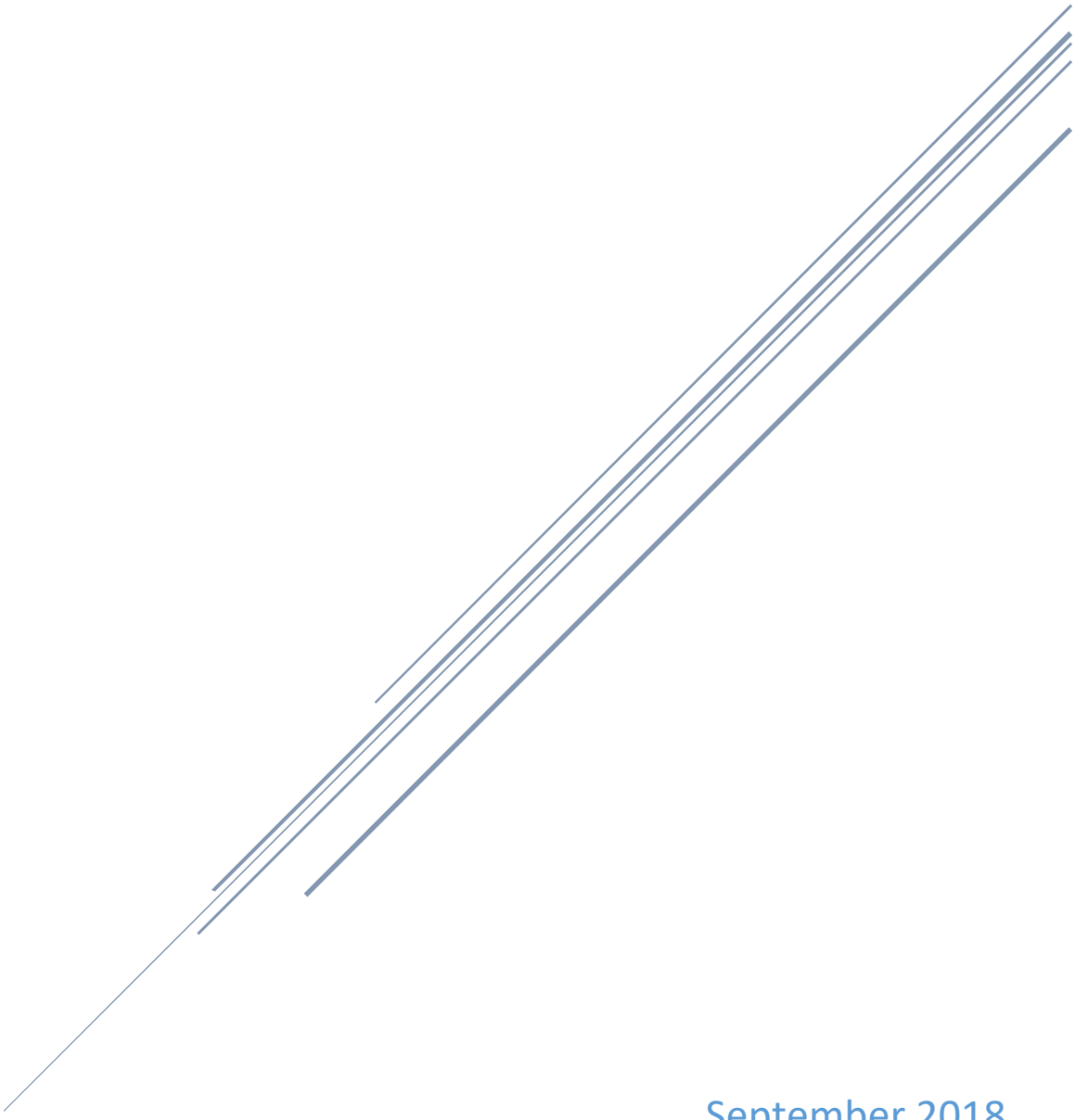
ECONOMIC DEVELOPMENT COMMITTEE STRATEGIC PLAN

Chair: Secretary Jim Schellinger | Co-Chair: Ron Pelletier



September 2018

Indiana Executive Council on Cybersecurity

Economic Development Committee Plan

Contents

Committee Members

Committee Members

Name	Organization	Title	Committee/Workgroup Positon	IECC Membership Type
Jim Schellinger	Indiana Economic Development Corporation	Secretary	Chair	Voting
Ron Pelletier	Pondurance	Founding Partner	Co-Chair	Voting
David Roberts	Indiana Economic Development Corporation	Chief Innovation Officer	Chair Proxy	Voting Proxy
Dennis Porter	Pondurance	Director of Operations & Administration	Co-Chair Proxy	Advisory
Jason Ortiz	Pondurance	Senior Software Engineer	Full Time	Advisory
Mark Wasky	Indiana Economic Development Corporation	VP & Counsel, Government & Community Affairs	Full Time	Advisory
Jamie Lee	Wabash National Corporation	CIO, VP of IT	Full Time	Advisory
Teresa Lubbers	Indiana Commission for Higher Education	Commissioner	Full Time	Voting
Doug Rapp	Cyber Leadership Alliance	President	Full Time	Advisory
Leon Ravenna	KAR Auction Services	CISO	Full Time	Advisory
Geanie Umberger	Purdue University	Associate Dean for Engagement	Full Time	Advisory

Introduction

Introduction

With the signing of Executive Order 17-11 by Governor Eric J. Holcomb, the Indiana Executive Council on Cybersecurity (IECC) and its mission was continued. With the ever-growing threat of cyberattacks, the IECC has been tasked with developing and maintaining a strategic framework to establish goals, plans, and best practices for cybersecurity to protect Indiana's critical infrastructure. The IECC is comprised of twenty committees and working groups who worked together to develop a comprehensive strategic plan and implementation plans. This implementation plan is one of the twenty specific plans that make up the complete 2018 Indiana Cybersecurity Strategic Plan.

Executive Summary

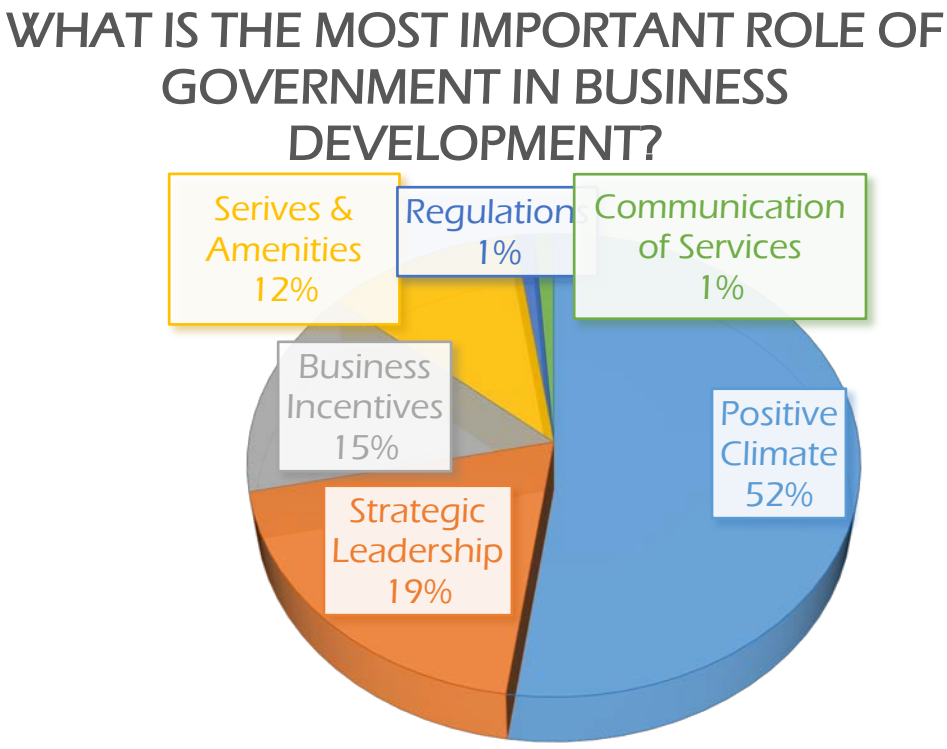
Executive Summary

- **Research Conducted**
  - The Economic Development Working Group referred to several resources related to the economic impact and projections of cybersecurity employment and corporate growth projections, including a 2017 internal report commissioned by the Indiana Economic Development Corporation (IEDC), comparisons with other state's indicated initiatives (e.g., GA, MI, MD, KY), employment data reported by US Department of Labor, Office of Economic Adjustment, and Emsi Occupation Snapshot Report for Q4 2017 (central Indiana).
  - The internal 2017 IEDC report is the result of a year-long investigation into the State's existing assets, needs of the private and public sector, opportunities for talent and commercial growth, and "threats" related to other states' strategic initiatives in the economic development of cybersecurity in their respective states.

- **Research Findings**
  - Our review of the economic development strengths, weaknesses, opportunities and threats (SWOT) of cybersecurity led the group to the following conclusions:
    - Cybersecurity should not be thought of as a discrete sector. Rather, all companies must have a cybersecurity awareness and plan in order to win and, in some cases, to even compete for business opportunities.
    - Cybersecurity is the fastest growing area within the technology sector. The global cybersecurity market has grown roughly 35x over 13 years to $120 billion in 2017.
    - Industry experts predict that growth will continue 8-15% each year for the next five years, meaning global spending on cybersecurity products will be >$1 trillion in the same period.
    - There is no standard definition of "cybersecurity," so collecting and tracking data for employment and economic development can be very challenging.
    - Indiana's largest assets are Academia and Innovation & Entrepreneurship (per IEDC report found in supporting documentation section).
    - Indiana's largest challenges are Workforce and Awareness / Communications (per IEDC report).
    - 267 discrete companies in the Indianapolis-Carmel-Anderson area competed to hire Cyber Analysts in the last year.
  - These conclusions led the working group to establish a preliminary declaration of its group ethos and mission that reads as follows**:**
    - Indiana's vibrant economy is based on a secure, stable environment. Today, in addition to physical security and fiscal stability, individuals and companies must be able to rely on cybersecurity to grow, invest, and prosper.
  - Economic development is advanced by:
    - Attracting and growing companies in all sectors by demonstrating Indiana's technical infrastructure readiness, backed by its commitment to safeguard that infrastructure;
    - Encouraging collaboration amongst companies and institutions on information protection strategies; and

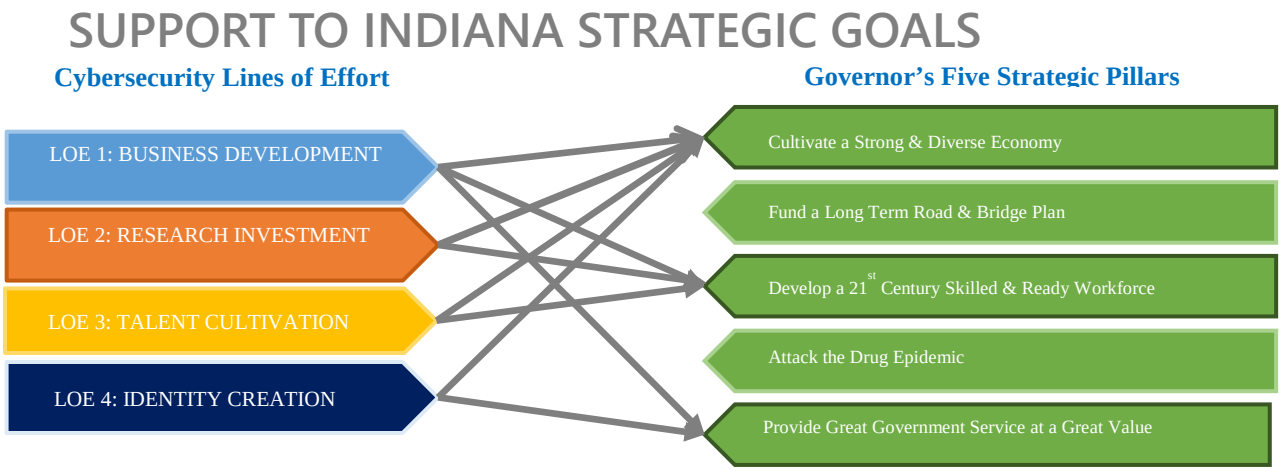
        - Considering and proposing policy recommendations to (a) support the attraction and growth and (b) promote further growth of existing cybersecurity companies.
    - Economic success is defined through both qualitative and quantitative metrics that focus on:
        - New business starts and attractions
        - Support to new start-ups
        - Retention of existing businesses
        - Number of new cybersecurity jobs created
        - Number of non-cyber jobs created to support new cyber business
        - Average salary of jobs created
        - New employee demographics (workforce diversity, education levels, etc.)
        - Retention of cybersecurity professionals who graduate from one of the State's universities or colleges, who accept Indiana-based cyber employment

