Biennial Review 2020:
CIRI Overview

David Nicol, PhD
Director
UIUC
10-11 June 2020
Three Missions:

• Innovative, outputs-oriented research
• Sustainable technology transition
• Scalable education & workforce development
Two-Year Objective:

A vibrant, growing, self-supporting hub of innovative research and solution development –

• Applying academic rigor to urgent challenges in CI resilience
• Delivering timely, practical, impactful solutions
  • Scalable
  • Sustainable
• Enhancing the knowledge and skills of the homeland security workforce
• Contributing to the safety and security of our Nation
Approach:

• Leverage lessons learned and networks formed
• Expand outreach to industry and other government
• Mind the gaps
• Constrain the problem
• Apply the best minds
• Maintain urgency
• Manage effectively and efficiently
• Fail fast and move on
Potential Theme Areas:

• Critical Infrastructure Interdependencies
• Industrial Control Systems Security
• Mobile, IoT, 5G, Emergency Comms
• Advanced Data Analytics
• Business, Finance, Insurance
Background, Context, Drivers:

- Broad mandate over a complex and interdependent domain
- Private sector focus
- Support multiple DHS components, .gov domain, other government
- Multi-disciplinary research with focus on impactful outputs
- Large number of *active* projects (9 research + 8 tech trans/WFD)
- Mix of academic and private sector partners
- Need for tech transition and workforce development
Target Impacts:

• Greater awareness of the need for secure and resilient critical infrastructure
• Greater understanding of how to make it secure and resilient
• Develop and transition to use/market impactful solutions
• Stimulate increased investment in resilience
  • Stimulate and leverage market forces
  • Craft sound, complementary policies and standards
• Help fill a growing pipeline of professionals entering the homeland security enterprise
Sample Previous Projects:

• Resilience Governance - NEU
• Insurance and Resilience (casualty & cyber) — Wharton, UIUC
• Flood Risk — Washington
• Regulatory Options for Managing Systemic Risks — Stanford/Cornell
• Quantifying Interdependencies of the Logical/Physical Internet Topologies — UCSD
• Community Resilience & Disaster Costs — PRI
• Resilience in Manufacturing through Digital Threading — UIUC
# Current Projects (Research):

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>PI</th>
<th>INSTITUTION</th>
<th>CUSTOMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empirical Security Analysis of the Wireless Emergency Alerts System</td>
<td>Ha</td>
<td>Colorado University Border</td>
<td>CISA; Multiple private sector and government</td>
</tr>
<tr>
<td>Characterizing End-to-End Risk of the Telecommunications Supply Chain</td>
<td>Tien</td>
<td>Georgia Tech</td>
<td>CISA; Multiple private sector and government</td>
</tr>
<tr>
<td>Protecting the Nation’s 911 System from Cyber Threats Present and Future</td>
<td>Balasubramanian</td>
<td>Karthik Consulting</td>
<td>CISA; Multiple private sector and government</td>
</tr>
<tr>
<td>EMP Risk Assessment and Mitigation Prioritization</td>
<td>Salo</td>
<td>Heartland</td>
<td>CISA; Multiple private sector and government</td>
</tr>
<tr>
<td>Hybrid Quantum-Classical Reinforcement Learning in Controlled Quantum Networks</td>
<td>Siopsis</td>
<td>University of Tennessee</td>
<td>CISA, USCG, FEMA, owners and operators of maritime ports</td>
</tr>
<tr>
<td>Reliable Extraction of Emergency Response Networks from Text Data and Benchmarking with National Emergency Response Guidelines</td>
<td>Diesner</td>
<td>UIUC</td>
<td>FEMA</td>
</tr>
<tr>
<td>Leveraging AI for Disaster Response: scalable and effective algorithms for strategic planning</td>
<td>Dilkina</td>
<td>University of Southern California</td>
<td>FEMA; State, Local, Tribal government</td>
</tr>
<tr>
<td>Multi-Layer Cyber-Physical Supply Chain risk analysis for Improving the Resilience of IOT-Enabled Critical Infrastructures</td>
<td>Memon</td>
<td>New York University</td>
<td>CISA</td>
</tr>
<tr>
<td>NG911 Interoperability testing Program</td>
<td>Magnussen</td>
<td>Texas A&amp;M University</td>
<td>CISA, FCC, First Responders Group</td>
</tr>
</tbody>
</table>
Current Projects (Tech transition):

