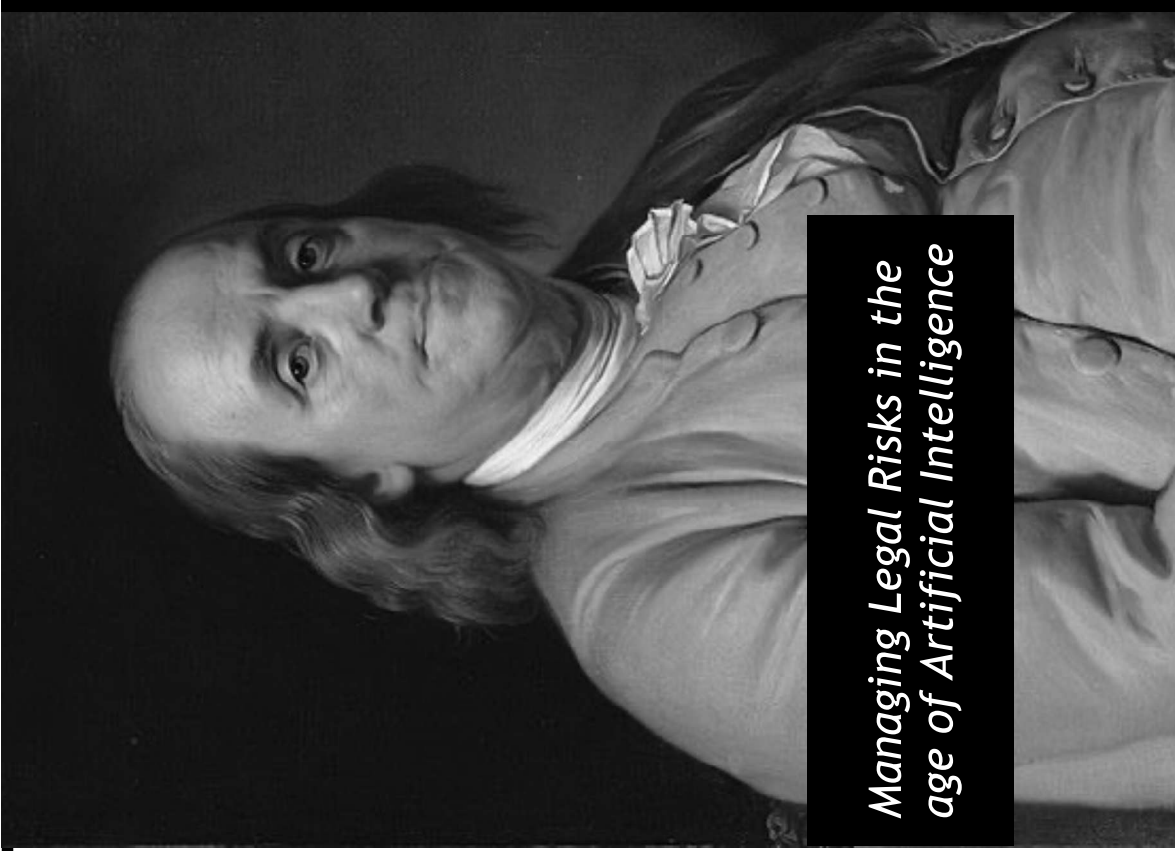


HEART OF AMERICA  
TAX INSTITUTE  
Nov. 7 2024

# CYBER SECURITY

## DATA STORAGE & INFORMATION PRIVACY

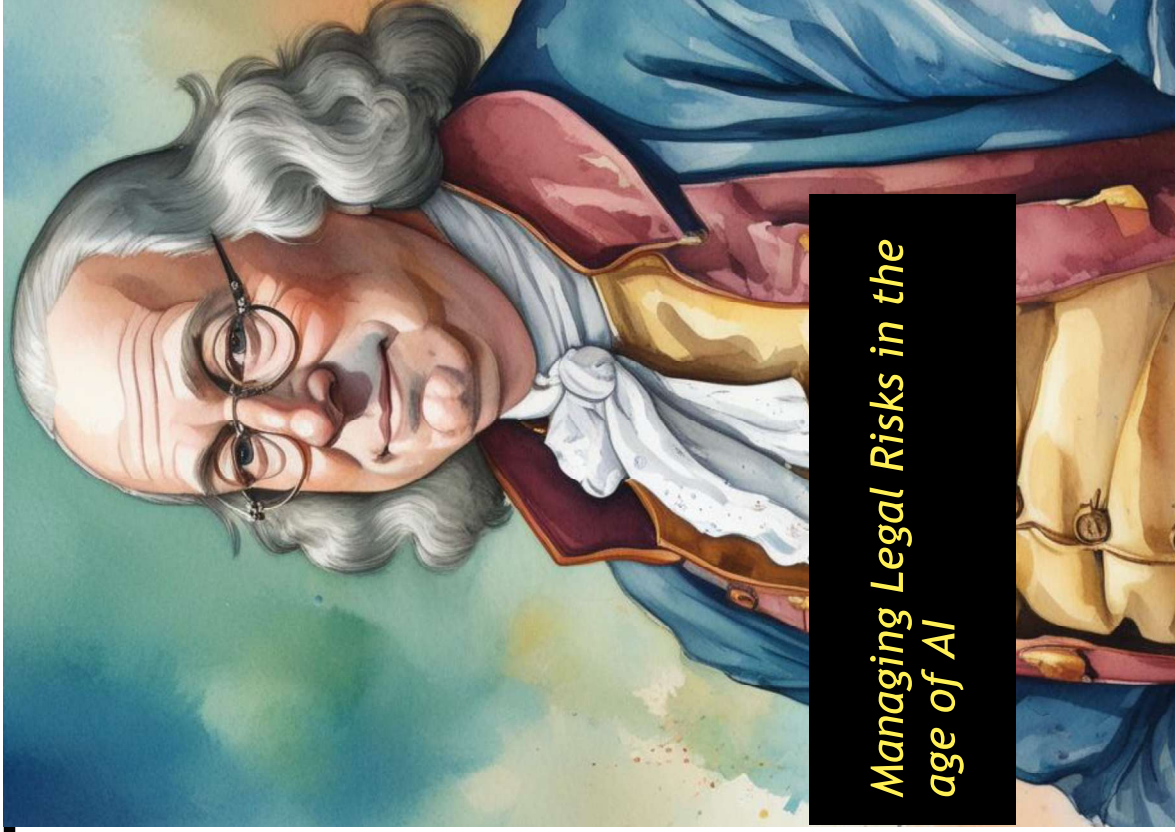


*Managing Legal Risks in the  
age of Artificial Intelligence*

HEART OF AMERICA  
TAX INSTITUTE  
Nov. 7 2024

# CYBER SECURITY

## DATA STORAGE & INFORMATION PRIVACY



*Managing Legal Risks in the  
age of AI*



# INTRODUCTION

- ▶ Preston Bukaty, Denver, CO
- ▶ *Sr. Compliance Attorney, IntelePeer*
- ▶ Juris Doctorate, Univ. of Kansas School of Law
- ▶ Author, “The CCPA: An Implementation Guide”
- ▶ prior: *GRC Consultant, IT Governance USA*
- ▶ Advise clients on data privacy and cybersecurity laws
- ▶ Training & certification courses covering evolving laws (GDPR, CCPA), and respective risk management frameworks (ISO 27001, NIST 800-53)
- ▶ Questions? Email questions to [pbukaty@sbcglobal.net](mailto:pbukaty@sbcglobal.net)



# AGENDA

- 1** Data, breaches, and the importance of information
- 2** AI laws & compliance requirements
- 3** Where to start? The cybersecurity lifecycle
- 4** The cybersecurity lifecycle - Preparation
- 5** The cybersecurity lifecycle - Detection & analysis
- 6** The cybersecurity lifecycle - Respond