- **Additional Findings**
    - Among several data, one important finding during the working group's research showed that Hoosier's believe the most important role of government in cybersecurity business development is positive economic climate, strategic leadership, and business incentives:



- **Committee Deliverables**
  - Incentive Program
  - Implementation Plan for Cybersecurity – Marketing
  - Cybersecurity SIoT Innovation District

- **Additional Notes / Way Ahead:**
  - The Economic Development working group will consider the following strategy and make recommendations around at least four discrete lines of effort that align to the Governor's Five Strategic Pillars:



- **References**

  - IEDC Cyber Initiative 2017
  - Ross, Alec. "Want job security? Try online security." Wired, April 25, 2016.
  - Morgan, Steve. Cybersecurity Market Report, Q1 2017. http://cybersecurityventures.com/cybersecurity-market-report/
  - Canales, Christian, R. Contu, S. Despande, E. Kim, L. Pingree. Forecast Analysis: Information Security, Worldwide, 2Q15 Update, Gartner, September 08, 2015.
  - Turnaround and transformation in cybersecurity: Key findings from the Global State of Information Security® Survey 2016. PwC, www.pwc.com/gsiss.
  - Morgan, Steve. Cybersecurity Market Report, Q1 2017. http://cybersecurityventures.com/cybersecurity-market-report/
  - Emsi Occupational Snapshot Report, Q4 2017. www.economicmodeling.com
  - Cyberpoint Technology & Innovation Center proposal to City of Baltimore
  - "Uncharted: New Partners Team up as Georgia Stakes its Claim on Cyberleadership," Adam Stone, Government Technology, October/November 2017.
  - "Cyber Threat: Indiana's Call to Action," Anita Nerses (Raytheon), Inside Indiana Business, August 9, 2017.

Research

Research

1. **What has your area done in the last five years to educate, train, and prepare for cybersecurity?**
    a. Local nonprofits have supported students with programs
        - Techpoint (XTERN, Tech Fellowship)
        - Nextech (K12 CS support)
    b. Local companies working with Apprentice University for internships
    c. Purdue Polytechnic High School formation
    d. Additional university accreditations and degree options in computer science
    e. ISSA and ISACA chapters remain active as well as Infragard
    f. Gov. Holcomb announces CS K12 requirements as part of Next Level agenda
    g. IN-ISAC employs and trains Purdue students to monitor the State's network

2. **What (or who) are the most significant cyber vulnerabilities in your area?**
    a. Small and Medium sized businesses
    b. Small local government entities (schools included)
    c. Insufficient infrastructure
    d. Insufficient workforce

3. **What is your area's greatest cybersecurity need and/or gap?**
    a. Education / Awareness of threat, impact, and opportunity
    b. Workforce development/retention

4. **What federal, state, or local cyber regulations is your area beholden to currently?**
    a. Defense Federal Acquisition Regulation Supplement (DFARS) compliance
    b. GDPR – European Union's General Data Protection Regulation
    c. National Institute of Standards and Technology (NIST)
    d. Health Insurance Portability and Accountability Act (HIPAA)

5. **What case studies and or programs are out there that this Council can learn from as we proceed with the Planning Phase?**
    a. Maryland / Baltimore and local cooperation with National Security Agency (NSA)
    b. Michigan Economic Development Corporation
    c. Georgia Cyber Innovation and Training Center
    d. Rhode Island Corporate Cybersecurity Initiative
    e. CyberCalifornia

6. **What research is out there to validate your group's preliminary deliverables? This could be surveys, whitepapers, articles, books, etc. Please collect and document.**
    a. IEDC Cyber Initiative 2017
    b. Cyberpoint Technology & Innovation Center proposal to City of Baltimore
    c. "Uncharted: New Partners Team up as Georgia Stakes its Claim on Cyberleadership," Adam Stone, Government Technology, October/November 2017.
    d. "Cyber Threat: Indiana's Call to Action," Anita Nerses (Raytheon), Inside Indiana Business, August 9, 2017.
    e. Kentucky State Research

7. **What are other people in your sector in other states doing to educate, train, prepare, etc. in cybersecurity?**
    a. Public Private Partnership (P3) Investment in cybersecurity incubators and accelerators

8. **What does success look like for your area in one year, three years, and five years?**

	Year 1	Year 3	Year 5
New businesses starts and attractions	1	5	10
Support to new start-ups	P3 formed or identified	Innovation Center established	
Number of new cybersecurity jobs created	10	75	250
Average salary of jobs created	$90,000	$100,000	$110,000
Minority & Female Participation	>5%	>10%	>25%
Retention of cybersecurity professionals who graduate from one of the State's universities or colleges, who accept Indiana-based cyber employment	50	150	250

9. **What is the education, public awareness, and training needed to increase the State's and your area's cybersecurity?**
    a. Need to define exactly what State wants to be in cyber (e.g., security of smart mobility, energy grid, defense, manufacturing, agtech, fintech, insurance tech, bio/health) to focus growth and allocation of resources.
    b. Public Service Announcements (PSA) for awareness
    c. Educate educators
    d. Cyber clubs K12 & track talent
    e. Identify current assets and capabilities better (e.g., INFRAGARD, Henry St. DHS)
    f. Publicize this Council and the effort
    g. Utilize and promote the Information Sharing and Analysis Center (ISAC) as a tool

10. What is the total workforce in your area in Indiana? How much of that workforce is cybersecurity related? How much of that cybersecurity-related workforce is not met?

a. Indiana-based cyber-focus companies
   - Cimtrak (software)
   - Pondurance (services)
   - Rook Security (software and services)
   - RADcube (consulting and implementation)

b. Cyber-focused companies with office in Indiana
   - Optiv (reseller and services)
   - Proofpoint (software)
   - Mako Group
   - Rofori

c. Companies that do cyber but not as the primary focus:
   - EY
   - PwC
   - KSM Consulting
   - Crowe
   - Raytheon
   - Vespa Group
   - Rolls Royce
   - Booz Allen Hamilton

d. Cybersecurity workforce – Lacks definition

11. What do we need to do to attract cyber companies to Indiana?

a. Recommended Policy and State government considerations:
   - What marketing or branding can be used to coalesce messaging? Digital Crossroads or Cyber Crossroads?
   - Can IN.GOV website note "Tech" or "Cyber" in tandem with Business and Agriculture
   - What would be the impact of eliminating or narrowing non-compete agreements

b. Recommended infrastructure investments:
   - Cybersecurity tech park / innovation center, which would include:
     - Sensitive Compartmented Information Facility (SCIF)
     - Co-work area
     - Accelerator aspect
     - Cyber-range
     - K-12 programming
     - Expanded 5G wireless
     - High-speed fiber
     - Small Cells
     - Resilient Grid (strategic location / control of battery and gen-sets for critical infrastructure)

c. Recommended incentives for consideration:
    - Tax incentives for companies that move into the state that can demonstrate compliance with NIST standards (theory: secure companies present less burden and risk to the public);
    - Tax incentives for purchasing products and services from state-based companies;
    - Must be Hoosier businesses to bid on state and local government cybersecurity products and service RFQs so long as products and service offerings are substantially similar to other commercially available options;
    - Tax deduction for companies that make or have made investments in their digital security structure
    - Subsidize cost of Small and Medium Business (SMB) use of IN-ISAC.
    - Cybersecurity Investment Incentive Tax Credit
        - "A refundable tax credit is available for a minimum investment of $25,000 in a qualified Maryland Cybersecurity Company (QMCC). The credit is claimed by the QMCC. The QMCC may be allowed a tax credit of up to 33% of an eligible investment, up to $250,000."
        - Note: Indiana's Venture Capital Investment Tax Credit (VCI) is 20% up to $1,000,000

12. What are your communication protocols in a cyber emergency?

a. N/A

13. What best practices should be used across the sectors in Indiana? Please collect and document.

a. Use NIST standards for definitions
b. Increase awareness and messaging of threat and opportunity

Deliverable: Incentive Program

Deliverable: Incentive Program

General Information

1. **What is the deliverable?**
    a. An incentive program to help Indiana businesses meet cybersecurity standards and to promote growth in the cyber industry in Indiana.
    b. Goals:
        i. Incentivize Indiana companies to make cybersecurity a priority
        ii. Reward the use of Indiana based vendors when improving cybersecurity posture
        iii. Promote attraction of businesses to the State by marketing Indiana companies for implementing these precautions
        iv. Advance Indiana as a thought-leader
        v. Increase readiness / resilience to cyberattacks at corporate and government levels

2. **What is the status of this deliverable?**
    a. In-progress 50%

3. **Which of the following IECC goals does this deliverable meet? Check ONE that most closely aligns. See Executive Order 17-11 for further context.**
    ☐ Establish an effective governing structure and strategic direction.
    ☐ Formalize strategic cybersecurity partnerships across the public and private sectors.
    ☒ Strengthen best practices to protect information technology infrastructure.
    ☐ Build and maintain robust statewide cyber-incident response capabilities.
    ☐ Establish processes, technology, and facilities to improve cybersecurity statewide.
    ☐ Leverage business and economic opportunities related to information, critical infrastructure, and network security.
    ☐ Ensure a robust workforce and talent pipeline in fields involving cybersecurity.

4. **Which of the following categories most closely aligns with this deliverable (check ONE)?**
    ☐ Research – Surveys, Datasets, Whitepapers, etc.
    ☐ Informational Product – Definitions, Glossary, Guidelines, Inventory, Best Practices, etc.
    ☒ Operational Product – Programs, Processes, etc. (generally can be produced within the group or with current resources)
    ☐ Operational Proposal – Programs, Processes, etc. (generally requires additional resources)
    ☐ Templates/Toolkits – Actionable Resource Kits, Turnkey Templates
    ☐ Policy Recommendation – Recommended Changes to Law

Objective Breakout of the Deliverable

5. **What is the resulting action or modified behavior of this deliverable?**
    a. It is the goal of this working group initiative to create economic incentives directly correlated to the improvement of cybersecurity measures by Indiana companies. These incentives will be composed of the following two areas of impact:
        i. A cybersecurity readiness framework will be selected which will serve as a measure to ensure Indiana businesses achieve and maintain a fundamental level of cybersecurity preparedness. Our recommendation is that Indiana businesses receive an annual tax credit for each year they are able to show that they meet or exceed the requirements of this program, perhaps as validated by a third party certification. The ongoing nature of the incentive is designed to encourage Indiana businesses to continuously monitor and adjust their cybersecurity programs as well as raise awareness of cybersecurity needs and preventative measures.
        ii. To strengthen the growth of the Indiana cybersecurity service provider businesses, it is the recommendation of this working group that additional incentives be entertained to offset the costs associated with performing the annual analysis and remediation activities. If an Indiana company selects an Indiana cybersecurity services provider to help them perform the necessary cyber preparedness certification activities, they should receive either a tax credit or stipend to offset the cost of these efforts. This will encourage Indiana businesses to hire Indiana businesses and lead to greater business and partnership growth opportunities.

6. **What metric or measurement will be used to define success?**
    a. Success will be defined by an increasing number of companies who are able to certify their cybersecurity preparedness. The program will need to track the initial number of companies who are compliant and the percentage of these compared to the number of all companies in the state. These numbers will need to be kept on a year-over-year basis and account for new companies that begin in, or move to, Indiana as well as those which close their operations.

7. **What year will the deliverable be completed?**
    a. 2019

8. **Who or what entities will benefit from the deliverable?**
    a. Any business in Indiana that maintains some digital presence and thus is in need of best cybersecurity practices could benefit from this plan from two aspects. First, they would be eligible to receive a tax incentive and secondly, they would have a more secure cyber posture. In addition, cybersecurity professionals would benefit as there would be an increase in job opportunities as more businesses join the program. Even though the tax incentives themselves target businesses that would need cybersecurity, the entire business ecosystem of Indiana would benefit from a more secure operating environment as well as increased confidence in cybersecurity by existing and potential Indiana businesses.

9. **Which state or federal resources or programs overlap with this deliverable?**
    a. Existing tax incentives for economic development. Existing tax credits that are available to businesses.

Additional Questions

10. **What other committees and/or working groups will your team be working with to complete or plan this deliverable?**
    a. Possibly Policy

11. **Which state agencies, federal agencies, associations, private organizations, non-profit organizations, etc. will need to be involved to complete or plan this deliverable?**
    a. Working with the IEDC and Department of Revenue to build upon existing incentive plans.