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>PI</th>
<th>INSTITUTION</th>
<th>TRANSITION OUTPUT</th>
<th>CUSTOMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Scale Delivery of Cybersecurity Education by Integration of LMS and the Cyber Secure Dashboard</td>
<td>Medina / Whitesell</td>
<td>UIUC</td>
<td>Education delivery platform</td>
<td>Multiple 2-year and 4-year academic institutions</td>
</tr>
<tr>
<td>Supply Chain Cybersecurity Assurance for Critical Infrastructure</td>
<td>Jaskolka</td>
<td>Carleton University</td>
<td>Cybersecurity assessment tool/framework</td>
<td>CISA; Multiple private sector and government</td>
</tr>
<tr>
<td>Towards Community Resilience through Comprehensive Risk Assessment for Business Continuity</td>
<td>Shetty</td>
<td>Old Dominion University</td>
<td>Vulnerability scanner</td>
<td>CISA; Multiple private sector and government</td>
</tr>
<tr>
<td>Measuring Business and Economic Resilience in Disasters</td>
<td>Rose</td>
<td>University of Southern California</td>
<td>Data set; resilience self-assessment tool; economic consequence analysis &amp; resilience tool</td>
<td>CISA; FEMA; NIST; Multiple private sector and government agencies.</td>
</tr>
<tr>
<td>Assessment and Measurement of Port Disruptions</td>
<td>Weaver</td>
<td>UIUC</td>
<td>Best practices guidance for risk analysis and threat planning; software platform for planning, simulation, response</td>
<td>CISA, USCG, FEMA, owners and operators of maritime ports</td>
</tr>
<tr>
<td>Understanding and Improving Cybersecurity of Manufacturers</td>
<td>Sandone / Salo</td>
<td>UIUC/Heartland</td>
<td>Recommendations for improvement of NIST standards; software platform for compliance with DFARS and NIST CSF</td>
<td>CISA; NIST; manufacturing industry</td>
</tr>
<tr>
<td>LEFT: An LTE-Oriented Emulation-Instrumented Fuzzing Test Bed</td>
<td>Yan</td>
<td>Binghamton</td>
<td>Analysis of research and test results; techniques for testing LTE-capable devices; fuzzing test bed</td>
<td>CISA; Mobile communications industry – phones and IoT devices</td>
</tr>
<tr>
<td>Mapping Infrastructure Interdependencies for Improved Emergency Management and Resilience Investment Decisions</td>
<td>Tien</td>
<td>Georgia Tech</td>
<td>New methodology for modeling interdependent infrastructure systems; recommendations for improving planning and risk assessment; software tool to automate system modeling and analysis</td>
<td>CISA; FEMA; Municipalities and their infrastructure suppliers; infrastructure owners and operators</td>
</tr>
</tbody>
</table>
CIRI by the Numbers

- **Partners**
  - Government: 12
  - Academia: 24
  - Industry (federal, state, local, territorial, and tribal): 64

- **Total Research Projects**: 29
- **Total Events**: 44
- **Outreach Event Attendees**: 787
- **Students Engaged**: 327
- **Tech Transition Initiatives**: 10

[Source: ciri.illinois.edu]
Biennial Review 2020: CIRI Management

Randall Sandone, CCISO
Executive Director
UIUC
10-11 June 2020
Objective: Efficient and responsive management of the CIRI enterprise in support of DHS/CIRI mission accomplishment

• Service-oriented, entrepreneurial mindset
• Facilitate collective (DHS + CIRI) focus on vision, mission, outreach, impact
• Maintain project schedules, ensure quality deliverables
• On-time, quality response to DHS needs
• Efficiently and effectively achieve communications objectives
• Ensure timely and efficient transition to practice/market
• Optimize return on budget allocation
• Ensure total compliance with contractual requirements
Executive Director

- Advise and assist Director as needed
- Government liaison
- Day-to-day management of operations
- Oversight of communications initiatives
- Project management oversight
- Customer outreach

All positions permanent & full time.