# 3 Important Statistics About How Much Data Is Created Every Day

## 1 How much data is generated every minute?

Source: Domo

**41,666,667**

messages shared by WhatsApp users

**1,388,889**

video / voice calls made by people worldwide

**404,444**

hours of video streamed by Netflix users

**347,222**

stories posted by Instagram users

**150,000**

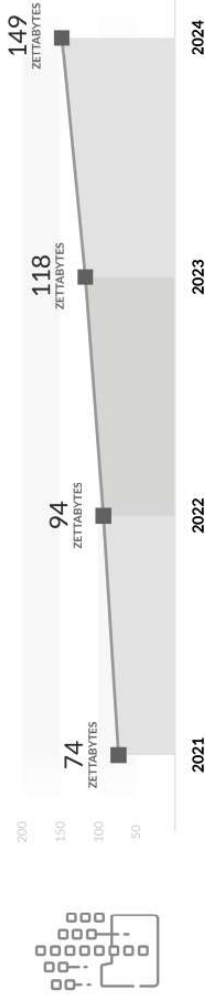
messages shared by Facebook users

**147,000**

photos shared by Facebook users

## 2 Estimated Data Consumption from 2021 to 2024

Source: IDC / Statista



## 3 Data Growth in 2021

Sources: Tebbijny, Internet Live Stats, Cisco, PurpleSec

**2** TRILLION

searches on Google by the end of 2021

**1.134** TRILLION MB

volume of data created every day

**3,026,626**

emails sent every second, 67% of which are spam

**278,108** PETABYTES

global IP data per month by the end of 2021

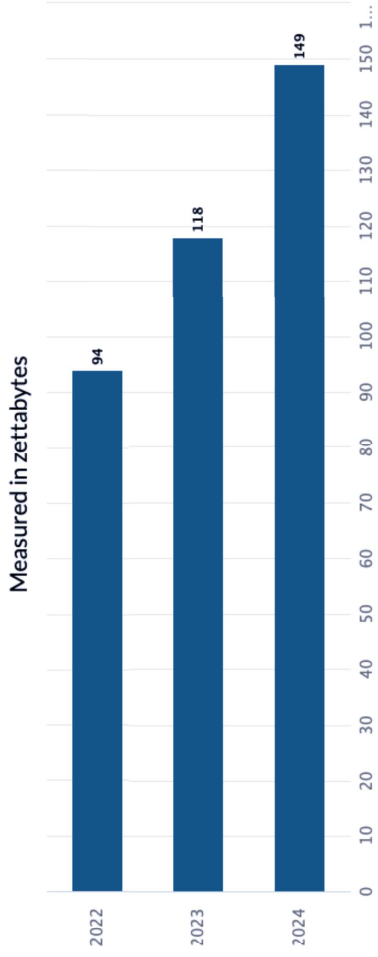
**230,000**

new malware versions created every day

**82%**

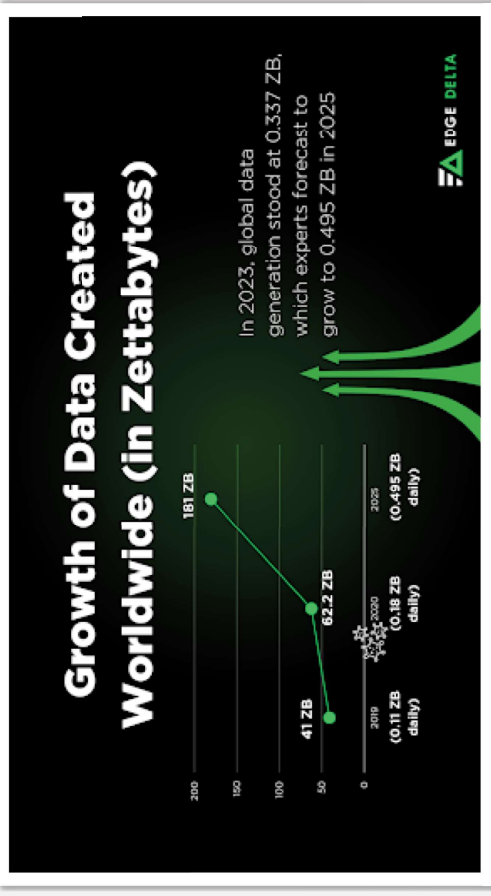
share of video in total global Internet traffic at the end of 2021

Data Volume 2022-2024



Source: IDC & Statista, 2020

Designed by FinancesOnline



- In 2023, Facebook produced around 4 PB on average per day.
- An average IG account uses around 9.6 GB to 14.4 GB daily.
- With 619 million active users, X creates around 12 TB daily.
- TikTok users spent around 840 MB per hour on the app in 2023.
- The YouTube global community uses approximately 440,000 TB daily.
- Google manages approximately 20 PB every day.

Type of Content	Amount of Data Generated Daily
Videos	2.71 Hours of Videos
Images	3.2 Billion Photos Shared
Audio	1.38 Hours of Listening Session

# BREACHES AND INCIDENTS

## Summary

Northern American organizations continue to be the target of Financially motivated actors searching for money or easily monetizable data. Social Engineering, Hacking and Malware continue to be the favored tools utilized by these actors.

**Frequency** 13,256 incidents, 1,080 with confirmed data disclosure

**Top Patterns** Social Engineering, System Intrusion and Basic Web Application Attacks represent 92% of breaches

**Threat Actors** External (82%), Internal (19%), Multiple (2%), Partner (1%) (breaches)

**Actor Motives** Financial (96%), Espionage (3%), Grudge (2%), Fun (1%) (breaches)

**Data Compromised** Credentials (58%), Personal (34%), Other (27%), Internal (11%) (breaches)

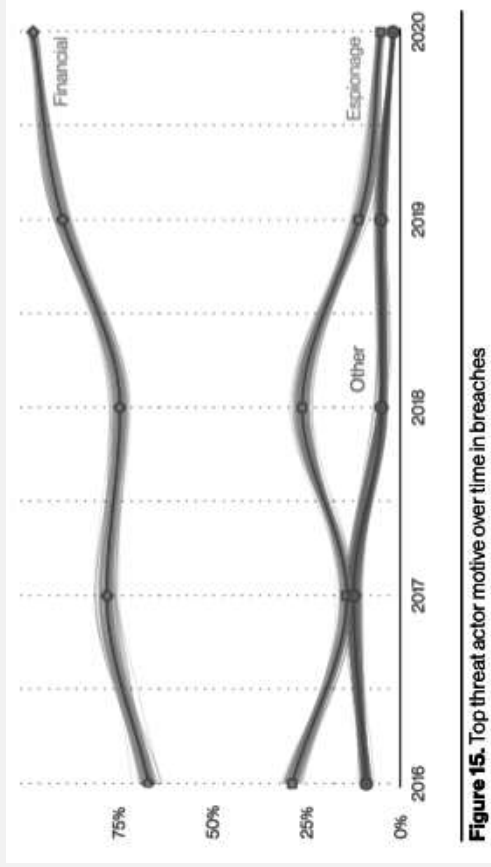


Figure 15. Top threat actor motive over time in breaches

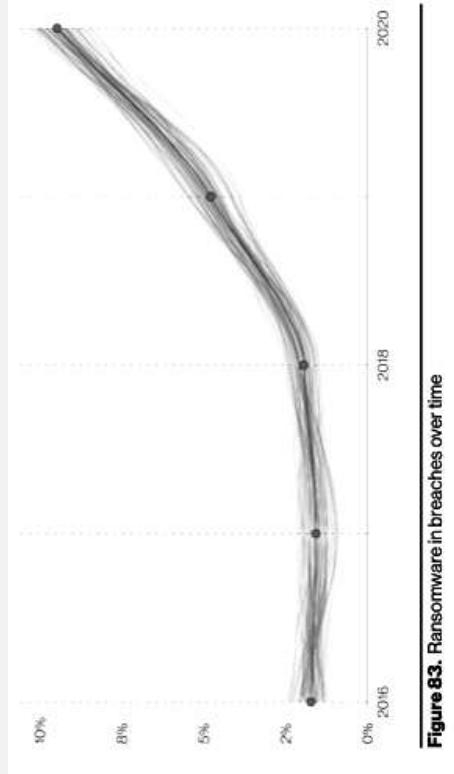
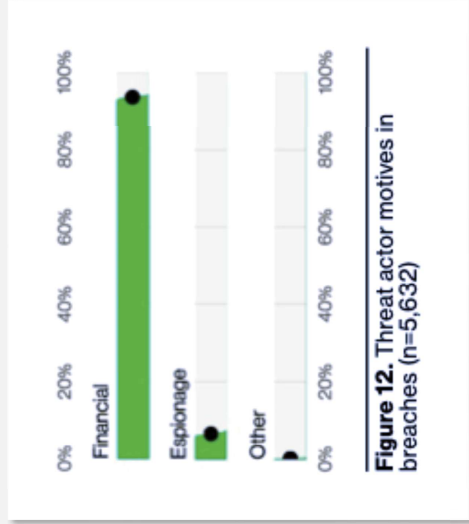