12. **Who should be main lead of this deliverable?**
    a. David Roberts

13. **What are the expected challenges to completing this deliverable?**
    a. Identifying valuations of various tax credits, calculating the direct return on investment for the state of these incentives and marketing the existence of the incentives as a way to attract new businesses and retain existing businesses.

Implementation Plan

14. **Is this a one-time deliverable or one that will require sustainability?**
    a. One-time deliverable

Tactic Timeline

Tactic	Owner	% Complete	Deadline	Notes
Generate List of Possible Incentives	ED committee	100%	4/17/2018	See Appendix A
Research other economic development policies passed in other states regarding cybersecurity	ED and policy Committee	0%	February 2019	
Research other successful business incentive programs implemented by Indiana state agencies	ED committee	0%	February 2019	
Meet with IEDC policy director and further discuss possible incentives programs or policy	ED committee	0%	February 2019	
Put together recommendation to present to IECC	ED Committee	0%	March/April 2019	
Develop next steps for possible incentives per IECC feedback	ED Committee	0%	May 2019	

Resources and Budget

15. Will staff be required to complete this deliverable?

a. No

b. **If Yes, please complete the following**

Estimated Initial FTE	Estimated Continued FTE	Skillset/Role	Primary Source of Funding	Alternate Source of Funding	Notes
[N/A]					

16. What other resources are required to complete this deliverable? (Examples include software, hardware, supplies, materials, equipment, services, facilities, etc.)

Resource	Justification/Need for Resource	Estimated Initial Cost	Estimated Continued Cost, if Applicable	Primary Source of Funding	Alternate Source of Funding	Notes
None						

Benefits and Risks

17. What is the greatest benefit of this deliverable? (Please provide qualitative and/or quantitative support.)

a. This initiative will encourage cybersecurity preparedness of Indiana companies. By incentivizing them to use Indiana companies for their cybersecurity improvements, we are encouraging intra-state business growth and partnerships. This will foster organic growth of our supply base.

18. How will this deliverable reduce the cybersecurity risk or impact? What are the estimated costs associated with that risk reduction?

a. By incentivizing businesses to meet varying levels of requirements, we will encourage them to do more than just meet the bare minimum requirements and provide an escalating path of greater security leading to greater incentives.
b. Depending on which incentives are agreed upon, there could be administrative overhead to monitor the program, validate findings, etc.

19. What is the risk or cost of not completing this deliverable?

a. By not directly incentivizing improvements in the cybersecurity posture of Indiana businesses, the State is not providing sufficient guidance of what are the appropriate security measures a company should strive to implement and potentially allow cybersecurity improvements to be an afterthought for companies who may be more financially focused or motivated.
b. A fragmented or ineffective legislative structure could also result.

20. What defines success and/or what metrics will be used to measure success? What is the baseline for your metrics?

a. This may be the most challenging piece of this program. There are many frameworks available, but not all companies must subscribe to the same ones. Therefore, it may prove difficult to make direct comparisons across industries. Additionally, we do not propose placing an auditing requirement on State personnel. Therefore, this program would need to be based on self-reporting. Thus, a baseline may have to be established in year one of the program to identify current state with small incentives to report with larger incentives in year two of the program for those who self-reported in year one.

21. **Are there comparable jurisdictions (e.g. other states) that have similar projects that we can compare this project to using the same metrics?**
    a. No
    b. **If Yes, please list states/jurisdictions**
        i. We have not seen other states implement this yet, but have seen encouragement from the federal level which aligns with one of our recommendations of considering the NIST Cybersecurity Framework.

22. **Are there comparable jurisdictions (e.g. other states) that does not have a comparable project that we can use as a control to show what happens if Indiana does not complete the deliverable?**
    a. Yes
    b. **If Yes, please list states/jurisdictions**
        i. Further research will be needed to validate the answer to Question #9 above. This research would then also identify potential jurisdictions that could be used as a control.

Other Implementation Factors

---

23. **List factors that may negatively impact the resources, timeline, or budget of this deliverable?**
    a. No common definition of acceptable cybersecurity measures and several frameworks and models on which to base this program could lead to time-consuming discussions and debate.
    b. The desire of this subcommittee to not require audits and rely on self-reporting which may not prove to be reliable.
    c. Reaching consensus from policy makers.
    d. Not enough money to fund the incentives.
        - Incentives need to tie to the potential for economic growth and the associated revenue creation.

24. **Does this deliverable require a change from a regulatory/policy standpoint?**
    a. Yes
    b. **If Yes, what is the change and what could be the fiscal impact if the change is made?**
        - Regulation and policy may be required to create and enable the incentive program.

25. **What will it take to support this deliverable if it requires ongoing sustainability?**
    a. N/A

26. **Who has the committee/working group contacted regarding implementing this deliverable**?
    a. N/A

27. Can this deliverable be used by other sectors?

a. Yes
b. **If Yes, please list sectors**
    - There could be potential overlap with the Workforce Development Committee with incentives around training and implementing these security components.

Communications

28. Once completed, which stakeholders need to be informed about the deliverable?

a. Not known

29. Would it be appropriate for this deliverable to be made available on Indiana's cybersecurity website (www.in.gov/cybersecurity)?

a. Yes

30. What are other public relations and/or marketing considerations to be noted?

a. Marketing to other states that Indiana takes cybersecurity seriously could have a potential benefit to our business attraction programs. This is a clear message to allow other companies to understand the preventative measures certified Indiana companies have taken and could influence other companies in their decision-making processes to do business with certified Indiana companies. It could also be a decision point when external companies are looking to move to the State as it increases the cybersecurity maturity of the companies with whom they will become associated.

List of Possible Incentives

- Annual tax credit for meeting / exceeding (complying) with cybersecurity preparedness standard
    - Consider increasing the credit for ongoing compliance?
- Incent through credits or deductions expenditures with Indiana companies supplying goods or services to incent organic supply base growth
- Provide training grants (possible scope: executives, technologists, general cyber hygiene to employees)
- Make VCI tax credit program transferrable to incent investment from other states into Indiana firms
- Create list of firms meeting certain requirements for supplying to State (i.e. "trusted" supplier list)
- Create incentive (e.g., tax deduction) for proof of cyber insurance coverage
- Direct tax credit for Indiana-based cybersecurity firms

Evaluation Methodology

Objective 1: IECC Economic Development Committee will propose a list of possible incentive programs to be considered by the State of Indiana by April 2019.

Type: ☒ Output ☐ Outcome

Evaluative Method:

☒ Completion
☐ Award/Recognition
☐ Survey - Convenient
☐ Survey – Scientific
☐ Assessment Comparison
☐ Scorecard Comparison
☐ Focus Group
☐ Peer Evaluation/Review
☐ Testing/Quizzing
☐ Benchmark Comparison
☐ Qualitative Analysis
☐ Quantifiable Measurement
☐ Other

Objective 2: State of Indiana will establish an incentive program in Indiana by July 2020.

Type: ☐ Output ☒ Outcome

Evaluative Method:

☒ Completion
☐ Award/Recognition
☐ Survey - Convenient
☐ Survey – Scientific
☐ Assessment Comparison
☐ Scorecard Comparison
☐ Focus Group
☐ Peer Evaluation/Review
☐ Testing/Quizzing
☐ Benchmark Comparison
☐ Qualitative Analysis
☐ Quantifiable Measurement
☐ Other

Deliverable: Implementation Plan for Cybersecurity - Marketing

Deliverable: Implementation Plan for Cybersecurity - Marketing

General Information

1. **What is the deliverable?**
    a. A comprehensive marketing plan to promote awareness and preparedness by Indiana citizens, governmental organizations, and businesses for cybersecurity, as well as promote Indiana's leadership in cyber.

2. **What is the status of this deliverable?**
    a. In-progress; 25% complete

3. **Which of the following IECC goals does this deliverable meet? Check ONE that most closely aligns. See Executive Order 17-11 for further context.**
    ☐ Establish an effective governing structure and strategic direction.
    ☒ Formalize strategic cybersecurity partnerships across the public and private sectors.
    ☐ Strengthen best practices to protect information technology infrastructure.
    ☐ Build and maintain robust statewide cyber-incident response capabilities.
    ☐ Establish processes, technology, and facilities to improve cybersecurity statewide.
    ☐ Leverage business and economic opportunities related to information, critical infrastructure, and network security.
    ☐ Ensure a robust workforce and talent pipeline in fields involving cybersecurity.

4. **Which of the following categories most closely aligns with this deliverable (check ONE)?**
    ☐ Research – Surveys, Datasets, Whitepapers, etc.
    ☒ Informational Product – Definitions, Glossary, Guidelines, Inventory, Best Practices, etc.
    ☐ Operational Product – Programs, Processes, etc. (generally can be produced within the group or with current resources)
    ☐ Operational Proposal – Programs, Processes, etc. (generally requires additional resources)
    ☐ Templates/Toolkits – Actionable Resource Kits, Turnkey Templates
    ☐ Policy Recommendation – Recommended Changes to Law

Objective Breakout of the Deliverable

5. **What is the resulting action or modified behavior of this deliverable?**
    a. Indiana has the opportunity to begin a marketing campaign surrounding cybersecurity and technology more generally in the state. Highlighting the big business deals such as the Salesforce purchase of ExactTarget and HomeAdvisor's merge with Angie's List would be part of the broader theme of a tech marketing campaign, as well as highlighting the vibrant startup community and available novel resources such public-private partnership and innovation resources. The campaign could focus on Indiana universities such as Purdue, IU, Notre Dame, Rose Hulman, Butler and more to show the quality of the talent pipeline in tech. The campaign could also highlight some of the cybersecurity work happening in Indiana, especially noting the intersection and influence on traditionally non-cyber places and applications such as 16 tech (e.g. Bio Sciences) and health organizations across the state. This campaign could also focus on a cybersecurity conference. Also, at a fundamental level, the campaign could be designed to raise awareness of citizens and businesses to the issues around cyber, good cyber hygiene, and opportunities for working in cybersecurity.

6. **What metric or measurement will be used to define success?**
    a. The best indicator of success will be increased awareness of State programs and interactions with out-of-state cybersecurity influencers. Another key indicator of success would be attracting a cybersecurity-related conference to Indianapolis.

7. **What year will the deliverable be completed?**
    a. 2019

8. **Who or what entities will benefit from the deliverable?**
    a. The State of Indiana as a whole will benefit from marketing that highlights the quality of cybersecurity available in the state and general need for good hygiene and compliance. Any new businesses considering a relocation or start in Indiana might be influenced by the strength of the marketing campaign. Existing business would benefit from more opportunity to highlight the great work that is being done around the state. Universities could leverage marketing efforts to attract and retain more out of state students interested in a career in cybersecurity.

9. **Which state or federal resources or programs overlap with this deliverable?**
    a. Existing tourism-related efforts.

Additional Questions

10. **What other committees and/or working groups will your team be working with to complete or plan this deliverable?**
    a. Will determine at a later date

11. Which state agencies, federal agencies, associations, private organizations, non-profit organizations, etc. will need to be involved to complete or plan this deliverable?

a. Tourism, Visit Indy (https://www.visitindy.com/).

12. Who should be main lead of this deliverable?

a. Dave Roberts for IEDC, Matt Wade for Marketing

13. What are the expected challenges to completing this deliverable?

a. Many cities and locales are competing in this area. Standing out of the crowd will be difficult for a non-traditional cybersecurity locale such as Indianapolis.

Implementation Plan

14. Is this a one-time deliverable or one that will require sustainability?

a. One-time deliverable (2-year initiative)

Tactic Timeline

Tactic	Owner	% Complete	Deadline	Notes
Generate list of highlights	ED Subcommittee	100%	April 17, 2018	
Communicate with IEDC Marketing for execution plan	ED Subcommittee	10%	December 2018	
Present comprehensive marketing plan	ED Subcommittee	0%	August 2019	
Implement Marketing Plan	IEDC & 3rd Party Marketing Firm	0%	2020	

Resources and Budget

15. Will staff be required to complete this deliverable?

a. No

16. What other resources are required to complete this deliverable? (Examples include software, hardware, supplies, materials, equipment, services, facilities, etc.)

a. External marketing firm; $250,000 for a 12-month campaign.

Benefits and Risks

17. What is the greatest benefit of this deliverable? (Please provide qualitative and/or quantitative support.)

a. This deliverable will provide the voice of market input to the State regarding suggested marketing strategy and tactics. Implementation of the recommendations will not be within the scope of this deliverable, as that function is best addressed by marketing divisions of state (IEDC) and local municipalities.

18. **How will this deliverable reduce the cybersecurity risk or impact? What is the estimated costs associated with that risk reduction?**
    a. Risk mitigation is achieved by increasing general public awareness, encouragement of growth in the sector, implementation of remedial and preventative measures by government and business, and promotion of proper cyber hygiene.