**EXECUTIVE DIRECTOR**
Randall J Sandone

**PROGRAM MANAGER RESEARCH PROJECTS**
Elaina Buhs

- Maintain project schedules; ensure quality deliverables
- Liaise and coordinate with research teams
- Maintain open and effective comms between CIRI, OUP, and research teams
- Maintain project management data in Zoho
- Maintain HSUP project reporting system
- Support reports generation

**PROGRAM MANAGER EDUCATION & WF DEVELOPMENT**
Andrea Whitesell

- Maximize student engagement; promote homeland security careers
- Develop, coordinate, and manage internship programs and student programs
- Coordinate and manage the administration of MSI research initiatives
- Coordinate with research projects regarding education & workforce dev
- Plan and manage CIRI outreach events
- Support reports generation

**PROGRAM MANAGER TECH TRANSITION**
Jose Medina Cruz

- Timely, effective, transition to practice
- Develop, coordinate, and manage the technology transition plan and program
- Develop, coordinate, and manage tech transition initiatives
- Coordinate and manage tech transition gate reviews
- Support reports generation
Communications
- Develop and manage the CIRI brand and the strategic communications plan
- Develop and manage content for all communications efforts, including the website, brochures, newsletters, social media, video production, and more.
- Represent CIRI on communications committees for DHS OUP and/or other COEs
- Promote CIRI research, education initiatives, and thought leadership to national and international media
- Help plan and promote CIRI events including webinars, conferences, summits, and trade shows, etc.

Operations Support
- Clerical and logistical support of leadership team
- Maintain financial accounting of administrative and research budget
- Generate financial reports as needed
- Pre-award grant negotiation and administration
- Post-award administration and liaison with sub-awardees
Project Management:

Objective: On-time, on-budget performance and quality deliverables

• Team and service-oriented entrepreneurial mindset
• Commitment to CIRI vision and mission
• High-touch, low-demand engagement with research teams
• Sound science, solid progress, customer engagement
• Provide timely, accurate, dispassionate reports and advice to leadership
Performance Metrics:

• Driven by “science, progress, customer” framework

• Science review with COE Director & Principal Investigator, David Nicol
  • Valid hypothesis and sound testing methodology?
  • Necessary and appropriate resources being applied?
  • Issues relating to science or methodology?

• Regular project reviews with Executive Director, PM & DHS PM
  • Milestone/Task/Deliverables/Financial progress review
  • Issues potentially impacting performance

• Customer engagement required from Day 1
  • Engage in research
  • Participate in transition
Project Management:

**PROJECT MANAGEMENT**

1. **CREATE PROJECT PLAN**
   - Milestones
   - Tasks
   - Key Events
   - Deliverables

2. **HOLD REGULAR REVIEW MEETINGS**
   - Live Status Update
   - Progress Assessment
   - Issues & Concerns

3. **FACILITATE PROJECT UPDATES & COLLATERAL MATERIALS**
   - Provide Easy-to-use forms to minimize PM burden

4. **GATE REVIEW**
   - Project reviewed and prioritized before proceeding to the next stage
   - The next stage may involve a new team

**CONTRACT AWARD** → **SOLICITATION**
Stage Gate Review Model
Gate Review:

**Gate Review Process**

1. **Step 1**: Project is assessed against gate review criteria.
   - **Team A**
   - **Redirect/Reassess**
   - **Pass**
   - **Kill**
   - **Project Closed**

2. **Step 2**: Project priority is assessed against other projects.
   - **On Hold**
   - **Pass**
   - **Kill**

3. **Step 3**: Solicitation & Award Next Phase.
   - **Team B**
Financial Management:

Objective: Accurate, timely, efficient management of budget

• Strict adherence to policy and directives
• Accurate and responsive support both pre- and post-award
• Accurate and responsive support to leadership and OUP data requests
• Anticipatory versus reactive mindset
<table>
<thead>
<tr>
<th>Project</th>
<th>FY2015 Budget</th>
<th>FY2016 Budget</th>
<th>FY2017 Budget</th>
<th>FY2018 Budget</th>
<th>FY2019^ Budget</th>
<th>FY15 - FY19 Total Budget</th>
<th>FY20*</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D TBD</td>
<td>$2,453</td>
<td>$2,640</td>
<td>$2,621</td>
<td>$2,600</td>
<td>$2,160</td>
<td>$12,474</td>
<td>$3,000</td>
</tr>
<tr>
<td>Administrative #</td>
<td>$1,004</td>
<td>$1,160</td>
<td>$1,079</td>
<td>$0,900</td>
<td>$1,590</td>
<td>$5,733</td>
<td>$1,100</td>
</tr>
<tr>
<td>Total</td>
<td>$3,457</td>
<td>$3,800</td>
<td>$3,700</td>
<td>$3,500</td>
<td>$3,750</td>
<td>$18,207</td>
<td>$4,100</td>
</tr>
</tbody>
</table>

# Administrative budget includes consultants
^ Projected as of 06/30/2020
*Under development
FY2020 Estimated Budget:

Total Admin: $ 941,884 23%
Total Research: $ 1,847,791 45%
Total Tech Trans/WFD: $ 729,081 18%
Total F&A: $ 581,244 14%

TOTAL¹: $ 4,100,000

¹ - Includes $500K from DOT
Funds Management

• Tight budget scrutiny
• “One & done” if/when appropriate
• Reallocation of funds to new project opportunities
• Requests for re-quote of proposed budgets
• Efficient use of contractors to support specialized and/or temporary needs
• “Bang for the Buck Award” — FY18 (S&T Showcase)
• Pursuit of leveraged funding
Technology Transition: Strategies, Projects, Status

Jose Medina Cruz, JD
Sr. Program Manager
Technology Transition
UIUC
Transition to Practice

Objective: Maximize CIRI impact through timely, efficient, *sustainable* transition of outputs to DHS/HSE
Transition Types

Type 1: Basic Research

- Projects that aim to answer pressing questions that will help advance other research and development projects or will provide information that will inform subsequent research.

Type 2: Knowledge Products

- Projects that generate knowledge products such as policy recommendations, proposed standards, or regulatory guidance.

Type 3: Tools, Technologies, or Services ***

- Projects that will result in the development of tools, technologies, or services that will deliver impact only when and if deployed and used within the homeland security enterprise.
Stage Gate Review Model

Continuous Customer/User Interaction
Checklist and Criteria Model

- Projects are assessed with respect to three technology transition components:
  
  (1) **Technology**: Provides a systematic approach to mature the technology.

  (2) **Market**: Provides insights on transition viability by identifying target end-user customers and competitors that guide the business model and the design of the technology solutions.

  (3) **Business**: Provides insights on a sustainable business structure to allow the technology to thrive in the market.

Features

- This is a **structured and repeatable transition process** to track objective, comparable progress and the stage of transition with the goal of self-sustainability.

- Each stage has a checklist and criteria which needs to be fulfilled to advance to the next stage.