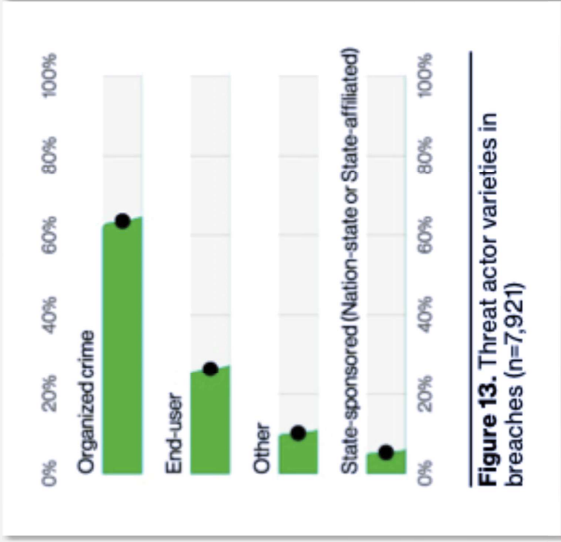
Figure 83. Ransomware in breaches over time



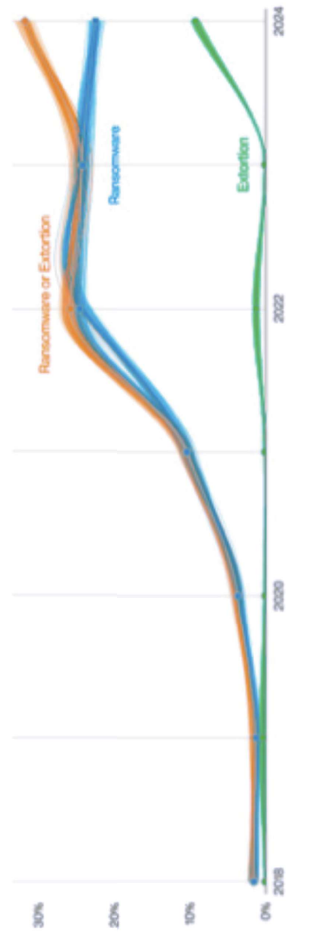
# BREACHES AND INCIDENTS



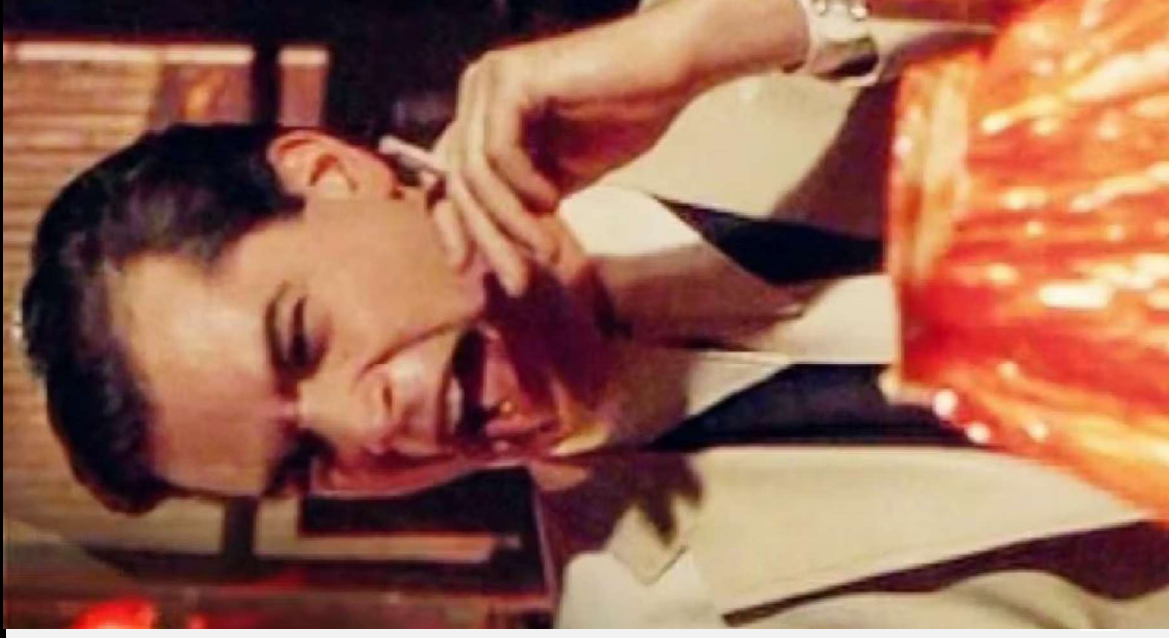
**Figure 12.** Threat actor motives in breaches (n=5,632)



**Figure 13.** Threat actor varieties in breaches (n=7,921)



**Figure 2.** Ransomware and Extortion breaches over time



# PATTERNS FOR SMBS, PROF. SERVICES

## Small (Less than 1,000 employees)

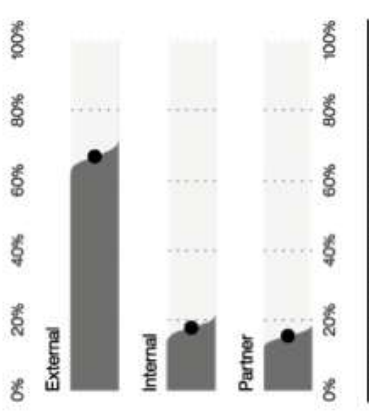
**Frequency** 1,037 incidents, 263 with confirmed data disclosure

**Top Patterns** System Intrusion, Miscellaneous Errors and Basic Web Application Attacks represent 80% of breaches

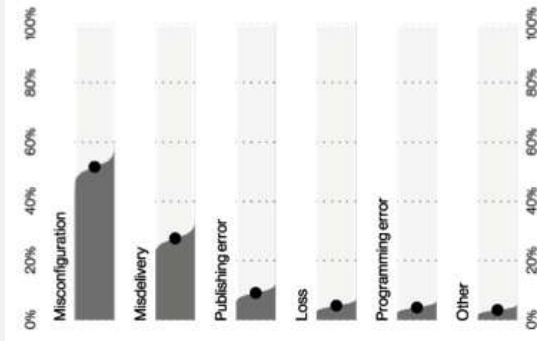
**Threat Actors** External (57%), Internal (44%), Multiple (1%), Partner (0%) (breaches)

**Actor Motives** Financial (93%), Espionage (3%), Fun (2%), Grudge (1%), Other (1%) (breaches)

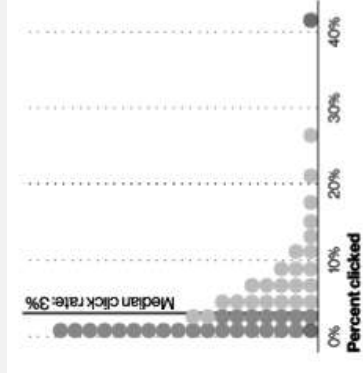
**Data Compromised** Credentials (44%), Personal (39%), Other (34%), Medical (17%) (breaches)



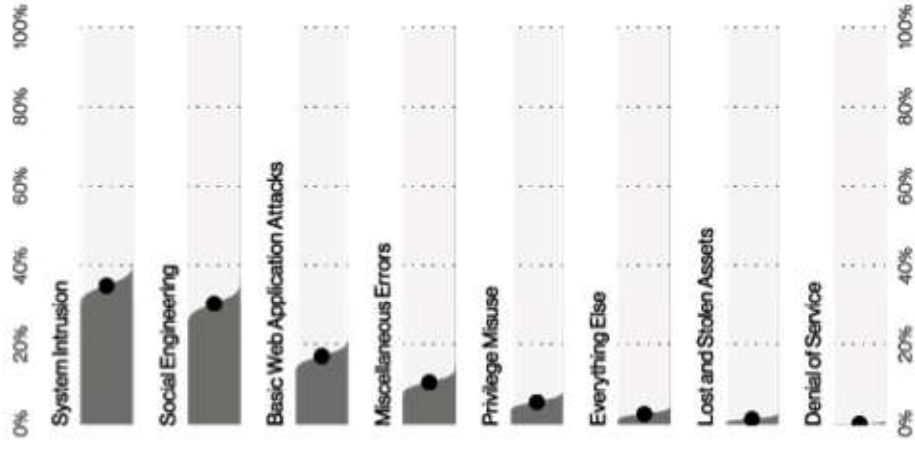
**Figure 78.** Discovery methods in Social Engineering incidents (n=691)



**Figure 62.** Top Error varieties in Miscellaneous Errors breaches (n=609)



**Figure 75.** Click rate for organizations in their last phishing campaign (n=18,177) Each dot represents 2% of organizations.