19. **What is the risk or cost of not completing this deliverable?**
    a. Based on available, current academia resources, Indiana education institutions may be utilizing fragmented, biased, and even incorrect information to teach the public about cybersecurity and the evolution of the state of Indiana.

20. **What defines success and/or what metrics will be used to measure success? What is the baseline for your metrics?**
    a. Success is a list of specific, actionable, realistic marketing strategies to deploy.

21. **Are there comparable jurisdictions (e.g. other states) that have similar projects that we can compare this project to using the same metrics?**
    a. No
    b. **If Yes, please list states/jurisdictions**
        i. There is no known state-wide, comprehensive effort to market cybersecurity. Israel may have a similar example.

22. **Are there comparable jurisdictions (e.g. other states) that does not have a comparable project that we can use as a control to show what happens if Indiana does not complete the deliverable?**
    a. No

Other Implementation Factors

23. **List factors that may negatively impact the resources, timeline, or budget of this deliverable**?
    a. N/A

24. **Does this deliverable require a change from a regulatory/policy standpoint?**
    a. No

25. **What will it take to support this deliverable if it requires ongoing sustainability?**
    a. Recommendations from this subcommittee and others through the cyber community are needed for the strategies to remain timely.

26. **Who has the committee/working group contacted regarding implementing this deliverable?**
    a. We have reached out to Marketing at IEDC

27. Can this deliverable be used by other sectors?

a. Yes
b. **If Yes, please list sectors**
    i. All

Communications

---

28. Once completed, which stakeholders need to be informed about the deliverable?

a. All.

29. Would it be appropriate for this deliverable to be made available on Indiana's cybersecurity website (www.in.gov/cybersecurity)?

a. It can; however, a completed playbook should not be provided to other states at this time.

30. What are other public relations and/or marketing considerations to be noted?

a. This list should emphasize cyber-related events and updates that are projected to become the most impactful strategy going forward.

Evaluation Methodology

Objective 1: Indiana Economic Development Corporation will develop a 2-year marketing plan focusing on economic development and Indiana's cybersecurity posture by August 2019.

Type: ☒ Output ☐ Outcome

Evaluative Method:

☒ Completion
☐ Award/Recognition
☐ Survey - Convenient
☐ Survey – Scientific
☐ Assessment Comparison
☐ Scorecard Comparison
☐ Focus Group
☐ Peer Evaluation/Review
☐ Testing/Quizzing
☐ Benchmark Comparison
☐ Qualitative Analysis
☐ Quantifiable Measurement
☐ Other

Objective 2: Indiana Economic Development Corporation will execute a 2-year marketing plan focusing on economic development and Indiana's cybersecurity posture in 2020.

Type: ☐ Output ☒ Outcome

Evaluative Method:

☐ Completion
☐ Award/Recognition
☐ Survey - Convenient
☐ Survey – Scientific
☐ Assessment Comparison
☐ Scorecard Comparison
☐ Focus Group
☐ Peer Evaluation/Review
☐ Testing/Quizzing
☐ Benchmark Comparison
☒ Qualitative Analysis
☐ Quantifiable Measurement
☐ Other

Deliverable: Cybersecurity SIoT Innovation District

Deliverable: Cybersecurity SIoT Innovation District

General Information

1. **What is the deliverable?**
    a. A strategic business plan for an innovation district designed to foster development and application of cybersecurity solutions; education and training; cross-collaboration among and between the private and public sector; and provide common resources to the industry in a setting managed by a public-private partnership model.

2. **What is the status of this deliverable?**
    a. In-progress; 50% complete

3. **Which of the following IECC goals does this deliverable meet? Check ONE that most closely aligns. See Executive Order 17-11 for further context.**
    ☐ Establish an effective governing structure and strategic direction.
    ☒ Formalize strategic cybersecurity partnerships across the public and private sectors.
    ☐ Strengthen best practices to protect information technology infrastructure.
    ☐ Build and maintain robust statewide cyber-incident response capabilities.
    ☐ Establish processes, technology, and facilities to improve cybersecurity statewide.
    ☐ Leverage business and economic opportunities related to information, critical infrastructure, and network security.
    ☐ Ensure a robust workforce and talent pipeline in fields involving cybersecurity.

4. **Which of the following categories most closely aligns with this deliverable (check ONE)?**
    ☐ Research – Surveys, Datasets, Whitepapers, etc.
    ☐ Informational Product – Definitions, Glossary, Guidelines, Inventory, Best Practices, etc.
    ☐ Operational Product – Programs, Processes, etc. (generally can be produced within the group or with current resources)
    ☒ Operational Proposal – Programs, Processes, etc. (generally requires additional resources)
    ☐ Templates/Toolkits – Actionable Resource Kits, Turnkey Templates
    ☐ Policy Recommendation – Recommended Changes to Law

Objective Breakout of the Deliverable

5. **What is the resulting action or modified behavior of this deliverable?**
    a. Indiana has the opportunity to establish, with the help of other public and private sector partners, at least one cyber innovation district. The goal of such a district or facility would be to provide the base-line assets necessary to facilitate innovation and collaboration in the cyber sector. The desired results would include (a) better access to the infrastructure for innovation for young or smaller cyber companies; (b) better collaboration between companies, both those in the cyber sector and with those outside the sector as they can find consulting services more readily; (c) improved collaboration between academia and the private sector; (d) access for government to combined goods and services; and (e) increased business and Intellectual Property (IP) growth around the cyber sector. Additionally, multiple districts or facilities could be established to focus on military as well as non-military concerns.

6. **What metric or measurement will be used to define success?**
    a. The goal is an identifiable project or multiple projects that includes a plan to execute the establishment of such a cyber innovation district or facility.

7. **What year will the deliverable be completed?**
    a. 2018

8. **Who or what entities will benefit from the deliverable?**
    a. The State of Indiana as a whole will benefit from the presence of one or more innovation districts, in much the same way that the state has benefitted from public-private partnerships of Indiana Biosciences Research Institute (IBRI) and Battery Innovation Center (BIC) in the biotech and energy sectors, respectively. Companies, both new and established, as well as academia, may also benefit, as would the military and defense sector.

9. **Which state or federal resources or programs overlap with this deliverable?**
    a. There are currently a few other states that have announced/started such initiatives, such as Maryland and Georgia, as well as some private assets within the State, but no current innovation district exists in the State.

Additional Questions

10. **What other committees and/or working groups will your team be working with to complete or plan this deliverable?**
    a. Defense

11. **Which state agencies, federal agencies, associations, private organizations, non-profit organizations, etc. will need to be involved to complete or plan this deliverable?**
    a. Indiana Office of Defense Development (IODD) and Indiana Office of Technology (IOT)

12. Who should be main lead of this deliverable?

a. Doug Rapp

13. What are the expected challenges to completing this deliverable?

a. Various stakeholders will have input on the features of this project, so harmonizing all interests will be a challenge. One strategy will be to start with a baseline, and they identify how multiple districts or facilities can address the varying interests.

Implementation Plan

14. Is this a one-time deliverable or one that will require sustainability?

a. Ongoing/sustained effort

Tactic Timeline

Tactic	Owner	% Complete	Deadline	Notes
Define goals and objectives of CSIoT District	ED Subcommittee	100%	May 17, 2018	
Identify Components, Features, & Services	ED Subcommittee	80%	September 30, 2018	
Outreach campaign to interested parties	ED Subcommittee	50%	December 31, 2018	
Review of data	ED Subcommittee	0%	February 2019	
Complete white paper / business plan	ED Subcommittee	0%	April 2019	
Submit recommendations to the council	ED Subcommittee	0%	August 2019	

Resources and Budget

15. Will staff be required to complete this deliverable?

a. No

16. What other resources are required to complete this deliverable? (Examples include software, hardware, supplies, materials, equipment, services, facilities, etc.)

a. None

Benefits and Risks

17. What is the greatest benefit of this deliverable? (Please provide qualitative and/or quantitative support.)

a. This deliverable, if acted upon by the State of Indiana, will create significant economic growth through innovation, access to solution, and workforce. Further, it will regionally anchor the industry and become a draw for businesses from outside of Indiana.
b. Successful examples of cybersecurity ecosystems are Atlanta where two enterprise cybersecurity partners spun off over 200 cybersecurity start-ups/companies. Also, CyberSpark in Beer Sheva, Israel which has gained a world reputation for cybersecurity innovation through its unique partnerships between academia, government, the military, and the private sector. Currently, Israel is the second largest exporter of cybersecurity products, next to the U.S., in the world with exports 35 times their size.

18. How will this deliverable reduce the cybersecurity risk or impact? What is the estimated costs associated with that risk reduction?

a. This deliverable will contribute greatly to risk reduction through emerging technology, access to solutions for both the public and private sectors, and an increased awareness of cybersecurity risks.

19. What is the risk or cost of not completing this deliverable?

a. Indiana misses the opportunity to establish itself within a high growth industry, which is the fastest growing sector in technology, and continued losses to the Indiana economy through cybersecurity incidents such as breaches and ransomware.

20. What defines success and/or what metrics will be used to measure success? What is the baseline for your metrics?

a. Success is an identifiable project or multiple projects that includes a plan to execute the establishment of such a cyber innovation district or facility.

21. Are there comparable jurisdictions (e.g. other states) that have similar projects that we can compare this project to using the same metrics?

a. Yes
b. **If Yes, please list states/jurisdictions**
    i. Successful examples of cybersecurity ecosystems include Atlanta where two enterprise cybersecurity partners spun off over 200 cybersecurity start-ups/companies. Additionally, CyberSpark in Beer Sheva, Israel has gained a world reputation for cybersecurity innovation through its unique partnerships between academia, government, the military, and the private sector. Currently, Israel is the second largest exporter of cybersecurity products, next to the U.S., in the world with exports 35 times their size.

22. Are there comparable jurisdictions (e.g. other states) that does not have a comparable project that we can use as a control to show what happens if Indiana does not complete the deliverable?

a. No

Other Implementation Factors

---

23. List factors that may negatively impact the resources, timeline, or budget of this deliverable?

a. N/A

24. Does this deliverable require a change from a regulatory/policy standpoint?

a. No

25. What will it take to support this deliverable if it requires ongoing sustainability?

a. Recommendations from this subcommittee will address sustainability in the final product.

26. Who has the committee/working group contacted regarding implementing this deliverable?

a. We will begin outreach as part of the deliverable. It will include outreach to all other subcommittees and potential partners.

27. Can this deliverable be used by other sectors?

a. Yes

b. **If Yes, please list sectors**

i. All

Communications

---

28. Once completed, which stakeholders need to be informed about the deliverable?

a. All

29. Would it be appropriate for this deliverable to be made available on Indiana's cybersecurity website (www.in.gov/cybersecurity)?

a. No

30. What are other public relations and/or marketing considerations to be noted?

a. If Indiana chooses to accept any or all of the proposed recommendations, this would be an impactful announcement.

Evaluation Methodology

Objective 1: Economic Development Committee will develop business plan recommendations for first cybersecurity/Security in the Internet of Things (SIoT) innovation district by end of August 2019.

Type: ☒ Output ☐ Outcome

Evaluative Method:

☒ Completion
☐ Award/Recognition
☐ Survey - Convenient
☐ Survey – Scientific
☐ Assessment Comparison
☐ Scorecard Comparison
☐ Focus Group
☐ Peer Evaluation/Review
☐ Testing/Quizzing
☐ Benchmark Comparison
☐ Qualitative Analysis
☐ Quantifiable Measurement
☐ Other

Objective 2: State establishes first cybersecurity/Security in the Internet of Things (SIoT) innovation district, provided appropriate funding source made available, by December 2019.

Type: ☐ Output ☒ Outcome

Evaluative Method:

☒ Completion
☐ Award/Recognition
☐ Survey - Convenient
☐ Survey – Scientific
☐ Assessment Comparison
☐ Scorecard Comparison
☐ Focus Group
☐ Peer Evaluation/Review
☐ Testing/Quizzing
☐ Benchmark Comparison
☐ Qualitative Analysis
☐ Quantifiable Measurement
☐ Other

Supporting Documentation

Supporting Documentation

This section contains all of the associated documents that are referenced in this strategic plan and can be used for reference, clarification, and implementation details.