- Based on Gate Review Criteria, the Checklist consists of **requirements that must be fulfilled** to advance.
<table>
<thead>
<tr>
<th>Intellectual Property</th>
<th>Assessment</th>
<th>Protection</th>
<th>Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review the disclosure, analyze the competitiveness based on checklist and scoring system</td>
<td>Due Diligence: Compile inventory of IP assets</td>
<td>Identify opportunities by market research including secondary sources and direct interviews</td>
<td></td>
</tr>
<tr>
<td>Team evaluates potential opportunities based on team composition</td>
<td>File patent and trademark applications via institution’s technology management offices</td>
<td>Identify product-market fit via customer discovery and customer validation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Execute cooperation agreements</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intellectual Property</th>
<th>Form Startup Business</th>
<th>Licensing/Acquisition</th>
<th>Product Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work to assist the founders in planning, creating and finding funding for the startup</td>
<td>Sign agreement</td>
<td>Continue the advancement of technology and develop new product or service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A license agreement: give rights for a technology’s financial and other benefits</td>
<td>Further development, regulatory approvals, sales, and marketing, training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>An option agreement: enable a third party to evaluate the tech before licensing</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intellectual Property</th>
<th>Existing Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work closely to identify mutual interests, goals, plans</td>
<td></td>
</tr>
</tbody>
</table>
Shared Resources
<table>
<thead>
<tr>
<th>PROJECT</th>
<th>PI</th>
<th>PROJECT TYPE</th>
<th>TRANSITION OUTPUT</th>
<th>CUSTOMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Scale Delivery of Cybersecurity Education by Integration of LMS and the Cyber Secure Dashboard</td>
<td>Medina / Whitesell</td>
<td>Type 2 &amp; 3</td>
<td>Education delivery platform</td>
<td>Multiple 2-year and 4-year academic institutions</td>
</tr>
<tr>
<td>Supply Chain Cybersecurity Assurance for Critical Infrastructure</td>
<td>Jaskolka</td>
<td>Type 3</td>
<td>Cybersecurity assessment tool/framework</td>
<td>CISA; Multiple private sector and government</td>
</tr>
<tr>
<td>Towards Community Resilience through Comprehensive Risk Assessment for Business Continuity</td>
<td>Shetty</td>
<td>Type 3</td>
<td>Vulnerability scanner</td>
<td>CISA; Multiple private sector and government agencies</td>
</tr>
<tr>
<td>Measuring Business and Economic Resilience in Disasters</td>
<td>Rose</td>
<td>Type 2 &amp; 3</td>
<td>Data set; resilience self-assessment tool; economic consequence analysis &amp; resilience tool</td>
<td>CISA; FEMA; NIST; Multiple private sector and government agencies</td>
</tr>
<tr>
<td>Assessment and Measurement of Port Disruptions</td>
<td>Weaver</td>
<td>Type 2 &amp; 3</td>
<td>Best practices guidance for risk analysis and threat planning; software platform for planning, simulation, response</td>
<td>CISA, USCG, FEMA, owners and operators of maritime ports</td>
</tr>
<tr>
<td>Understanding and Improving Cybersecurity of Manufacturers</td>
<td>Sandone / Salo</td>
<td>Type 2 &amp; 3</td>
<td>Recommendations for improvement of NIST standards; software platform for compliance with DFARS and NIST CSF</td>
<td>Type 2: CISA; NIST; Type 3: manufacturing industry</td>
</tr>
<tr>
<td>LEFT: An LTE-Oriented Emulation-Instrumented Fuzzing Test Bed</td>
<td>Yan</td>
<td>Type 2 &amp; 3</td>
<td>Analysis of research and test results; techniques for testing LTE-capable devices; fuzzing test bed</td>
<td>CISA; Mobile communications industry – phones and IoT devices</td>
</tr>
<tr>
<td>Mapping Infrastructure Interdependencies for Improved Emergency Management and Resilience Investment Decisions</td>
<td>Tien</td>
<td>Type 1, 2, &amp; 3</td>
<td>New methodology for modeling interdependent infrastructure systems; recommendations for improving planning and risk assessment; software tool to automate system modeling and analysis</td>
<td>Type 1: CISA; Type 2: CISA; FEMA; Municipalities and their infrastructure suppliers; Type 3: infrastructure owners and operators</td>
</tr>
</tbody>
</table>
## Research Projects