**Figure 113.** Patterns in Professional Services breaches (n=630)

\*Verizon 2021 Data Breach Investigations Report

# PATTERNS FOR SMBS, PROF. SERVICES

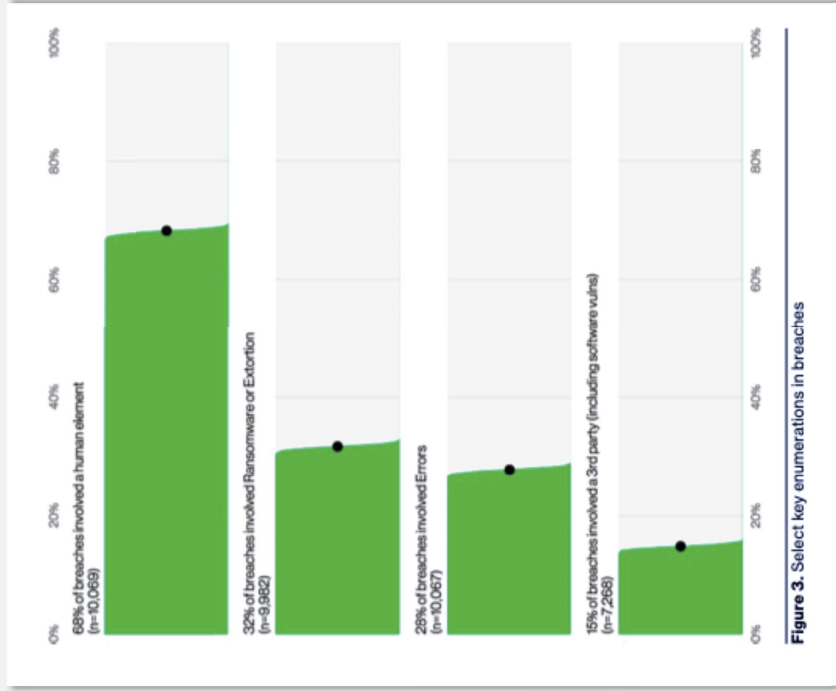


Figure 3. Select key enumerations in breaches

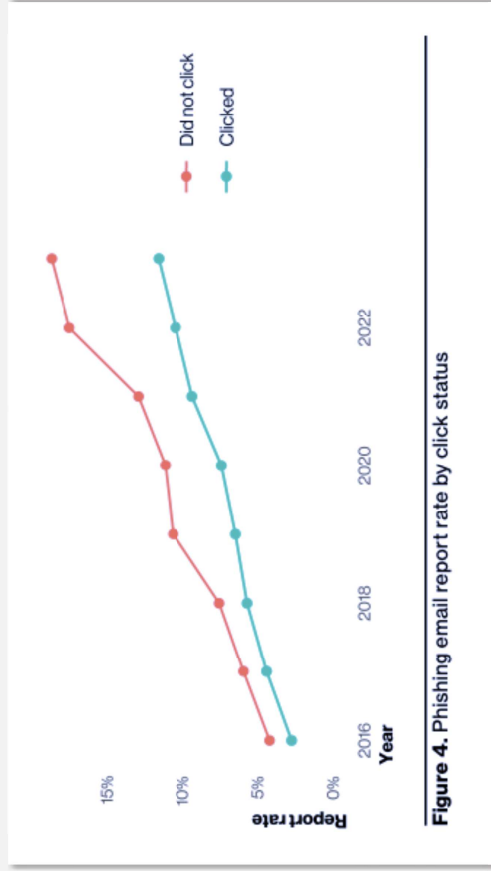


Figure 4. Phishing email report rate by click status

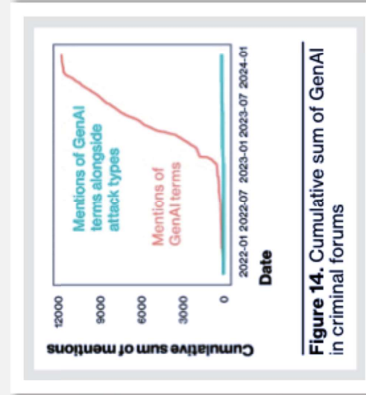


Figure 14. Cumulative sum of GenAI in criminal forums

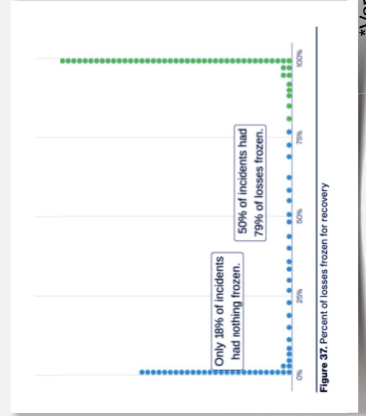


Figure 37. Percent of losses frozen for recovery

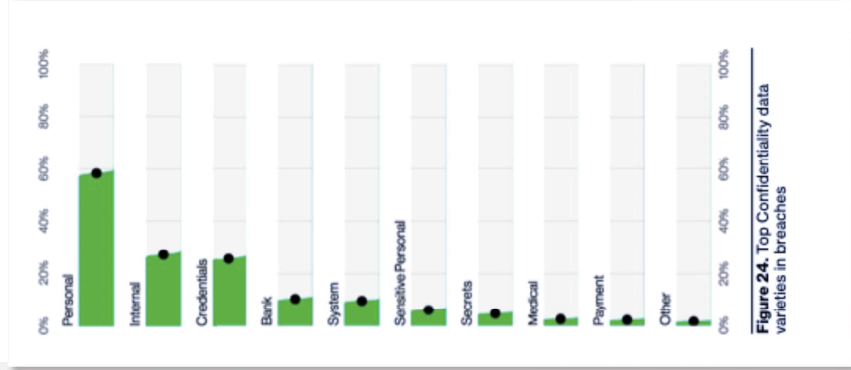


Figure 24. Top Confidentiality data varieties in breaches



# WHY, YOU ASK?

Everyone is now a target of evolving threat actors



## Monetizing information

Account credentials are easy to steal, but it requires further work to monetize those data elements before controls take effect. What's more appealing is...

- Valuable information
- Trade secrets and intellectual property
- Financial data and M&A plans
- Personal details (browsing data)
- Extortion, i.e., ransomware
- Bitcoin mining
- Industrial espionage
- Reputational harm (e.g., DDoS attacks)

## Crime does pay

- The average cost of a data breach is \$3.86 million as of 2020. ([IBM](#))
- The average ransomware payment rose 33% in 2020 over 2019, to \$111,605. ([Fintech News](#))
- The average cost of a ransomware attack on businesses is \$133,000. ([SafeAtLast](#))
- The average cost of a malware attack on a company is \$2.6 million. ([Accenture](#))
- The most expensive component of a cyber attack is information loss at \$5.9 million. ([Accenture](#))
- The average cost per lost or stolen record per individual is \$146. ([IBM](#))
- Data breaches cost enterprises an average of \$3.92 million. ([CSO Online](#))