- Indiana Economic Development Corporation Cyber Initiative Report – 2017

Indiana Economic Development Corporation
Cyber Initiative Report

2017

INDIANA ECONOMIC DEVELOPMENT CORPORATION

Indiana

A State that Works®

CYBER INITIATIVE

2017

Prepared by Douglass C. Rapp, CISM, for IEDC with special thanks to:

Nick Goodwin, *Chief Strategy Officer*, Indiana Department of Workforce Development

Walter Grudzinski, *Director of Information Security and Business Continuity*, Vectren Corporation

Brandt Hershman, *State Senator, District 7*, Indiana Senate

Christopher Judy, *Representative, District 83*, Indiana House of Representatives

David Lefever, *Chief Executive Officer*, The Mako Group

Steve Lodin, *Senior Director of Cyber Security Operations*, Sallie Mae

Chetrice Mosley, *Indiana Cybersecurity Program Director*, Indiana Office of Technology and Indiana Department of Homeland Security

Chad Pittman, *Vice President of the Office of Technology Commercialization*, Purdue Research Foundation

Joel Rasmus, *Managing Director*, CERIAS at Purdue University

Leon Ravenna, *Chief Information Security Officer*, KAR Auctions

Stephen E. Reynolds, *Partner, Data Security and Privacy Practice*, Ice Miller Litigation Group

David Roberts, *President*, Battery Innovation Center

Dr. Eugene Spafford, *Executive Director Emeritus*, Purdue CERIAS

Nick Sturgeon, *IN-ISAC SOC Manager*, State of Indiana

Dr. Robert Templeman, *Senior Fellow*, Center for Applied Cybersecurity Research

J.J. Thompson, *Founder/Chief Executive Officer*, Rook Security

Tony Vespa, *Founder/Chief Executive Officer*, Vespa Group

Brad Wheeler, *Chief Information Officer*, Indiana University

THE OPPORTUNITY

The conditions for successful economic development in cybersecurity are incredibly strong in Indiana. Indiana possesses the right resources to become a driving force in the cybersecurity industry and emerge as a recognized world leader in cybersecurity research and innovation.

Indiana advantages include

- A strong talent pipeline stemming from over 50 colleges and universities
- A vibrant entrepreneurship/innovation culture
- A State Executive Counsel on Cybersecurity[1]
- World renowned research facilities and personnel
- A long history of pioneering innovation in the field
- A strong and collaborative cybersecurity community
- Unique military assets and businesses
- Expert training and exercises

Indiana needs only to foster the community and leverage existing strengths to achieve greater success.

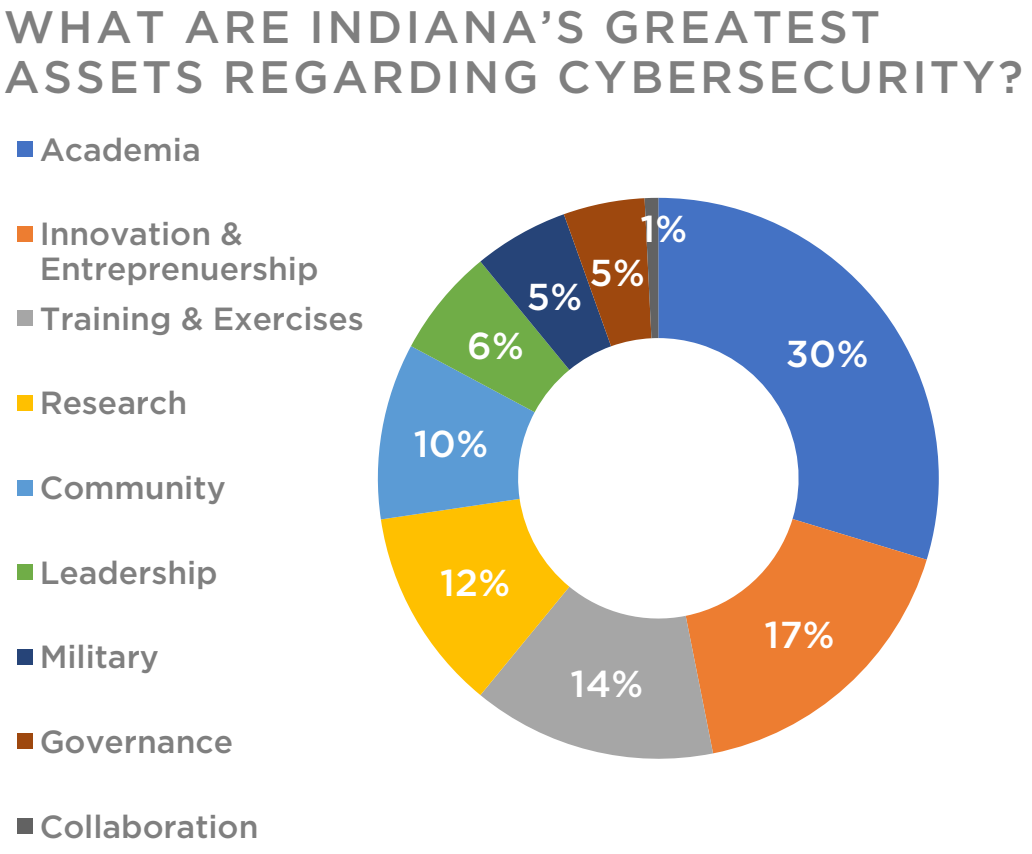


Figure 1. Indiana cybersecurity industry survey results on greatest assets.

[1] See Annex A: Executive Council on Cybersecurity

MARKET OVERVIEW

Cybersecurity is the fastest growing area within the technology sector and one of the fastest growing industries worldwide. The global cybersecurity market has grown roughly 35 times in 13 years going from $3.5 billion in 2004 to $120 billion in 2017[2] and industry experts predict that growth will continue 8-15% each year for the next five years. Global spending on cybersecurity products will eclipse a cumulative $1 trillion in the same period[3]. The market will continue to grow at a comparable rate to the growth of the Internet/Internet of Things.

To combat the ever-expanding number of threats and complexity of off-the-shelf attacks, companies are investing more than ever into Cybersecurity. Worldwide spending on cyber security reached $75.4 billion in 2015 and shows no sign of slowing[4]. The continued proliferation of cyber threats is driving so much spending on cyber security that it has become difficult for industry analysts to keep up. Industry surveys have indicated that respondents are increased their cybersecurity budgets roughly at an average of 24% in 2015[5] and show no signs of slowing down. Many businesses are spending much more. J.P. Morgan & Chase has doubled its budget to a record $500 million and Bank of America has stated publicly that they have no set budget– they will invest what it takes to secure their company. The U.S. Government has committed to a record 35% spending increase to $19 billion in 2017[6].

Challenges

Cybersecurity has only recently been recognized as a market. Research is complicated by the fact that it is neither a defined industry by the North American Industry Classification System (NAICS) nor the Standard Industrial Classification (SIC). Occupation codes by the Standard Occupational Classification (SOC) system are only now starting to be developed[7]. These codes are important because they are used by federal agencies such as the Bureau of Labor Statistics and Census Bureau to classify workers and employers in the vast amounts of public data they publish.

Contributing to industry confusion is the fact that there is no standard definition for cybersecurity, thus past and current reports rely heavily upon the reporter's individual definition and interpretation. A company that specializes in cybersecurity may currently be classified as a software firm, a consulting firm, or a security firm. Organizations routinely employing sizable cybersecurity staff include financial institutions, healthcare organizations, law firms, utilities, educational institutions, retail enterprises, and manufacturers yet are not necessarily considered in reports regarding the cybersecurity industry. A cybersecurity professional may be classified as an information security architect, computer network architect, security consultant, computer and information systems manager, or simply an "IT technician".

[2] Ross, Alec. "Want job security? Try online security". Wired, April 25, 2016.
[3] Morgan, Steve. Cybersecurity Market Report, Q1 2017. http://cybersecurityventures.com/cybersecurity-market-report/
[4] Canales, Christian, R. Contu, S. Despande, E. Kim, L. Pingree. Forecast Analysis: Information Security, Worldwide, 2Q15 Update, Gartner, September 08, 2015.
[5] Turnaround and transformation in cybersecurity: Key findings from the Global State of Information Security® Survey 2016. PwC, www.pwc.com/gsiss.
[6] Morgan, Steve. Cybersecurity Market Report, Q1 2017. http://cybersecurityventures.com/cybersecurity-market-report/
[7] There are currently no NAICS or SIC codes associated with the keywords cybersecurity or information security.

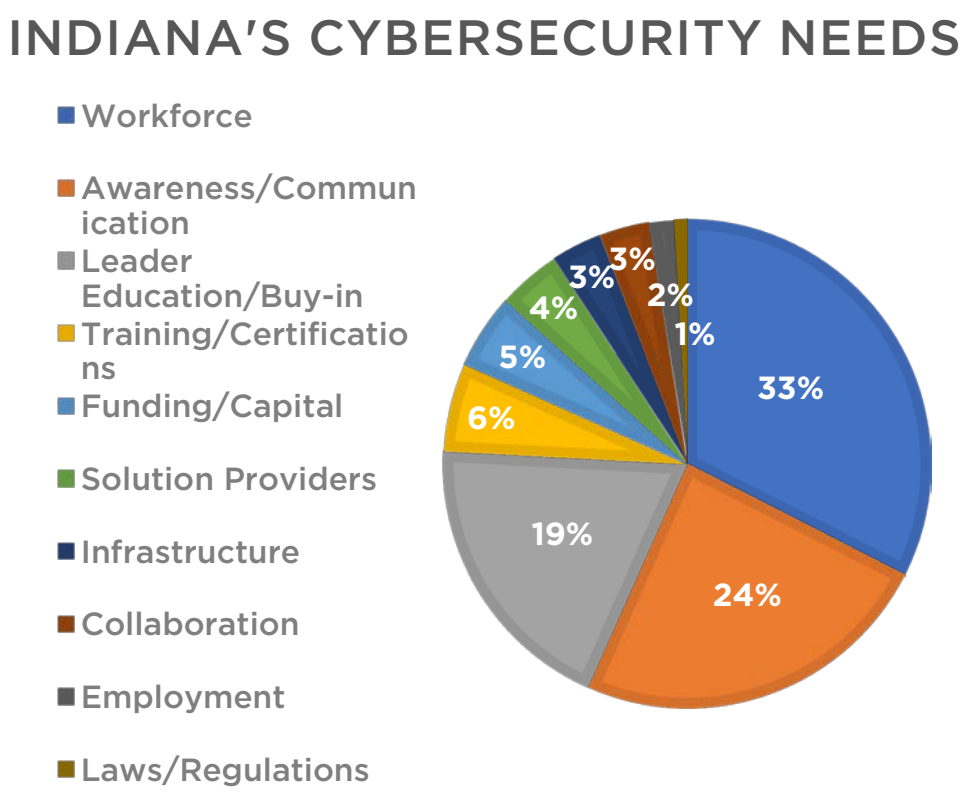


Figure 2. Indiana cybersecurity industry survey results on greatest cybersecurity needs.

Despite numerous advantages, Indiana faces several challenges that will need to be addressed for the State to achieve a dominant position in the marketplace and to accomplish strategic goals. According to a cyber security industry survey conducted by the Indiana Economic Development Corporation (IEDC)[8] in 2016-2017, Indiana challenges include:

- Attraction and retention of cybersecurity talent
- Access to funding/capital
- C-Suite/Executive level education and buy-in
- Increased local solution providers
- Investment in cybersecurity infrastructure
- Local access to training and certifications
- Increased collaboration through public/private partnerships (P3)
- On-going support of existing expertise and resources
- Cybersecurity awareness and communication

[8] See Annex B: Indiana Economic Development Corporation Cybersecurity Survey

The Goal

Indiana's continued economic success in the cybersecurity market lies in its core strengths of creating and applying things or being "a State that Works", its outstanding business climate, and willingness to embrace technology and emerging markets.

Establish Indiana as a world leader in cybersecurity and the nucleus of cybersecurity in the region.

Success will be identified through both qualitative and quantitative metrics that focus on

1) The attraction of new businesses to the State
2) Support to new start-ups within the State
3) The retention of existing businesses within the State who may be exploring moves
4) The number of new cybersecurity jobs created
5) The number of non-cyber jobs created to support new cyber business
6) The salary of jobs created
7) New employee demographics (workforce diversity, education levels, etc.)
8) Lessening the "Brain-Drain" by increasing the number of cybersecurity professionals who graduate from one of the State's universities or colleges, who accept Indiana-based cyber employment

The Strategy

The strategy for Indiana economic development within cybersecurity is grounded in market research at the state, national, and international levels. Through research, industry engagement, asset inventory, and SWOT analysis, four strategic lines of effort were identified.

