. *Forbes*. Retrieved from: [forbes.com/sites/carrierubenstein/2020/04/10/beware-remote-work-involves-these-3-cyber-security-risks](https://forbes.com/sites/carrierubenstein/2020/04/10/beware-remote-work-involves-these-3-cyber-security-risks); and Martin, M., and Volpe, L. (2020). Delivering Workforce Services in the COVID-19 Environment. Heldrich Center for Workforce Development. Rutgers. Retrieved from: [heldrich.rutgers.edu/sites/default/files/products/uploads/Suddenly\\_Virtual\\_Delivering\\_Workforce\\_Services\\_in\\_the\\_COVID-19\\_Environment.pdf](https://heldrich.rutgers.edu/sites/default/files/products/uploads/Suddenly_Virtual_Delivering_Workforce_Services_in_the_COVID-19_Environment.pdf).

<sup>4</sup> *To Remote or Not to Remote? The Benefits and Realities of Remote Jobs*, in Pearson, T. The Ultimate Guide to Apprenticeships.



The apprentice and the mentor will need to regular maintain contact in order to maintain the appropriate amount of guidance and not socially isolate the new employee. One major drawback, according to Pearson, is the potential lack of in-person relationships that apprentices can develop with their mentor, manager, and co-workers. Not being able to see work and performance expectations on a regular basis, or how to be part of the work culture through regular interactions may limit the apprentice when not at the same physical location. Traditionally, employers conduct skill building during the mentorship or “hands-on” time with the apprentice. This can happen after or during the classroom training. This approach to teaching gives the apprentice a chance to apply lessons learned under the supervision of a seasoned employer.

### Examples

As a result of COVID-19, IBM has continued its cybersecurity apprenticeship program, and everyone has been moved to a virtual onboarding experience. They have been focused on coaching mentors, apprentices, and managers, and they want to make sure that managers and mentors know how to stay connected and be effective in a virtual environment.

### Issues to consider when transitioning from in-person to virtual or remote apprenticeship training

1. Increase the number of activities. Add activities to keep the apprenticeship attention in a virtual world. For example, if using a slide deck, get student feedback or engagement every three to five slides in an online chat.
2. Adapt in-person instructor-led activities. Allocate the instructional time differently. Rethink the activities, particularly hands-on activities and interactions with guest speakers or among themselves, and how to use them to keep your audience engaged. For example, create job aids with step-by-step instructions for instructor-led demonstrations. It will help students complete tasks successfully—and provide them with a reference after the training is complete.
3. Leverage the features of your virtual classroom platform. Most include the opportunities for chats, discussions, breakout rooms, application sharing, and whiteboards.

- Ask discussion questions that learners respond to in an online chat.
  - Use polling questions to informally assess how well they are grasping the content.
  - Have students use emoticons to indicate their status.
  - Use breakout rooms to set up different exercises. For example, divide participants by expertise and have them work on activities aligned with their specific backgrounds.
  - Use application sharing if you are teaching software skills. Ask a participant to interact with the software while other participants observe and provide feedback.
  - Use the whiteboard to encourage collaboration, inviting participants to write their own ideas on it.
4. **Plan! Plan! Plan!** Just as you test equipment, prepare classroom, and organize materials for an instructor-led training, plan and test virtual training. Features such as breakout rooms, quizzes, and polling are great additions to the learner experience, but make sure the software is navigated effectively, or training will suffer.
- Conduct a dry run. This will help identify any issues with the technology interface.
  - Have someone manage the chat (if used) for you (a co-facilitator is a great option). This will limit distractions during instruction.
  - Pace yourself. Clearly identify how much time to spend on each activity and discussion, etc. Be sure to factor in breaks, just as you would for an in-person learning event.

#### Mentoring staff remotely --

In a recent study conducted by the John J. Heldrich Center for Workforce Development at Rutgers University that examined the delivery of remote workforce services due to the COVID-19 pandemic, 72% of those surveyed felt that they had transitioned well to working remotely.<sup>5</sup> However, they indicated that they were experiencing stressors such as feeling distracted, overwhelmed, disheartened, isolated, confused, frustrated, and

<sup>5</sup> Archer, J. and Max, J. (2018). Implementing Online Professional Learning Communities: Insights from WestEd's Blended Professional Development Model. Reading Apprenticeship at WestEd. Available at: [mathematica.org/our-publications-and-findings/publications/implementing-online-professional-learning-communities-insights-from-westeds-blended-professional](https://mathematica.org/our-publications-and-findings/publications/implementing-online-professional-learning-communities-insights-from-westeds-blended-professional).

exhausted.<sup>6</sup> For managers, and mentors, working with remote and virtual individuals and teams, the problems and issues that are common for in-person work teams are exacerbated by time, distance, and even corporate or national cultures.<sup>7</sup>