# WHY, YOU ASK?

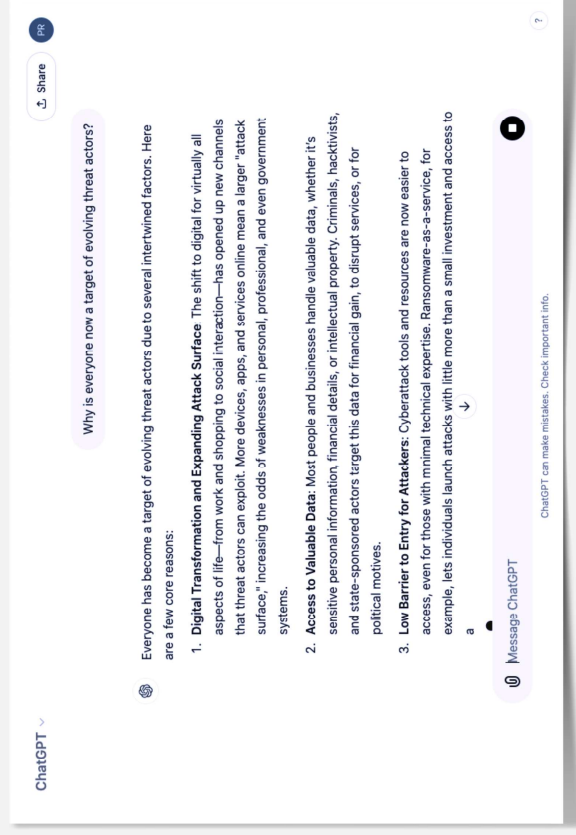
Everyone is now a target of evolving threat actors



## Monetizing information

- **Expanded Attack Surface:** More devices and apps online increase vulnerabilities.
- **Valuable Data:** Individuals and businesses handle sensitive data—ideal for cyber criminals.
- **Low Barrier to Entry:** Tools for cyberattacks are widely available, even for non-experts.
- **Remote Work Risks:** Personal networks are easier to exploit than corporate systems.
- **AI-Driven Attacks:** AI enhances phishing and impersonation, making detection harder.
- **Geopolitical Motivations:** Ideological and state-sponsored attacks target broader audiences.

## ChatGPT



# NO TAXATION WITHOUT INFORMATION

## *Tax data makes a prime target*

- Many federal agencies have been hit with damaging cyberattacks in recent years, including the Office of Personnel Management, the Justice Department, the Pentagon, and the White House.
- The IRS has also suffered attacks
- Ideal target for hackers seeking to steal personal information and money
- Some people simply want to wreak havoc by destroying data (e.g., thieves, nation state actors, etc.)
- The IRS collects information on our income sources, family structure, health information, housing data, small business details, educational situation, retirement finances, and many other things
- In 2015, the IRS launched the “Get Transcript” service, enabling taxpayers to view this information online. Within the first few months of the service, hackers stole personal information from about 724,000 taxpayer accounts.
- Politicians encourage the IRS to improve “customer service,” which encourages more online interaction. And politicians push to close the “gap” of taxes owed but not collected, prompting the agency to demand more data from individuals and businesses.

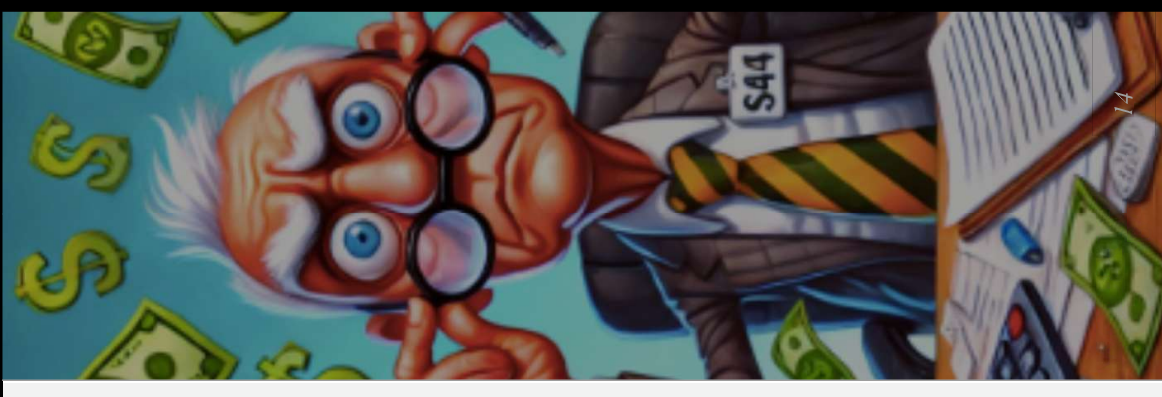




# NO TAXATION WITHOUT INFORMATION

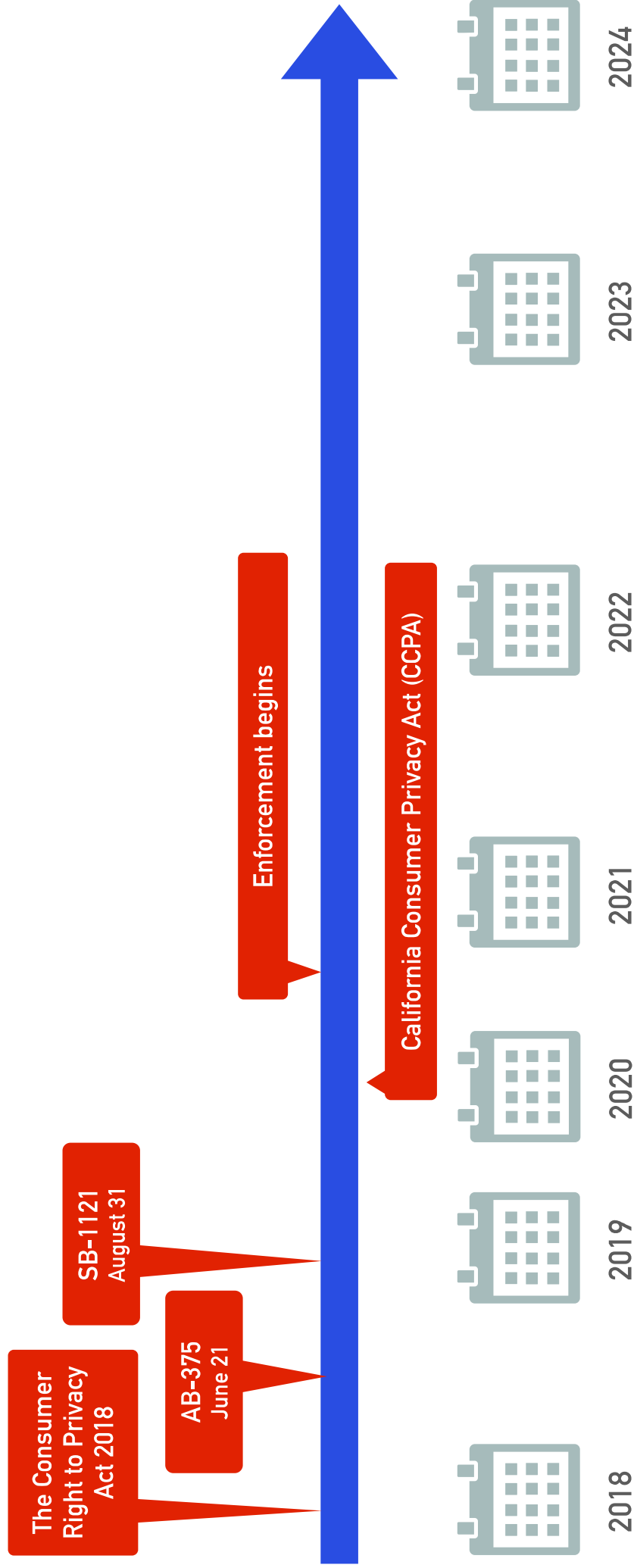
*Tax data makes a prime target*

- IRS Direct File Program (2025)
  - Allows taxpayers to file directly with the IRS, bypassing third parties
  - Enhances data collection for better service and experience IRS
- Paperless Processing Initiative
  - Nearly all documents can be filed digitally by 2025
  - Faster processing, lower costs, secure digital storage IRS
- Corporate Transparency Act Compliance
  - IRS may use corporate ownership data to identify tax liabilities and address fraud
  - Contributes to transparency in business structures
  - For each beneficial owner and company applicant, the report must provide **full legal names, current residential or business addresses, dates of birth**, and a unique identifier such as a **passport, driver's license, or similar document number**.