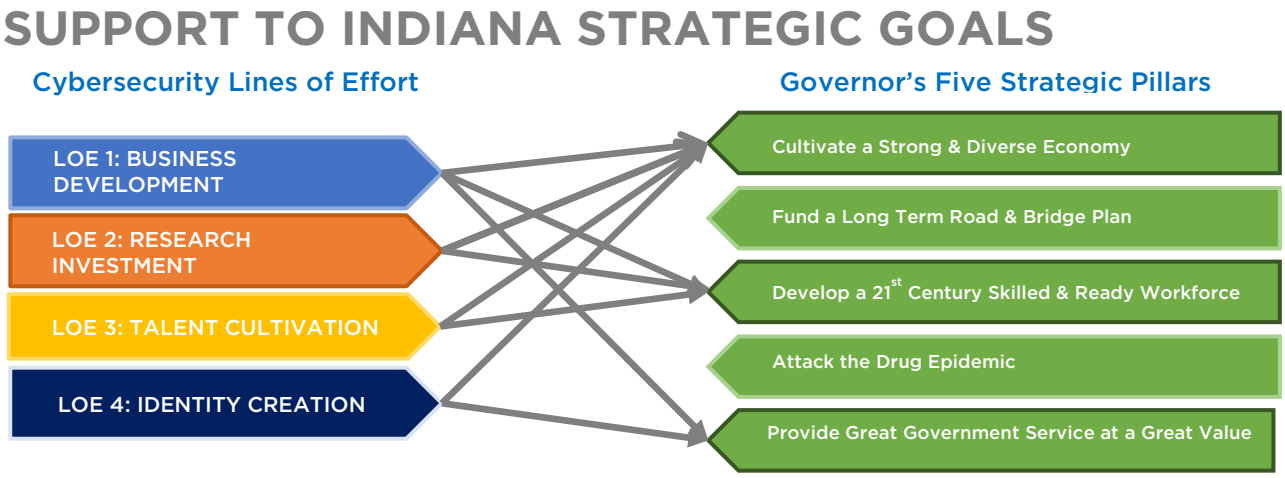


Figure 4. Cybersecurity lines of effort support to Indiana Strategic Goals

Line of Effort 1: Business Development

The business development line of effort (LOE) is rooted in the fundamentals of business development strategy.

- Business recruitment/attraction
- Business retention/expansion
- Business creation (innovation and entrepreneurship)
- Creativity and talent cultivation
- Place-making

The strategy will focus on defining and developing strategies/plans for industry clusters, developing a regional strategy/plan, creation of demand/retention of wealth, retaining and expanding cybersecurity businesses, leveraging existing military facilities and expertise, and investing in innovation and entrepreneurship.

Immediate progress can be made through investment into Indiana cyber companies with resources allocated under the State of Indiana's $1B innovation and entrepreneurship initiative and other tools. By doing so, Indiana will help relieve banking limitations caused by a lack of physical assets to secure lending[9], reduce risk associated with investors who don't understand cybersecurity, and reduce the barriers in attracting non-pillaging investment from out of state investors to fuel A and B round growth. Additionally, we can increase success of Indiana cybersecurity companies by adopting an "Indiana first" policy in State and local government.

Mid- and long-term strategies for business attraction will focus on large cybersecurity company relocation, and on attracting research and development offices from big companies that are not ready to relocate to Indiana. We will create an environment to unlock intellectual property from these companies that will seed synergistic industry clusters through start-ups[10].

Line of Effort 2: Research Investment

Research and development drives economic growth. These activities allow researchers and scientists to develop and apply new knowledge, techniques, and technologies. As technology evolves, productivity increases and businesses can produce more with fewer resources. Indiana is home to three prominent R1 universities (Indiana University/Bloomington, Notre Dame University and Purdue University/West Lafayette) who have major R&D initiatives in cybersecurity, but active and productive cyber research is also conducted at several other Indiana schools, including Ball State, Indiana State University, Indiana University–Purdue University at Indianapolis, Indiana–Purdue University Fort Wayne and Purdue University/Calumet. Five NSA/DHS Centers for Academic Excellence are headquartered at Indiana-based institutions of higher education.

[9] Traditional company valuation relied on heavily on physical assets. As newer business models evolve, investors are beginning to recognize services, technology creation, and network orchestration as important components in determining value.
[10] Sometimes referred to as a "Cluster Effect". An example of this is the 45+ information security companies that emerged from Internet Security System and SecureIT in Atlanta, GA.

"Leading in cybersecurity requires fast-paced innovation in technology, policy, and practice. Indiana has the deep strengths in its research universities, partnerships, and workforce for firms to thrive in the heartland."
Brad Wheeler, CIO, Indiana University

The strategy in this line of effort will concentrate on

- Support to research consortiums
- Increase contracting capacity to government
- Establish a presence in both national and international strategic markets
- Foster collaboration on grant writing/funding efforts
- Make clear, visible commitments to people and institutions in the field

Line of Effort 3: Talent Cultivation

Cybersecurity is experiencing a significant shortage of practitioners. Conservative estimates indicate over a quarter-million positions currently sit unfilled in the US alone, and a shortage of 1.5 million cybersecurity professionals is predicted by 2019[11]. The ability to produce and retain cybersecurity talent will give Indiana a distinct market advantage. Indiana currently produces a significant number of cybersecurity professionals and possesses the assets to create more. Indiana advantages include:

- 30+ colleges and universities with specific cybersecurity/information security degrees, certificates programs, or course work[12]
- 72 schools in Indiana producing graduates with competencies related to becoming a Cyber Security Analyst over the last 5 years[13]
- 70+ middle and high school Cyber Patriot teams in Indiana[14]

The strategy for this line of effort will focus on collaborating with the Department of Workforce Development, academia, and industry to create a comprehensive cybersecurity talent pipeline strategy, incentives to attract/retain talent, utilizing data to strategically determine workforce needs, and supporting K-12 cybersecurity initiatives.

[11] Morgan, Steve. "Cybersecurity job market to suffer severe workforce shortage." CSO Online, July 2015, http://www.csoonline.com/article/2953258/it-careers/cybersecurity-job-market-figures-2015-to-2019-indicate-severe-workforce-shortage.html
[12] Asset Inventory conducted by the Indiana Economic Development Corporation.
[13] Emsi Occupation Snapshot Report. Cyber Security Analyst in Indiana. Emsi Q1 2017 Data Set, www.economicmodeling.com
[14] List provided by Cyber Patriot.

> ***"By far, our greatest assets in Indiana are the skilled talent we have access to. There are pockets of highly accomplished individuals who set the tone for the cyber environment in our state, and really the entire mid-west. This also holds true for the potential talent pool that is up and coming due to the dedication of State of Indiana's economic development initiatives."***
>
> David Lefever, Chief Executive Officer
> The Mako Group

While there is a growing interest in cybersecurity at the 8-12 grade levels, few of Indiana's secondary education districts have relevant computer programming or cybersecurity programs.
An investment in middle and high school level educational initiatives could provide a dramatic payoff by influencing Indiana students to choose to pursue a cyber career path. While Indiana's colleges and universities are at the forefront of cyber education and research, many of its students are non-Indiana citizens who graduate and leave the state. An investment in grade 8-12 CS/Cyber programs would increase the number of future college-educated CS/Cyber professionals seeking career jobs in Indiana. IEDC should work with the Department of Education and the Department of Workforce Development to strengthen Indiana's commitment to preparing students for this growing, high-paying industry.

Understanding and enhancing the work-life culture that is important to the attraction and retention of cybersecurity talent will be a critical component of this LOE.

Line of Effort 4: Identity Creation

The State of Indiana has been very successful at branding itself as "The State That Works." Indiana has long since recognized the value of a strong brand identity. By synchronizing with the current brand campaign, Indiana will create a brand/identity for Indiana economic development efforts in cybersecurity. Key qualities and benefits this brand include:

- Indiana is a State that creates and applies cybersecurity (a "State that Protects")
- Indiana is a state that understands and excels in collaboration between government, academia, and private industry
- Indiana is a State that welcomes and recognizes the value of diversity
- Indiana's business environment creates a competitive advantage for our businesses
- Indiana is a great place to live, work, and play

By synchronizing this messaging and branding strategy within the Indiana cybersecurity sector, Indiana will illustrate a comprehensive approach to demonstrating benefit. Indiana will strategically target regionally (Midwestern states with an economic climate that is less business-friendly than Indiana), nationally and internationally, and leverage relationships with industry, academia, and the military to expand opportunities.

"Driving economic development by bringing together resources from top flight schools, state government and business is but one benefit in the fight against cyber criminals that can impact every person and business. That's what Indiana does!"

Leon Ravenna, Chief Information Security Officer
KAR Auctions

IMPLEMENTATION

Line of Effort 1: Business Development

1.1 Cluster Strategy: Services, Forensics, ICS/SCADA, SIoT (Manufacturing integrity/Sensors)

Managed Security Services

Cybercrime continues to drive the consumer cybersecurity market and high growth areas in managed security services are predicted to be analytics/SIEM (10%); threat intelligence (10%); mobile security (18%); and cloud security (50%)[15]. It is imperative that Indiana attracts, nurtures and sustains companies and offers initiatives that foster cybersecurity solutions for small to midsize businesses as they historically have been the most vulnerable and generated the most risk.

Digital Forensics

The global digital forensics market was worth $2 billion in 2014 and is predicted to reach $4.9 billion by 2021. Market growth is projected to be 12.5% CAGR from 2015 to 2021[16]. Indiana has numerous unique assets in digital forensics including Purdue University's internationally lauded Cyber Forensics Laboratory and a high concentration of digital forensic expertise within the Indiana State Police and other entities.

Industrial Control Systems (ICS)/Supervisory Control and Data Acquisition (SCADA)

Increasing attacks on critical infrastructure such as power, water, oil and gas, manufacturing, transportation, and others is the major force driving the ICS security market. The Industrial Control Systems (ICS) security market size is estimated to grow from $9 billion in 2016 to $12.6 billion by 2021, at a Compound Annual Growth Rate

[15] IDC Report. http://www.idc.com/
[16] Digital Forensics Market - Global Industry Analysis, Size, Share, Growth, Trends and Forecast 2016 – 2026. Transparency Market Research, July 30, 2015, http://www.transparencymarketresearch.com/digital-forensics-market.html

(CAGR) of 7%[17]. With Indiana leading the nation in manufacturing job growth -- home to both the second largest automotive industry in the nation
and unique capability facilities such as the Muscatatuck Urban Training Center (MUTC) —Indiana has the environment to increase innovation and its leadership within this market segment.

Securing the Internet of Things (SIoT)

IoT security is continually evolving and is ~~both~~ the responsibility of both the government and the private sector. Indiana's chief roles in the SIoT is to provide tools and resources to businesses that incorporate security into product development, improve security to consumer and vendor-managed devices, and secure the infrastructure that enables these devices. Serving as a catalyst for SIoT efforts in Indiana are the research at Indiana University School of Informatics and Computing, at Purdue's CERIAS, and the high level of expertise Crane Naval Surface Warefare Center.

1.1.1. Action: The IEDC needs to create cluster organizations and solicit cybersecurity action plans by convening economic development entities, industry, academia, military, and innovation/entrepreneurship leaders. Plans should be solicited by region (regional cities) and should be competitive for State resources.

1.2 Create a community and communicate efforts.

1.2.1. Action: Indiana needs an industry organization to organize cluster activity, assist the IEDC in execution of the Strategic Cybersecurity Economic Development Plan, partner with both IEDC and DWD on synchronizing talent development activities, represent industry interests, create and execute industry events, and disseminate industry information.

1.2.2. Action: Indiana needs to build a significant cybersecurity conference that showcases existing talents and assets within the State. This event should be industry driven but supported by the State.

[17] Industrial Control Systems (ICS) Security Market by IT Solution, by IT Service (Risk Management Services, Design, Integration and Consulting, Managed Services, and Audit and Reporting), by Vertical & by Region - Global Forecast to 2021. marketsandmarkets.com, July 2016.