- The role of the mentor is to model the appropriate skill level required, demonstrate appropriate work ethic, introduce the apprentice to the company's work culture, and set and reinforce expectations about the level of professionalism that exist in the workplace. In addition to supervision, the mentor serves as a coach on key activities and tasks that the new employee is initially responsible for and provides oversight on the quality of their work. Traditionally, the apprentice works at the same location with the mentor and, ideally, this allows for a close working relationship to form that will ultimately allow the new employee to gain the skills that are needed to be a successful employee once the apprenticeship has concluded. In addition, mentorship build stronger teamwork, improves the quality and quantity of work, creates less waste, lowers the chance for turnover, and builds more efficient work habits and possibly decrease the speed at which they learn their job skills.<sup>8</sup> One strategy is to provide a "high touch" mentoring approach that sets the expectations upfront and set recurring check-in meetings helps to make sure apprentices have opportunities to get the guidance they need to do their work effectively and connect with their mentor. The mentor should be prepared to review work conducted thus far and address key questions that the apprentice may have about the tasks they have been given. In addition, the just-in-time mentoring should be made available in which mentor and mentee can connect the moment a question arises.<sup>9</sup>
- The employer must ensure the proper level of security. Structurally, many employees are working from home due to the novel coronavirus.<sup>10</sup> As a result, there are multiple threats that many employers now face. For example, many are using virtual private networks (VPNs) for work documents

<sup>6</sup> Mentoring for Apprenticeship, Train-The-Trainer for On The-Job-Training (2017), (Mentoring for Apprenticeship (2017)). Bass, S. (comp.). Keystone Development Partnership. Retrieved from: [expandapprenticeship.org/system/files/mentoring\\_for\\_apprenticeship.pdf](https://expandapprenticeship.org/system/files/mentoring_for_apprenticeship.pdf).

<sup>7</sup> Turmel, W. 3 Reasons Virtual Teams Fail and How to See It Coming (3 Reasons Virtual Teams Fail and How to See It Coming). Great Web Meetings. Available at: [keg.infusionsoft.app/app/form/14a390378147392b610535485c9ad8dc?cookieUUID=79243c29-b104-4f60-8309-1e5c92f958eb](https://keg.infusionsoft.app/app/form/14a390378147392b610535485c9ad8dc?cookieUUID=79243c29-b104-4f60-8309-1e5c92f958eb).

<sup>8</sup> Mentoring for Apprenticeship (2017).

<sup>9</sup> Weinstein, M. Mentoring in The Digital Age. *Training Magazine*. Retrieved from: [trainingmag.com/trmag-article/mentoring-digital-age/](https://trainingmag.com/trmag-article/mentoring-digital-age/).

<sup>10</sup> See Rubenstein, C. (2020). *Beware: Remote Work Involves These 3 Cyber Security Risks*. Consumer Tech. *Forbes*. Retrieved from: [forbes.com/sites/carrierubinstein/2020/04/10/beware-remote-work-involves-these-3-cyber-security-risks](https://forbes.com/sites/carrierubinstein/2020/04/10/beware-remote-work-involves-these-3-cyber-security-risks); and 3 Reasons Virtual Teams Fail and How to See It Coming.

and applications. According to Microsoft “Ransomware operators have identified a practical target—network devices like gateway and virtual private network (VPN) appliances,” and adding, “[t]hese are more difficult to remediate because it can be challenging for defenders to go and extensively hunt to find where the ransomware attackers have established persistence and identify what has been compromised.”<sup>11</sup> For a remote apprenticeship to work, employers must be concerned about hackers who attack using that technology by applying regular security updates, reduce people's access to most documents and data.

- Employers can use technology to effectively/strategically/authentically engage with the apprentice to improve work outcomes, communicate, and connect. One reason that remote or virtual teams do not work, is either due to unreliable technology systems or managers do not know how to operate them.<sup>12</sup> Their recommendation is that individuals, teams and leadership must be conversant with not just what tools are available, but when to use which tool to achieve maximum impact. Sometimes the need to save time and efficiency can lead to miscommunication such as only using email to share information or gather updates on performance. For mentors/managers that dislike frequent communication and save everything for the weekly conference call or web meeting, they, according to the authors, find themselves overwhelmed and provide too little vital information. If the technology is used to communicate information but also to engage the apprentice and “create context and human connections,”<sup>13</sup> this will lead to better understanding, keep the apprentice updated on organizational policies and practices, and will ultimately lead to better productivity for the apprentice.
- Focused meetings with a planned agenda can help keep commitment and engagement. An email from the mentee covering their thoughts for the session (e.g., short- and long-term goals, concerns, etc.) beforehand can also help

<sup>11</sup> Sherr, I (2020, April 1). Microsoft Warns Hospitals about VPN Cyberattacks during Coronavirus. *Cnet*. Retrieved from: [cnet.com/news/microsoft-warns-hospitals-about-vpn-cyberattacks-during-coronavirus](https://www.cnet.com/news/microsoft-warns-hospitals-about-vpn-cyberattacks-during-coronavirus/).