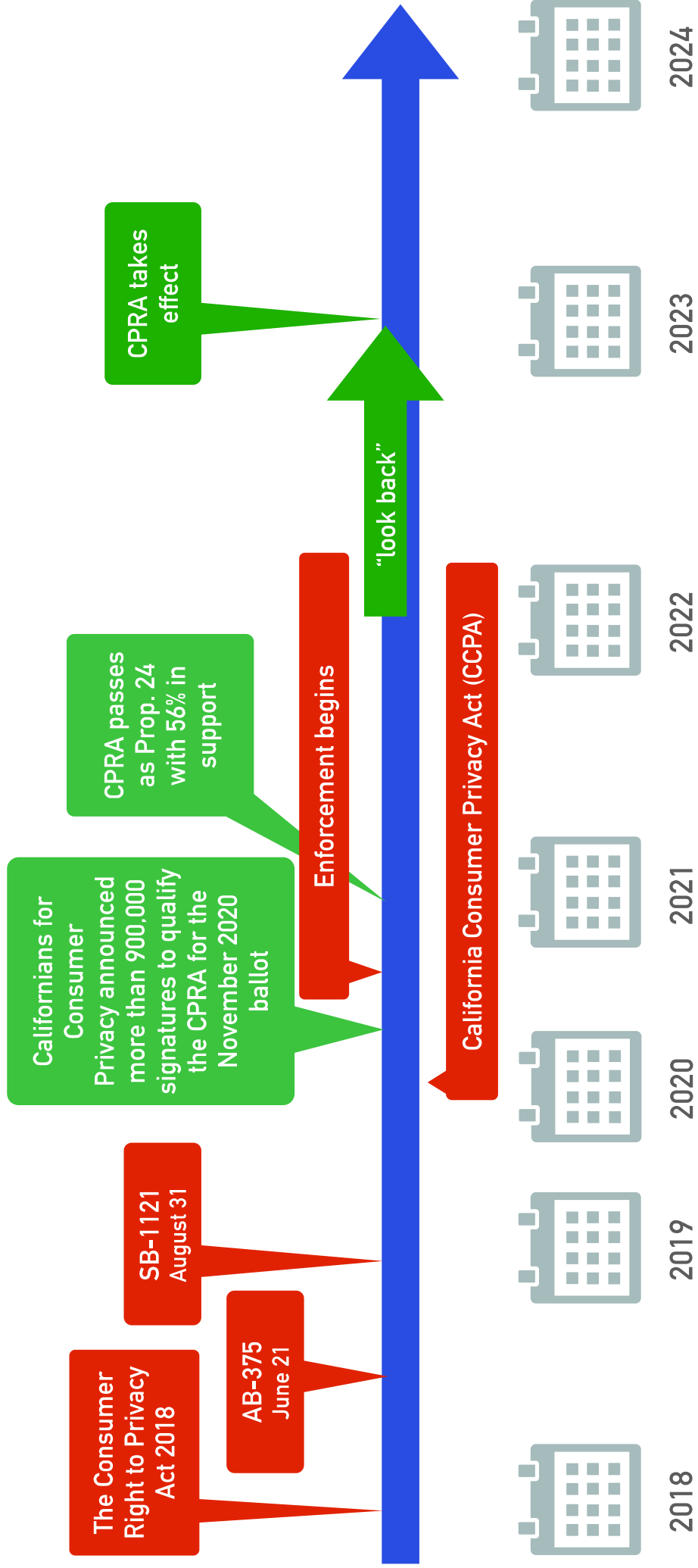
# USA STATE CONSUMER PRIVACY LAWS

# A BRIEF HISTORY LESSON



# USA STATE CONSUMER PRIVACY LAWS

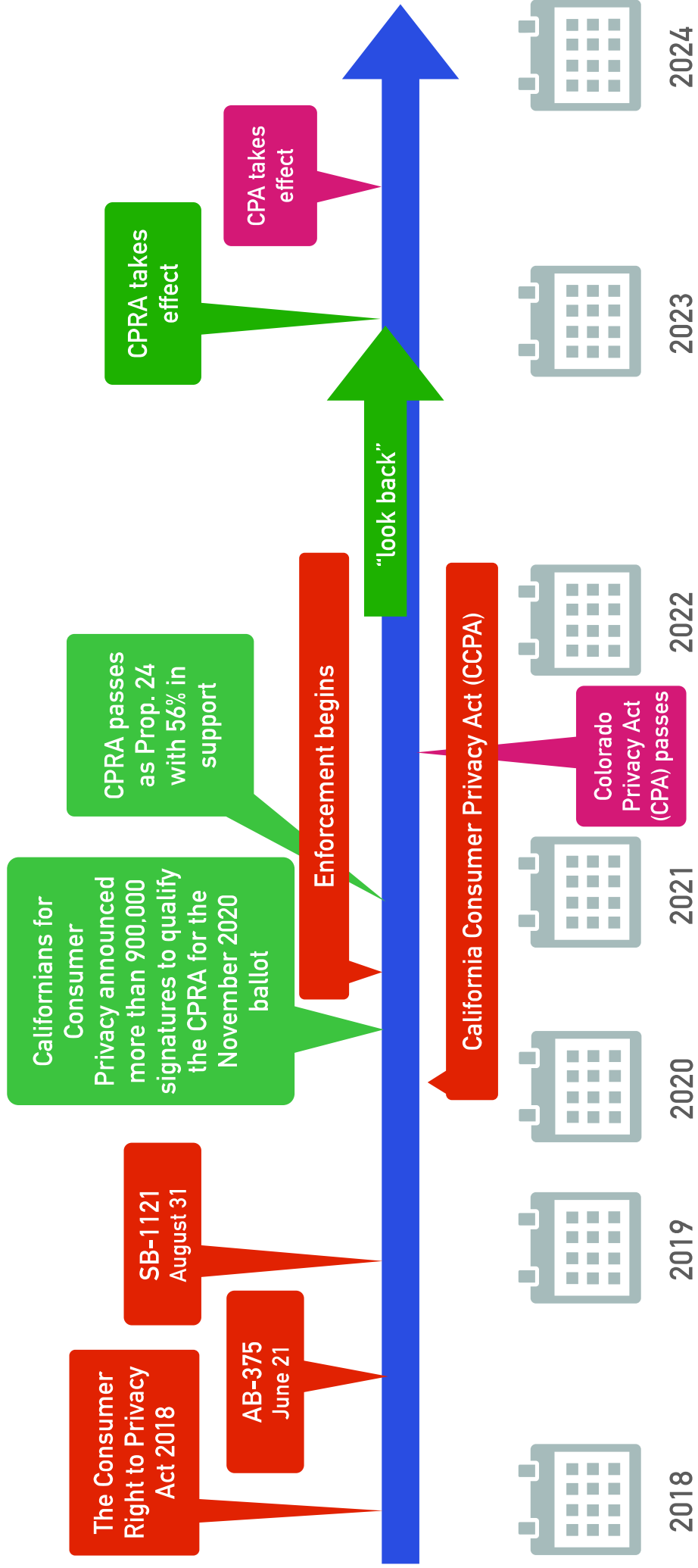