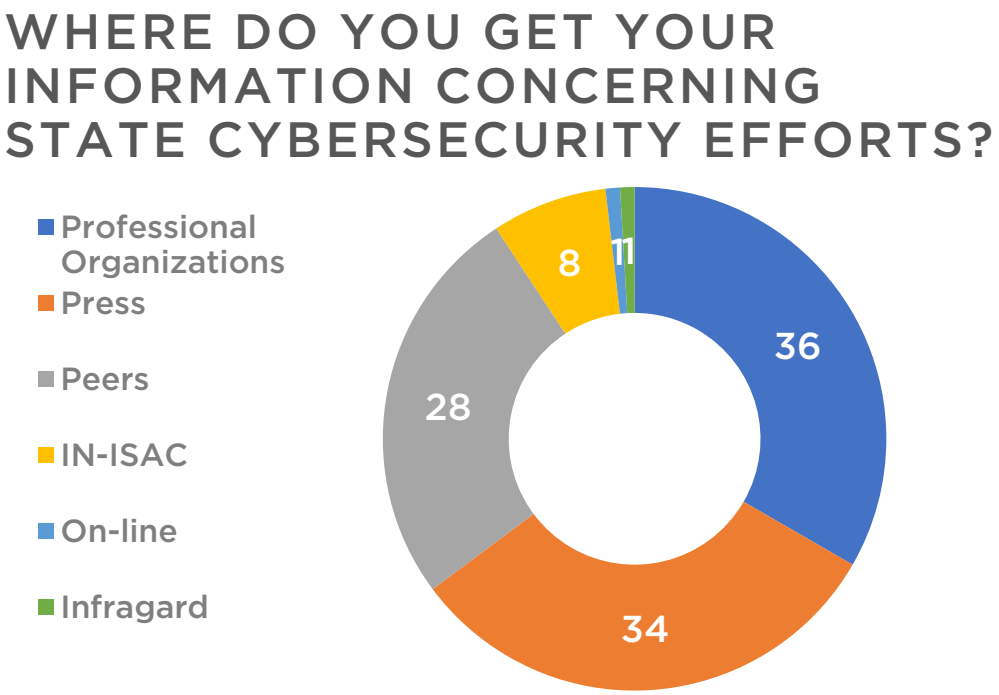


Figure 5. Indiana cybersecurity industry survey results on State information.

1.3 Create Demand/Retain Wealth

1.3.1 Action: Invest in a resource center that provides security solutions to our most vulnerable businesses. According to the National Small Business Association, Indiana small businesses employ 45.5% of our workforce[18]. Small business is the most susceptible business sector to cybercrime as they generally cannot afford to in-house cybersecurity talent and there are fewer providers that offer affordable scaled solutions. Studies have indicated that up to 60% of small business fail within 6 months of a significant cyber incident such as a breach or ransomware[19]. Coupled with the cost of complying with rising information security requirements mandated
in regulations such as Defense Federal Acquisition Regulation Supplement (DFARS), the European Union's General Data Protection Regulation (GDPR) and others, many business
are accepting risk of and transferring that risk to everyone that they do business with.

Indiana should invest resources available from government, academia, and the private sector
to form P3 entities which specifically address the risk to small and mid-sized business. Indiana should fuel demand by educating businesses on vulnerabilities and secure wealth by mitigating costs associated with cybersecurity incidents.

1.4 Innovation and Entrepreneurship

1.4.1. Action: Attract or create a cybersecurity accelerator with a proven business model to become self-sustaining[20]. The accelerator should have partnerships with both academia and private industry to unlock and transfer intellectual property to the market.

[18] Small Business Profile – Indiana. U.S. Small Business Administration, Office of Advocacy, 2017.
[19] National Cyber Security Alliance (NCSA) and Symantec Annual Survey, http://www.staysafeonline.org/stay-safe-online/resources/
[20] Accelerators should specifically be fixed-term, cohort-based programs that include formal educational and mentorship components, facilitate opportunity to access sufficient capital and culminate in public pitch or demo day. Examples
can be found at the Seed Accelerators Rankings Project at Rice's Jones Graduate School of Business.

1.5 International Strategy

1.5.1. Action: Create a formal research relationship with key countries (e.g., Israel, India, Singapore, and the "5-Eyes") and develop a strategic plan with quantifiable metrics for cybersecurity business development as part of a larger technology business development plan.

1.6 Regional cluster organization and action plan

1.6.1. Action: Create a formal consortium within the region through partnerships with Illinois, Ohio, Michigan and Northern Kentucky. Conduct a detailed asset inventory and an action plan for attracting cybersecurity talent and businesses to the Midwest to compete against other markets.

1.7 Leveraging Military Assets

1.7.1. Action: Unlock the potential of our statewide military assets by engaging elected and appointed officials to reduce regulatory barriers associated with private industry use. Invest in infrastructure at the Muscatatuck/Atterbury cyber physical range to attract private entity utilization. Invest in infrastructure at Westgate so that NSWC Crane can expand workforce into the technology park. Invest in and enhance infrastructure at Baer Field and Terre Haute Air National Guard Bases to leverage both intelligence and security operations center assets. Invest in other installations and assets as they are identified.

1.8 Identifying Factors Affecting Business Growth and Retention

1.8.1. Action: Determine other factors that would cause businesses to establish in states other than Indiana, and develop strategies to address them. This includes potential negative concerns (e.g., access to coasts, social issues, energy costs), and potential positive issues (cost of living, moderate climate). A plan should be formulated to enhance Indiana's positioning and image in these regards.

Line of Effort 2: Research Investment

2.1 Increase contracting capacity

2.1.1. Action: Support organizations in Indiana that are working to expand or create contracting capacity with priority going to those whose goal it is to leverage Indiana businesses and innovation through the creation of progressive tools such as Other Transaction Authorities. Priority should also be given to consortiums built around tools managed by Indiana entities
with minimal facility and administration (F & A) costs.

2.2 Support to research consortiums

2.2.1. Action: Support to cybersecurity research consortiums such as Center for Applied Cybersecurity Research (CACR) at Indiana University and the Center for Education and Research in Information Assurance and Security (CERIAS) at Purdue University.

2.3 Establish a stronger presence in Washington, D.C.

2.3.1. Action: Establish a stronger presence in Washington, D.C. to engage the federal Cybersecurity community and facilitate the access of Indiana businesses to the $19B government cybersecurity market.

2.4 Grant Collaboration

2.4.1. Action: Establish leadership by developing grant writing talent that can attract

funding from federal sources specifically to support strategic initiatives contained in this plan.

Line of Effort 3: Talent Cultivation

3.1 Cybersecurity talent pipeline strategy.

3.1.1. Action: Support the Department of Workforce Development in utilizing data to strategically determine workforce needs and create a cybersecurity workforce pipeline. Synchronize efforts in research, marketing, and strategy within the cybersecurity sector.

3.2 Incentives to attract/retain talent.

3.2.1. Action: Engage State leadership to create a State Cybersecurity Scholarship. The scholarship could utilize existing education funds and provide ~~a~~ two-year scholarship ($25,000 per year) that stipulates the recipient's commitment to work in cybersecurity at the State or Indiana local government level for each year the scholarship is accepted[21].

3.2.2. Action: Engage State leadership to create individual tax incentives for cybersecurity professionals living in Indiana, a Federal security clearance cost tax credit, and other creative tools to attract and retain cyber security talent, businesses and research.

3.3 Support to K-12 cybersecurity programs.

3.3.1. Action: Create an organized state-wide cybersecurity competition incorporating other programs such as CyberPatriot and US Cyber Challenge. Establish regional and State level cyber camps leveraging industry organizations, universities, businesses, and military assets[22].

3.3.2 Action: Strengthen the State's K-12 CS/Cyber educational programs by providing grants to grade 8-12 public schools to implement state-approved CS/Cyber educational programs, and by offering train-the-trainer workshops for K-12 teachers. Offer a state-recognized basic cybersecurity certificate program to all high school students.

Line of Effort 4: Identity Creation

4.1 Collateral

4.1.1. Action: Create cybersecurity economic development web content, single page collateral, multiple page state asset collateral, and branding/display materials.

4.2 Targeted marketing plan

4.2.1. Action: Create a detailed marketing plan targeting cybersecurity businesses in the Washington D.C., Baltimore, San Francisco, New York, Boston, Chicago, Austin,

[21] CyberCorps Scholarship for Service (SFS) has a scholarship targeting federal information assurance professionals. Currently, only Purdue University participates in this program. The Commonwealth of Virginia created the Cybersecurity Public Service Scholarship Program however it is currently unfunded.

[22] Both CyberPatriot and US Cyber Challenge teams exist across the State of Indiana. Indiana should establish a program with camps that utilizes Indiana assets while incorporating teams from these existing programs.

and Atlanta[23]. The plan will be synchronized with other efforts in these geographic areas and will include advertising, industry events, and engagement opportunities.

FUNDING PLAN

Investment strategy for the Indiana Cybersecurity Economic Development Plan is based on core principles:

1. Incentives are tied to the strategic plan.
2. Resources are maximized through industry led initiatives, partnerships, and collaboration.
3. Incentives are performance based with claw back provisions.
4. Supported actions are evaluated on metrics of measured results and outcomes.
5. Supported actions are evaluated on quantitative or qualitative Return on Investment (ROI).
6. An economic and fiscal impact analysis will be conducted on projects as necessary.
7. A cost-benefit analysis will be conducted on projects as necessary.

[23] These cities are generally regarded as having a strong cybersecurity business sector.

Annex A: Executive Council on Cybersecurity

In April 2016, former Governor Mike Pence announced the formation of the Indiana State Executive Council on Cybersecurity (Cybersecurity Council), a comprehensive public-private partnership charged with enhancing Indiana's ability to prevent, respond to and recover from all types of cybersecurity issues, including attacks. The Cybersecurity Council, continued under Executive Order of current Governor Eric Holcomb, includes expertise from public and private partners.

The Cybersecurity Council's goals include formalizing strategic cybersecurity partnerships across the public and private sectors, strengthening best practices to protect information technology infrastructure, and building and maintaining robust statewide cyber incident response capabilities. Indiana is calling on experts in state and federal government, business, Indiana's National Guard, and academia to work together, communicate in a timely manner and share best practices for mitigating cybersecurity threats.

The Cybersecurity Council is currently comprised of 23 members from various public and private sector organizations across the state.

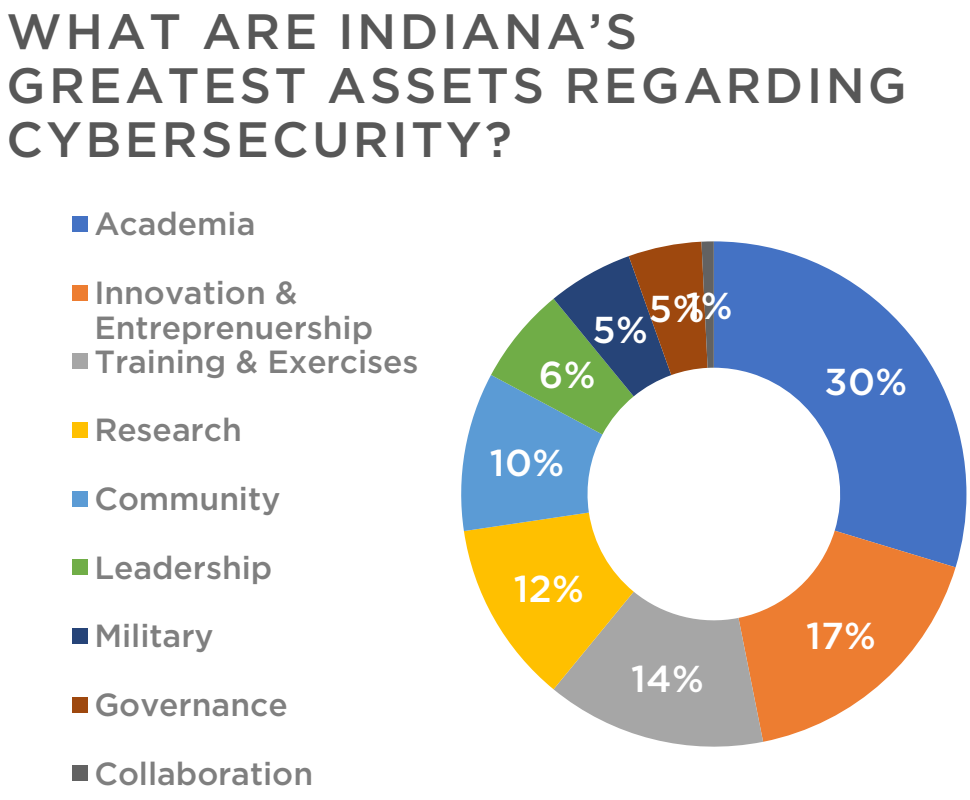
Current Executive Orders can be found at http://www.in.gov/gov/2384.htm.

