

An Analysis of Cybersecurity Legislation and Policy Creation

Adam Alexander, Eric Jackson, Bryant Johnson, Paul Graham, Dr. Jaehong Park, and Tania Williams



The Problem

- Cybersecurity legislation is important.
 - Difficult to pass
 - Technology is ever changing
- There are very few studies that attempt draw from legislation across all 50 states.





Our Goal

Provide the state of Indiana with a searchable database of legislation

- This could serve as a baseline when considering new policies.
- It could be used to identify major trends.





What We Did

- Researched and classified 500 bills related to cybersecurity
 - 454 State
 - 46 Federal
- Organized bills with metadata into a searchable database (Airtable)
- Performed preliminary analysis of the data



Policy Classification

- Government Service
- Finance
- Defense
- Energy
- Water/Wastewater
- Communications
- Healthcare
- Elections
- Economic Development
- Workforce Development

- Personal Identifiable
 Information
- Public Awareness and Training
- Education
- Emergency Services and Exercise
- Cyber Sharing
- Cyber Organizations (Center)
- Cyber Pre Thru Post Incident
- Legal/Insurance
- Local Government
- Other critical infrastructure





THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

Organization of Metadata

- Bill number
- State
- Type of policy
- Type of legislation
- Originator (senate, house, bipartisan)
- Year introduced
- Status

- Link to online source
- Related legislation
- Description
- Political party affiliation
- Bill sponsor
- Link to vote count information



P	🖺 State of Cybersecurity 🔹						HELP ? 🌲
≡	Legislation 🔻	Related Legislation	n Researc	cher 🛨			SHARE 🗿 🚼 BLC
Ŧ	🗄 Grid view 🔹	🥢 Hide field	Ţ 1 filter	🖽 Group) ↓† Sort 🗳 Color 📑	Ľ	
	A Bill Number	🗸 🖸 Sta	e . =	ž Year 👻	$\equiv \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	· Ξ‡ State Legislature →	$\equiv \ensuremath{\bar{\ast}}\xspace$ Type of Policy (Select all that apply.)
1	HB23	Alask	a (2011	Bill	House	Legal/Insurance
2	HB144	Alask		2013	Bill	House	Personal Identifiable Information
3	SB210	Alask	3	2014	Bill	Senate	Education Personal Identifiable Information
4	HB85	Alask	3	2015	Bill	House	Education Personal Identifiable Information
5	HB96	Alask	3	2015	Bill	House	Personal Identifiable Information
б	SB3	Alask	3	2015	Bill	Senate	Education Personal Identifiable Information
7	HB2577	Arizo	na	2013	Bill	House	Cyber Sharing Energy Other Critical Infrastructure
8	HB2469	Arizo	па	2013	Bill	House	Personal Identifiable Information
9	HB2647	Arizo	па	2015	Bill	House	Cyber Organizations Government Service
10	SB1464	Arizo	па	2015	Bill	Senate	Education Personal Identifiable Information
11	HB2046	Arizo	na	2016	Bill	House	Cyber Pre Through Post Incident
12	SB1352	Arizo	na	2016	Bill	Senate	Legal/Insurance
13	HB2582	Arizo	па	2016	Bill	Senate	Education Personal Identifiable Information
14	SB1389	Arizo	па	2016	Bill	Senate	Education Personal Identifiable Information
15	HB1691	Arkar	sas	2015	Bill	House	Cyber Sharing Personal Identifiable Information



Analysis

- All 50 states were examined.
 - Most states only had between 1-10 total policies.
 - Only 9 states had 20 or more.
- Dates were important.
 - States that introduced policies before 2016 Not active.
 - States that introduced polices after 2016 Active.
- Active states

Illinois, Maryland, New York, and Vermont



Dates States Were Actively Passing Legislation



Analysis Cont.

- Failed Legislation
 - Larger percentage of failed bills than passed bills
 - highest failure rates
 highest success rates
- Vetoed Bills
 - Only 5 bills were vetoed



Status of Policy Types



THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

Analysis continued

Influence of Federal Legislation

- Federal legislation is focused on
 - Defense
 - Cyber Pre-through-Post Incident
 - Cyber sharing
- State legislation is focused on:
 - Education
 - Personally Identifiable Information
 - Government Services
 - Legal





📕 Federal: 2011 - 2014 📕 Federal: 2015 - 2018 📕 State: 2011 - 2014 📕 State: 2015 - 2018 80.00% 60.00% 40.00% 20.00% Energency services and Exercises 0.00% cyber Pre Through Post Incident Personal dentiabe Information Economic Development Government Services other offical Infrastructure c Awareness and Training communications oyber organizations orbershalling Workforce Development Legalinsuarce LocalGovernment WaterWastervater Finance Healthcare Energy THE UNIVERSITY OF ALABAMA IN HUNTSVILLE CENTER FOR CYBERSECURITY RESEARCH AND EDUCATION

Categories as a Percent of Federal and State Policies Surveyed

Analysis continued

Bipartisan Policy Creation

- Bipartisan attempts 56% success
- Partisan attempts 40 % success





Bipartisan vs Partisan Efforts



Challenges

Varying terminology

• Verbiage varied from state to state.

Determining relevance

• Desired topics were buried in unrelated content.

Tracing a bill's origin

Originates in house or senate



Conclusion

State bills

- 305 total
- 138 Passed
- 167 Failed
- Success rate of 45%

Bipartisan success

- Bipartisan bills had 56% success
- Partisan bills had 40% success

States leading the way in Cybersecurity

- Vermont
- Virginia



Future Work

- Correlation between legislation and cyber events
 Example: Equifax breach
- Measure impact of key successful legislation over time Did the legislation have the intended effect?
- Examination of failed legislation

Learn from mistakes of the past