# A BRIEF HISTORY LESSON





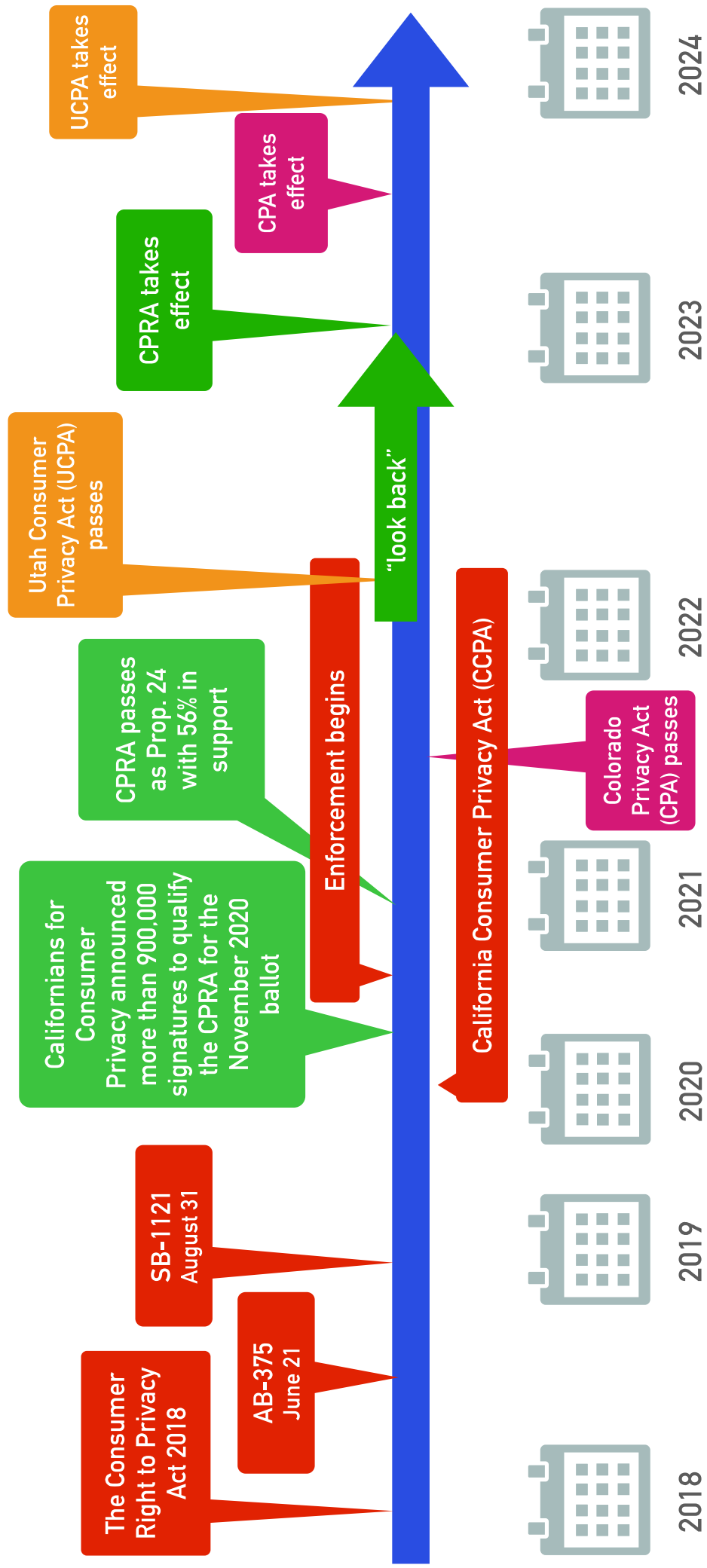
# USA STATE CONSUMER PRIVACY LAWS

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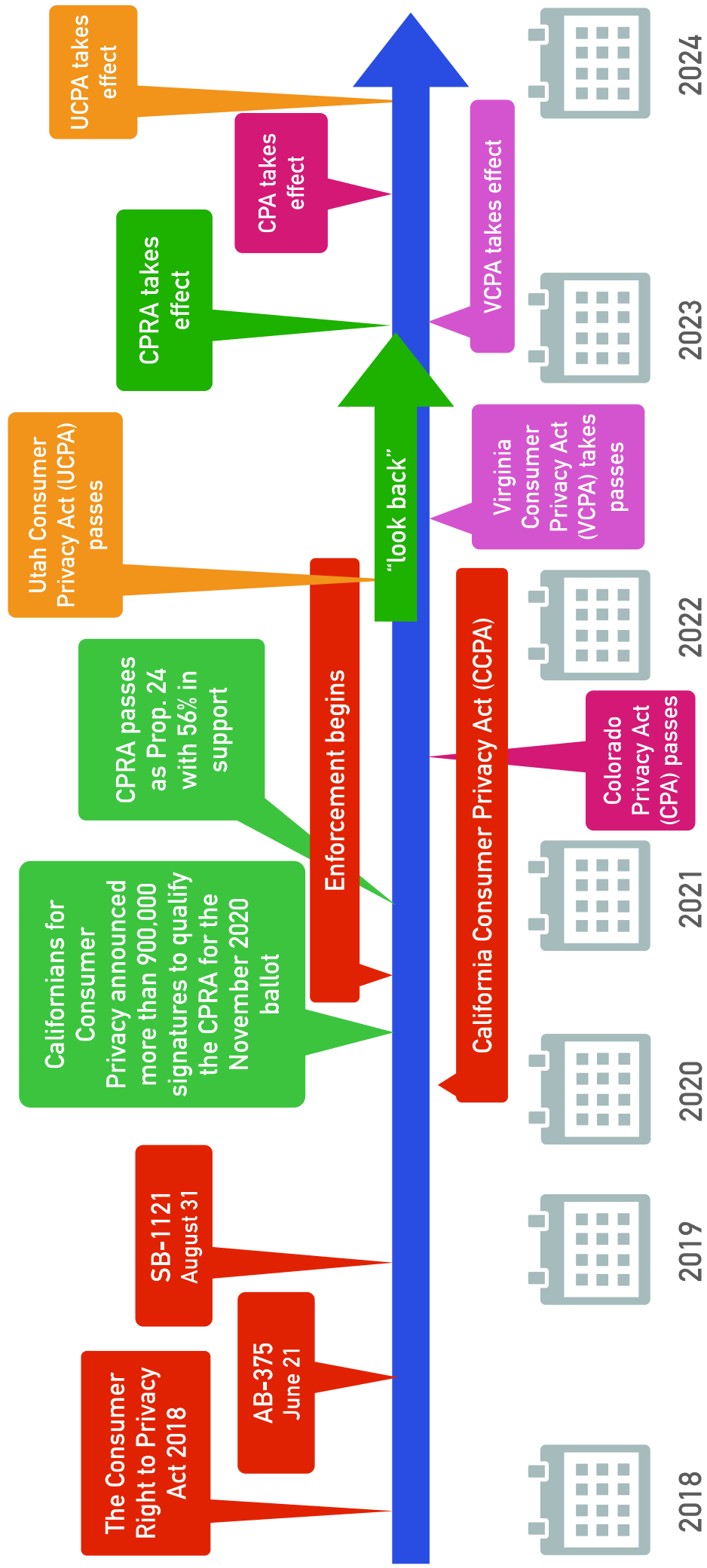
# USA STATE CONSUMER PRIVACY LAWS