Annex B: Indiana Economic Development Corporation Cybersecurity Survey

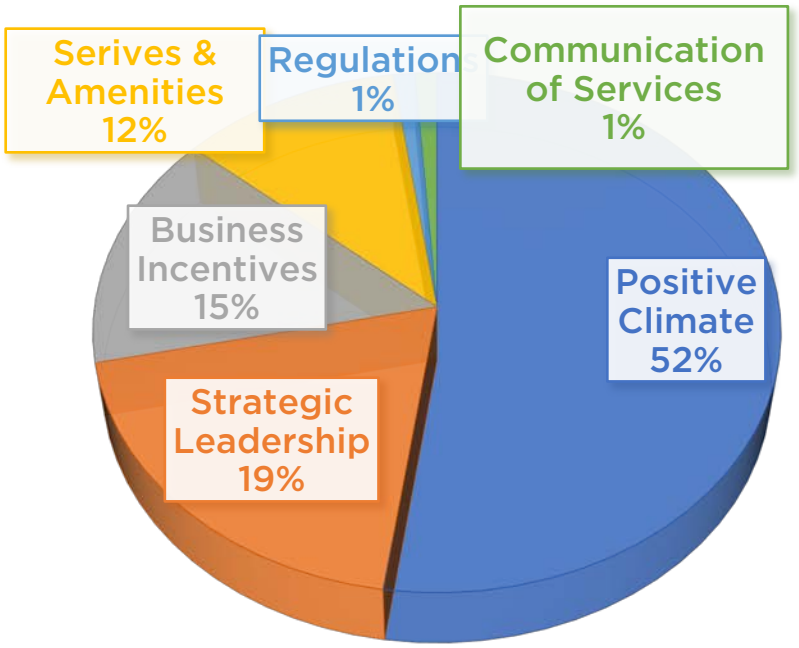
The IEDC developed and conducted a cybersecurity industry survey which was distributed in hard copy to participants of the Cybersecurity Town Halls as well as made available online. The purpose of the survey was to

- Determine what motivates and identify issues of concern and interest Indiana's cybersecurity community.
- Receive comments, opinions, and feedback on Indiana cybersecurity environment
- Discuss important topics/issues
- Facilitate an unbiased approach to the development of the Indiana Cybersecurity Economic Development plan
- Conduct an initial asset inventory
    - Create a benchmark to which future results can be compared

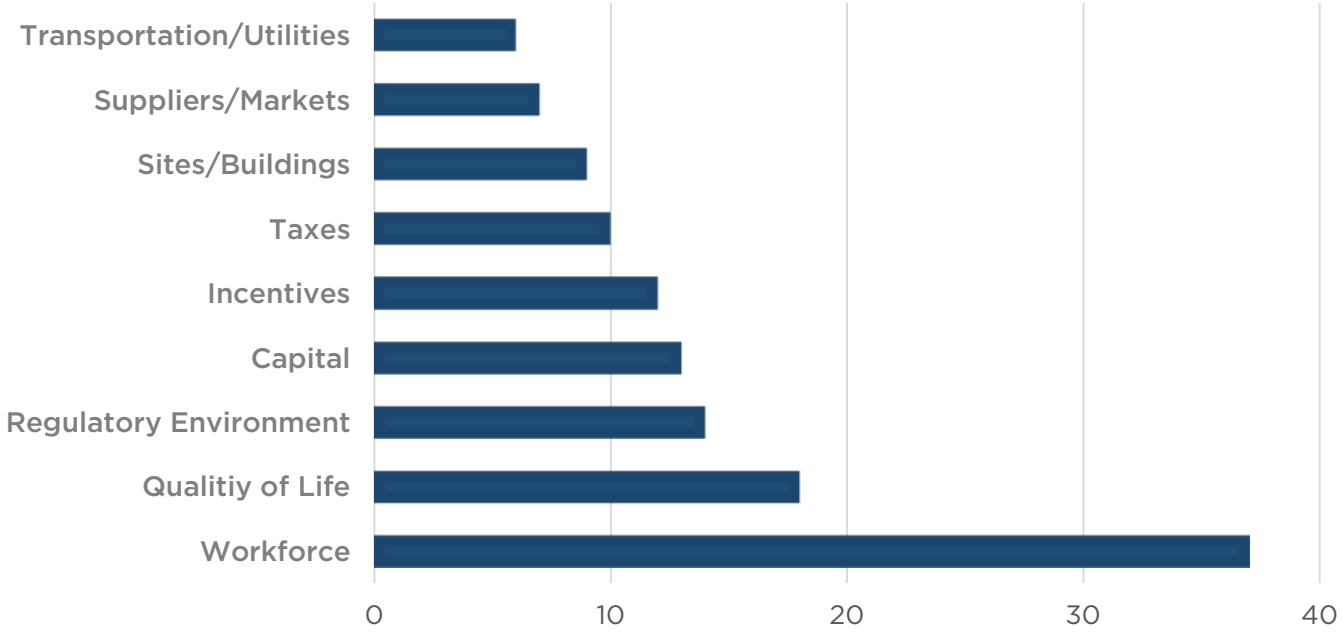
Highlights of the survey results that were key to the development of this plan are depicted below.



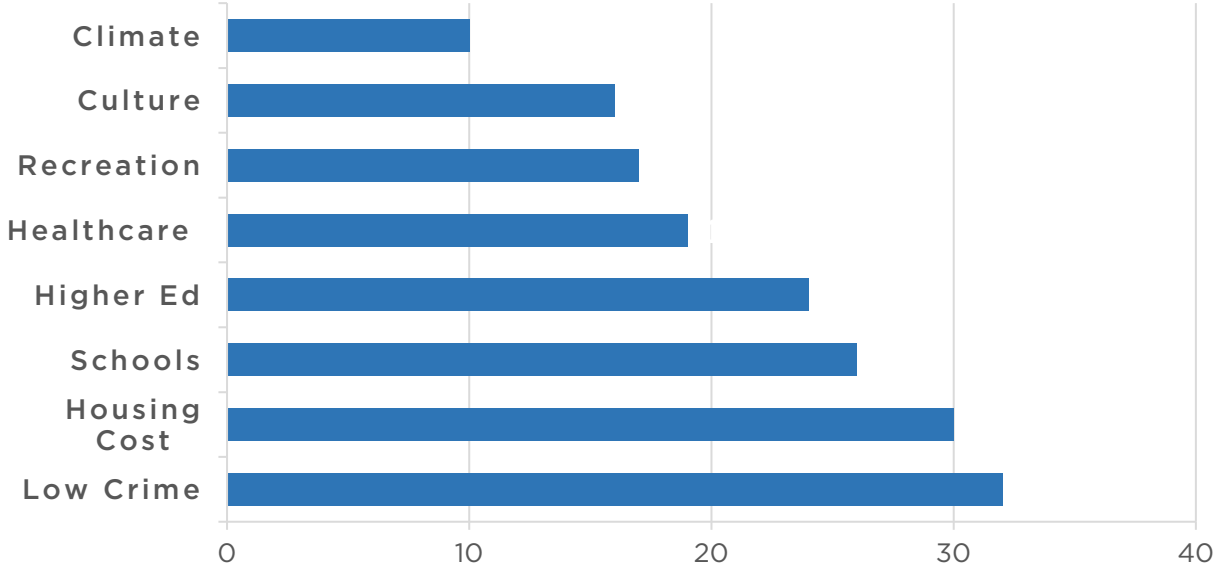
WHAT IS THE MOST IMPORTANT ROLE OF GOVERNMENT IN BUSINESS DEVELOPMENT?



WHAT ELEMENTS ARE MOST IMPORTANT TO YOU IN A BUSINESS ENVIRONMENT?



WHAT ELEMENTS ARE MOST IMPORTANT TO YOU FROM A QUALITY OF LIFE PERSPECTIVE?



Annex C: Indiana Economic Development Cybersecurity Town Hall Series

The Indiana Economic Development Corporation hosted a series of engagements across the State of Indiana known as the "Cybersecurity Town Hall Series." In total, 7 cybersecurity town halls were conducted across the state (Bloomington, Columbus, Evansville, Fort Wayne, Portage, Westgate, and West Lafayette). The stated objectives for these events were:

- To define the cybersecurity market in Indiana through direct engagement with cybersecurity providers and consumers.
- To identify economic development/business development opportunities within cybersecurity/information security.
- To educate cybersecurity providers and consumers about state incentives and programs available through the IEDC, Indiana Procurement Technical Assistance Center, and to Indiana Small Business Development Center.

Additional goals included identifying business to business opportunities for participants, general networking, and conducting an Indiana asset inventory.

Participants included cybersecurity solution providers who provide Identity and Access Management (IAM), risk and compliance management, encryption, Data Loss Prevention (DLP), Unified Threat Management (UTM), firewall, antivirus/antimalware, Intrusion Detection System (IDS)/Intrusion Prevention System (IPS), security and vulnerability management, disaster recovery, Distributed Denial of Service (DDoS) mitigation, web filtering, and other services.

Other participants were cybersecurity service providers specializing in managed services, professional services including consulting, training and education, support and maintenance, design and integration, and risk and threat assessment. Cybersecurity consumers across the following verticals also participated: aerospace and defense, government and public utilities, Banking, Financial Services, and Insurance (BFSI), IT and telecom, healthcare, retail, and manufacturing. Higher education and the military also participated.

Locations	Key Discoveries
Bloomington	• Opportunities to unlock intellectual property from higher education. • An innovation and entrepreneur community that could benefit from economic gardening. • Many assets and individuals that could be more effectively engaged by the state.
Columbus	• A high concentration of cybersecurity expertise and need surrounding advance manufacturing and industrial control systems. • A need for local cybersecurity certification training. • A desire to leverage military assets. • A Shortage of workforce. • A need for small and mid-size business cybersecurity solutions.
Evansville	• A desire for better communication within the state on cybersecurity information and initiatives. • A high concentration of expertise within utilities (energy). • A high concentration of cybersecurity expertise and need surrounding advance manufacturing and industrial control systems. • A need for small and mid-size business cybersecurity solutions. • A shortage of workforce.
Fort Wayne	• A need and desire to develop regional cybersecurity strategies. • A high concentration of expertise in health care, medical devices and advanced manufacturing. • A need for small and mid-size business cybersecurity solutions. • A shortage of workforce.

Portage	• A need for small and mid-size business cybersecurity solutions. • A need and desire to develop regional cybersecurity strategies. • A desire to leverage military assets. • A shortage of workforce.
Westgate	• A desire to leverage military assets. • Many assets and individuals that could be more effectively engaged by the State. • A need for investment in infrastructure. • A shortage of workforce.
West Lafayette	• Many assets and individuals that could be more effectively engaged by the State. • Opportunities to unlock intellectual property from higher education. • An innovation and entrepreneur community that could benefit from economic gardening.

Annex D: Indiana Cybersecurity Engagement Activities

Date	Category	Event	Representative	Location
June 24, 2016	State	Infragard Food and Agriculture Sector Event	Advisor for Cybersecurity	Atlanta, IN
June 26-27, 2016	International	Israel Cybersecurity Delegation	Governor, Secretary of Commerce, Chief Innovation Officer, Advisor for Cybersecurity	Indianapolis, IN
June 30, 2016	State	CXO Conference	Advisor for Cybersecurity	Indianapolis, IN
July 14, 2016	State	Innovation Showcase	Advisor for Cybersecurity	Indianapolis, IN
July 26-27, 2016	National	CSWC Microelectronics Integrity Symposium	Chief Innovation Officer, Advisor for Cybersecurity	Indianapolis, IN
August 2-5, 2016	National	Black Hat	Advisor for Cybersecurity	Las Vegas, NV
August 22, 2016	State	Association for Financial Professionals of Indiana	Advisor for Cybersecurity	Indianapolis, IN
September 1, 2016	State	Indy Big Data Conference	Chief Innovation Officer, Advisor for Cybersecurity	Indianapolis, IN
September 11-15, 2016	National	Infragard National Summit	Advisor for Cybersecurity	Orlando, FL
September 29, 2016	State	Center for Applied Cybersecurity Research Summit	Advisor for Cybersecurity	Indianapolis, IN
October 13, 2016	State	Centric Day of Innovation	Advisor for Cybersecurity	Indianapolis, In
October 24-27, 2016	National	ICS Cybersecurity Conference	Advisor for Cybersecurity	Atlanta, GA
November 22, 2016	State	Indiana Cybersecurity State of the State	Advisor for Cybersecurity	Indianapolis, IN
January 18, 2017	National	Atlanta A-List	Advisory for Cybersecurity	Indianapolis, IN
January 29 – February 3, 2017	International	CyberTech	Secretary of Commerce, Chief Innovation Officer, Advisor for Cybersecurity, Director of Field Operations	Tel Aviv, Israel
February 13-17, 2017	National	RSA	Advisor for Cybersecurity	San Francisco, CA
March 7-9, 2017	International	International Resiliency Conference	Advisor for Cybersecurity	New Orleans, LA
March 30 - April 1, 2017	National	Women in Cybersecurity	Advisor for Cybersecurity	Tucson, AZ
April 17-19, 2017	State	Center for Education and Research in Information Assurance and Security Symposium	Chief Innovation Officer, Advisor for Cybersecurity	West Lafayette, IN
April 21, 2017	State	Indiana Aerospace and Defense Council Breakfast	Governor, Secretary of Commerce, Chief Innovation Officer, Advisor for Cybersecurity	Indianapolis, IN