<sup>12</sup> 3 Reasons Virtual Teams Fail and How to See It Coming.

<sup>13</sup> *Id.*

prepare both the mentor and the mentee and allow them to have a more thoughtful discussion.<sup>14</sup>

- The iQ4 Corporation, offers a virtual apprenticeship program that includes apprenticeship tools, training and a mentorship program in cybersecurity data science, cloud and SaaS programs, blockchain and healthcare. The virtual apprenticeship connects universities with private sector organizations that sponsor, train, and provide thousands of cybersecurity apprenticeships. This organization was formed in collaboration with NICE Cybersecurity Workforce Framework and with the Department of Commerce and the Department of Homeland Security. Currently now due to the COVID-19 pandemic, the program is being offered free of charge until September 30, 2020.<sup>15</sup>

### Explore the Possibilities

The Cybersecurity Youth Apprenticeship Initiative (CYAI) can offer free technical assistance to support your exploration of registered apprenticeships. Whether you are an employer, school, or workforce organization, we are ready to help by:

- Facilitating partnership discussions;
- Analyzing labor markets to find strong matches between the demand for cybersecurity skills and the supply of students on that career path;
- Technical assistance on designing registered apprenticeship programs; and
- Identifying financial incentives from states and from CYAI for enrolling students in registered apprenticeships.

Get started by visiting [cyai2024.org](http://cyai2024.org). Use the site to contact us and request an initial consultation.

<sup>14</sup> Reich, B (2019). Mentors-talk: Face to Face vs Remote Mentoring. *Medium*. Retrieved from: [medium.com/productleague-com/mentors-talk-face-to-face-vs-remote-mentoring-97573ff080d7](https://medium.com/productleague-com/mentors-talk-face-to-face-vs-remote-mentoring-97573ff080d7).

<sup>15</sup> PRWeb (March 2020). iQ4 Corp. Offers Schools Free Access to Virtual Apprenticeship Program during COVID-19 Distance Learning. Retrieved from: [prweb.com/pdfdownload/17011564.pdf](https://prweb.com/pdfdownload/17011564.pdf).

## CYAI About CYAI

Cybersecurity  
Youth Apprenticeship Initiative  
CYAI2024.org

CYAI is funded by the U.S. Department of Labor's (DOL) Employment and Training Administration (ETA) Office of Apprenticeship (OA). CYAI promotes sustainable development of cybersecurity apprenticeship programs for youth aged 16–21 and is administered by ICF. The goal of the initiative is to create at least 900 new cybersecurity apprenticeships for youth by 2024.



## About ICF

ICF (NASDAQ:ICFI) is a global consulting services company with over 7,000 full- and part-time employees, but we are not your typical consultants. At ICF, business analysts and policy specialists work together with digital strategists, data scientists, workforce professionals, cybersecurity experts and creatives. We combine unmatched industry expertise with cutting-edge engagement capabilities to help organizations solve their most complex challenges. Since 1969, public and private sector clients have worked with ICF to navigate change and shape the future. Learn more at [www.icf.com](http://www.icf.com).

## Authors



Mark Ouellette is the Director for Workforce Innovations and Commercial Markets at ICF and has more than 20 years of experience designing, improving, and evaluating the effectiveness of workforce training programs. For the past 11 years, Mr. Ouellette has designed and implemented the California Advanced Lighting Controls Training Program (CALCTP), which has trained more than 8,500 electricians and 950 electrical contractors in advanced lighting. Mr. Ouellette developed a Southern California Regional Apprenticeship Strategy and supporting the expansion of registered apprenticeship programs for youth. Mr. Ouellette is leading up an initiative to expand the number of young people enrolled in a cybersecurity registered apprenticeship program.



Mr. Miller is a Senior Director with ICF with 20 years of experience in community and economic development. Mr. Miller's work focuses in developing partnerships among social service agencies at all levels of government, educational institutions, nonprofit service providers, and businesses that strengthen communities and create opportunities for individuals.



Dr. Hendricks has over 20 years of experience as a professional evaluator. As a Senior Consultant, Foundation Fellow in ICF's Justice, Workforce and Community Development (JWCD) Workforce Innovations & Poverty Solutions (WIPS) portfolio, she brings a strong track record of working with agencies, funders and nonprofits to lead, design, and implement multifaceted evaluation activities that support decision making, direction setting, and organizational level learning activities.