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>PI</th>
<th>PROJECT TYPE</th>
<th>TRANSITION OUTPUT</th>
<th>CUSTOMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empirical Security Analysis of the Wireless Emergency Alerts System</td>
<td>Ha</td>
<td>Type 2 &amp; 3</td>
<td>Best practice guidance for risk analysis</td>
<td>CISA; Multiple private sector and government</td>
</tr>
<tr>
<td>Characterizing End-to-End Risk of the Telecommunications Supply Chain</td>
<td>Tien</td>
<td>Type 2 &amp; 3</td>
<td>Characterize vulnerabilities in terms of physical assets or technologies, service-based operational procedures, and disruptions as well as corresponding impacts levels of risk. Characterize the changes in risk to telecommunication infrastructure with the transition to 5G.</td>
<td>CISA; Multiple private sector and government</td>
</tr>
<tr>
<td>Protecting the Nation’s 911 System from Cyber Threats Present and Future</td>
<td>Balasubramanian</td>
<td>Type 2</td>
<td>Recommendations for PSAP’s delivered as NIST Cybersecurity Framework Profile for PSAP’s including final assessment summary and recommendations for risk management.</td>
<td>CISA; Multiple private sector and government agencies.</td>
</tr>
<tr>
<td>EMP Risk Assessment and Mitigation Prioritization</td>
<td>Salo</td>
<td>Type 2 &amp; 3</td>
<td>A report that assess electrical and systems design approaches intended to mitigate EMP effects on mobile cell sites.</td>
<td>CISA; Multiple private sector and government agencies.</td>
</tr>
<tr>
<td>Hybrid Quantum-Classical Reinforcement Learning in Controlled Quantum Networks</td>
<td>Siopsis</td>
<td>Type 2</td>
<td>Best practices guidance for risk analysis and threat planning; software platform for planning, simulation, response</td>
<td>CISA, USCG, FEMA, owners and operators of maritime ports</td>
</tr>
</tbody>
</table>
## Research Projects (cont’d)

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>PI</th>
<th>PROJECT TYPE</th>
<th>TRANSITION OUTPUT</th>
<th>CUSTOMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliable Extraction of Emergency Response Networks from Text Data and</td>
<td>Diesner</td>
<td>Type 2 &amp; 3</td>
<td>Produce a document that provides insights into the current collaboration structures that exist between agencies at various levels of the government. In addition we will map information flows and resource exchanges to further support effective responses.</td>
<td>FEMA;</td>
</tr>
<tr>
<td>Benchmarking with National Emergency Response Guidelines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leveraging AI for Disaster Response: scalable and effective algorithms</td>
<td>Dilkina</td>
<td>Type 2 &amp; 3</td>
<td>A tool and methods for more effective and efficient use of finite assets (funds, equipment). The project will provide decision support tools for recommendations and policies for long-term infrastructure investments and the ability to systematically study trade offs between performance metrics.</td>
<td>FEMA; State, Local, Tribal government</td>
</tr>
<tr>
<td>for strategic planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-Layer Cyber-Physical Supply Chain risk analysis for Improving the</td>
<td>Memon</td>
<td>Type 2 &amp; 3</td>
<td>Provide a risk analysis system backed by decision analytic tools that are scalable and generic for applicability to a wide range of IoT-Enabled Infrastructures</td>
<td>CISA</td>
</tr>
<tr>
<td>Resilience of IOT-Enabled Critical Infrastructures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NG911 Interoperability testing Program</td>
<td>Magnussen</td>
<td>Type 2 &amp; 3</td>
<td>Identify technical means for conducting interoperability testing and identify a sustainable business model for inter-operability testing.</td>
<td>CISA, FCC, First Responders Group</td>
</tr>
</tbody>
</table>
Workforce Development and Student Engagement

Andrea Whitesell, Sr. Program Manager
Education & Workforce Development
UIUC
Workforce Development and Student Engagement Objectives

• Engage students in hands-on learning experiences
• Expose students to national cybersecurity standards (CSF, NICE, DoD)
• Develop and deploy tools to address the national cybersecurity skills gap
• Develop and deploy tools to match properly skilled personnel to appropriate cybersecurity tasks
CIRI Workforce Development Student Engagement

- Host DHS Summer Research Teams for MSI
  - **5 teams** over 4 summers (2017-2020)
  - All projects received follow-on funding

- CIRI Summer Internship Program
  - Hosted Students from CIRI SLA partner schools (summer 2018)

- CyberPatriots Camp
  - Middle school students
  - Gave talk on cybersecurity career opportunities
CIRI Workforce Development Student Engagement (cont.)

- CIRI Internship and SRT: 10-week program
- DHS/CIRI provides lodging, stipend and meal plan
- University of Illinois faculty member advises research project
- Program includes weekly educational seminars on research ethics, scientific writing, presenting, creating research posters, and others
- Program concludes with a webinar presentation and a poster session for local researchers
- 2019 teams attended the DHS COE Summit and participated in the Grand Challenge, poster session, and government human resource roundtable
- 2020 SRT virtual – working with advisor David Nicol
CIRI Workforce Development Student Engagement (cont.)

• Illinois Business Consulting (IBC) largest professionally-managed, student-run university consulting organization in the country; at Gies College of Business at UIUC
• FACES is a Registered Student Organization that prepares students to become consultants
• IBC/FACES provide students with real-world project opportunities while helping clients (CIRI) solve business challenges
• Consulting CIRI on product market analysis (10 CIRI Projects)
• CIRI has hired a small team of student interns to help with deep dives on business analysis
• 77 students engaged over four years
National-scale Cybersecurity Workforce Initiatives

• Training the people (students, employees, upskilling)
  • Leveraging DHS-funded capabilities:
    • Cyber Secure Dashboard – cybersecurity standards to improve security and resilience
    • Port Disruptions Tool – effective mitigation strategies to reduce impact of disruptions
    • Business Resilience Calculator – cost-effective resilience tactics to reduce losses

• Certification Programs:
  • Certified Cybersecurity Risk Management Professional (MCI)
  • Others pending
National-scale Cybersecurity Workforce Initiatives (cont.)

• Matching people to tasks
  • CyberTalent Bridge (2wav)
    • Determine mapping between cybersecurity standards (NIST, DoD) and NICE Framework
    • Map cybersecurity tasks to qualified personnel
    • Identify skills/training gaps
    • Assist HR managers in filling these gaps
Process Powered by People -> Maturity

Cyber Security Talent Management
- Education
- Experience
- Certifications

update

map

Cyber Secure Dashboard
- Process
- Requirements
- Controls

map

NICE
- KSAs
- Tasks

assign

Roles & Responsibilities
- Training

map

Standards
- Training
- Delivery
Other WFD Initiatives

• Current
  • Mt. Hood Community College/SBDC

• Proposed
  • Proposal submitted to NSA
  • Lead: Florida International University
  • Develop K-12 cybersecurity curricula and pipeline to NSA/DHS CAE programs
CIRI Communications

Kim Gudeman, Communications Director
UIUC
What are the overall communications objectives?

- Generate political and funding support on the Hill through targeted messaging
- Establish CIRI as thought leader in critical infrastructure and cybersecurity to raise CIRI profile
- Promote CIRI’s initiatives and tools/technology to broader homeland security enterprise
- Educate general public about importance of investment in more secure and resilient critical infrastructure
Target Audience

DHS and its components

The Hill, industry, and general public
What strategies and tactics will make it happen?

- Thought-leadership through PR
- Event marketing
- Original content on strategic mission areas
What progress have we made?

MARKETING MATERIALS

INFOGRAPHICS

VIDEOS
What progress have we made? (cont’d.)
What are our plans for the next 12-18 months?

- Strategic event marketing
- Webinars (continued)
- Face-to-face briefings
- Marketing collateral
- Develop a PR strategy to promote thought leadership
- Mass media strategy
What are our plans for the next 12-18 months? (cont’d.)

- Trade publication strategy
- Grow social media engagement
- Mobile communications
- HADR
- Interdependencies
- Supply chain
- Multimedia storytelling
Backup Slides
Center-Level External Stakeholder Board:

- David Nicol, PhD – CIRI Director
- Randall Sandone – CIRI Executive Director
- Georgia Harrigan, CIRI Program Manager, DHS OUP (ex officio)
- Chris Doyle – Chairman
- Faye Francy – Director, Auto-ISAC
- Elisabeth Case – Managing Director, Cyber Advisory Practice, Marsh
External Stakeholder Board (cont.)

• Wayne “Jake” Carson, USTRANSCOM, Mission Assurance
• Sue Armstrong, Associate Director, DHS CISA ISD
• Anthony F. Beverina, Chief Strategy Officer, Socially Determined, Inc.
• Andrew Loulousis, Senior Director, TechNexus
• Dr. Robert S. Spalding III, Brig Gen, USAF (R), Senior Fellow, The Hudson Institute
• Dr. David Winwood, Interim Executive Director, Louisiana Business & Technology Center and LSU Innovation Park, Louisiana State University