# A BRIEF HISTORY LESSON



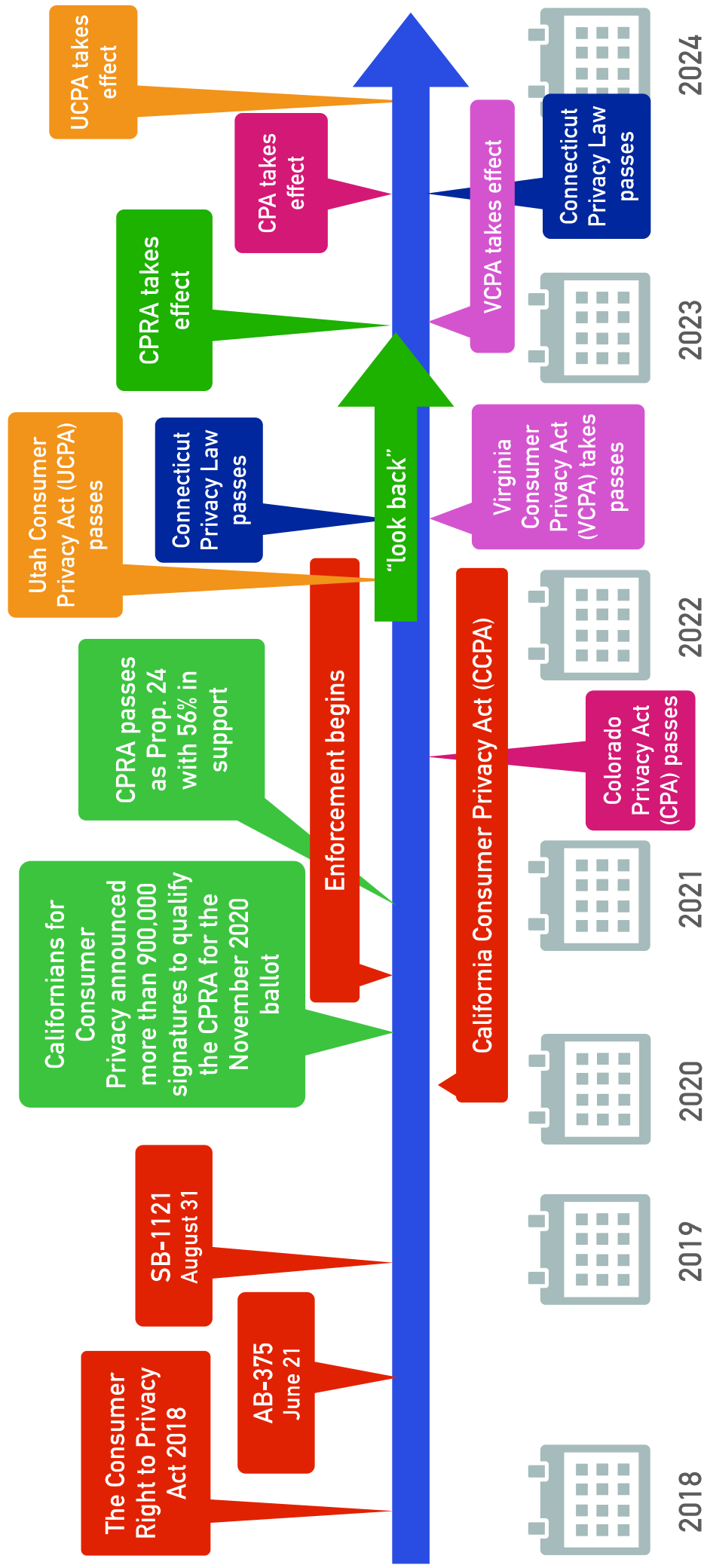
# USA STATE CONSUMER PRIVACY LAWS

# A BRIEF HISTORY LESSON



# USA STATE CONSUMER PRIVACY LAWS

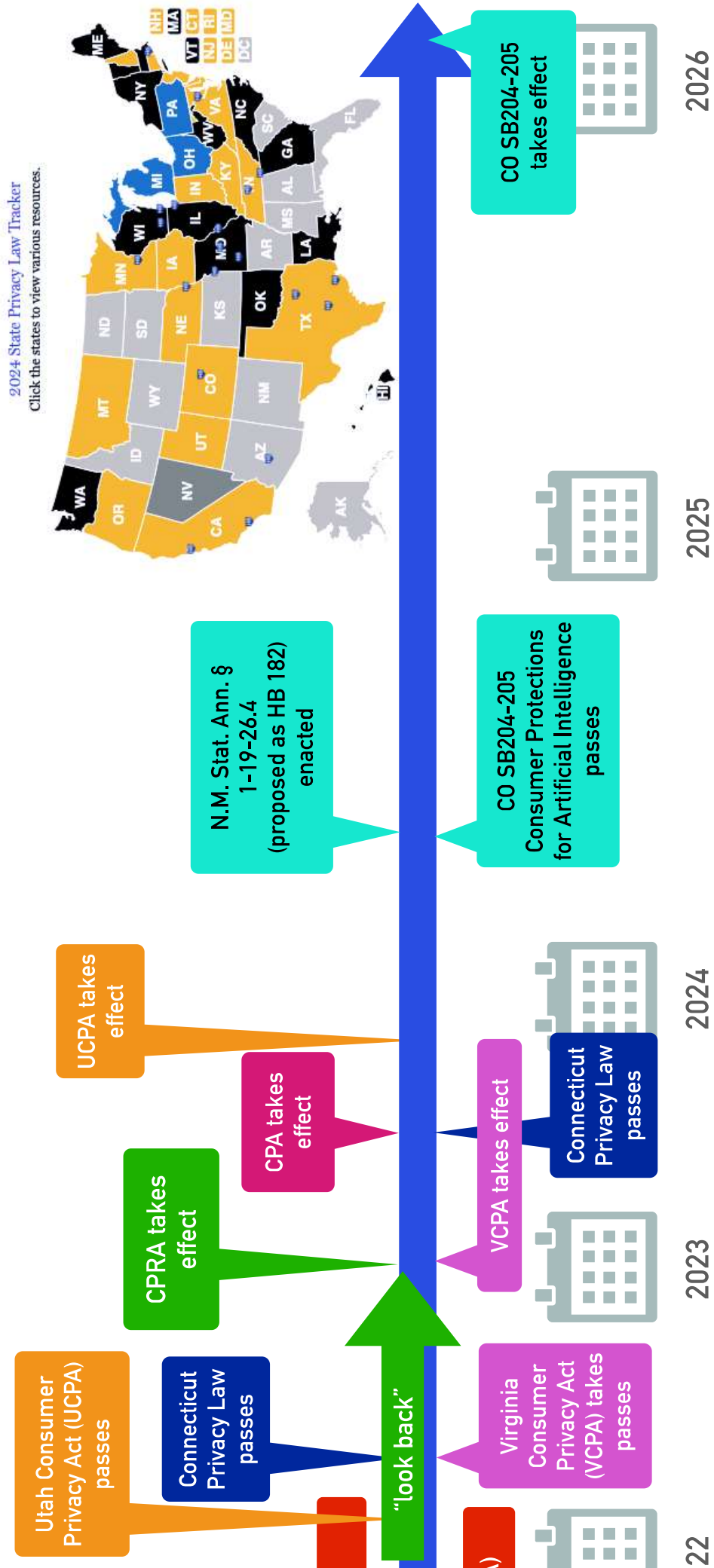
# A BRIEF HISTORY LESSON





# USA STATE CONSUMER PRIVACY LAWS

# A BRIEF HISTORY LESSON



## Who do these privacy laws apply to?

Often applies to controllers that conduct business in the state  
~or~

produce or deliver commercial products or services that are intentionally targeted to state residents and that either:

- *control or process personal data of (100,000) consumers or more per calendar year; or*
- *derive revenue or receive a discount on the price of goods or services from the sale of personal data and control or process the personal data of (25,000) consumers or more.*

## What are the main obligations?

- collection of personal data must be adequate, relevant, and limited to what is reasonably necessary in relation to its specified purposes;
- taking reasonable measures to secure personal data;
- requiring consent to process a consumer's sensitive data;
- provide consumers with a reasonably clear, accessible, and meaningful privacy notice including:
  - *the categories of personal data collected or processed;*
  - *the purpose for which personal data will be collected and processed;*
  - *the categories of personal data shared with third parties, if any;*
  - *the categories of third parties with whom the data is shared; and*
  - *how and where consumers may exercise their data subject rights, including the controller's contact information and how to appeal.*

# Colorado Privacy Act SB21-190



First Regular Session | 73rd General Assembly

Colorado General Assembly

SB21-190

## Protect Personal Data Privacy

Concerning additional protection of data relating to personal privacy.

SESSION: 2021 Regular Session

SUBJECT: Financial Services & Commerce

## Who do these AI laws apply to?

Applies to developers and deployers of high-risk AI systems:

- *Developers: Businesses in Colorado that develop or significantly modify certain AI models or systems; or*
- *Deployers: Businesses in Colorado that deploy specific high-risk AI systems.*

## What are the main obligations?

- *Risk Management Policy:* Deployers must implement a risk mgmt. policy and program specifically for high-risk AI systems.
- *Impact Assessment:* An impact assessment of the high-risk system is required to evaluate potential risks.
- *Annual Review:* Deployers must conduct annual reviews of their high-risk systems to ensure they are not causing algorithmic discrimination.
- *Consumer Notification:* Consumers must be notified when a high-risk system is involved in making consequential decisions about them.
- *Data Correction Opportunities:* Consumers should have the chance to correct any inaccurate personal data processed by the AI system that influenced consequential decisions.
- *Public Disclosure:* Deployers must make a public statement about the types of high-risk systems they operate, the risks associated with them, and the data they collect.
- *Reporting Algorithmic Discrimination:* If a deployer discovers algorithmic discrimination, they must disclose this to the attorney general within 90 days.

# Colorado AI Act SB204-205



Second Regular Session | 74th General Assembly

Colorado General Assembly

INTERIM SCHEDULE    BILLS    LAWS    LEGISLATORS    COMMITTEES    INITIATIVES    BUD

SB24-205

## Consumer Protections for Artificial Intelligence

Concerning consumer protections in interactions with artificial intelligence systems.

SESSION: 2024 Regular Session

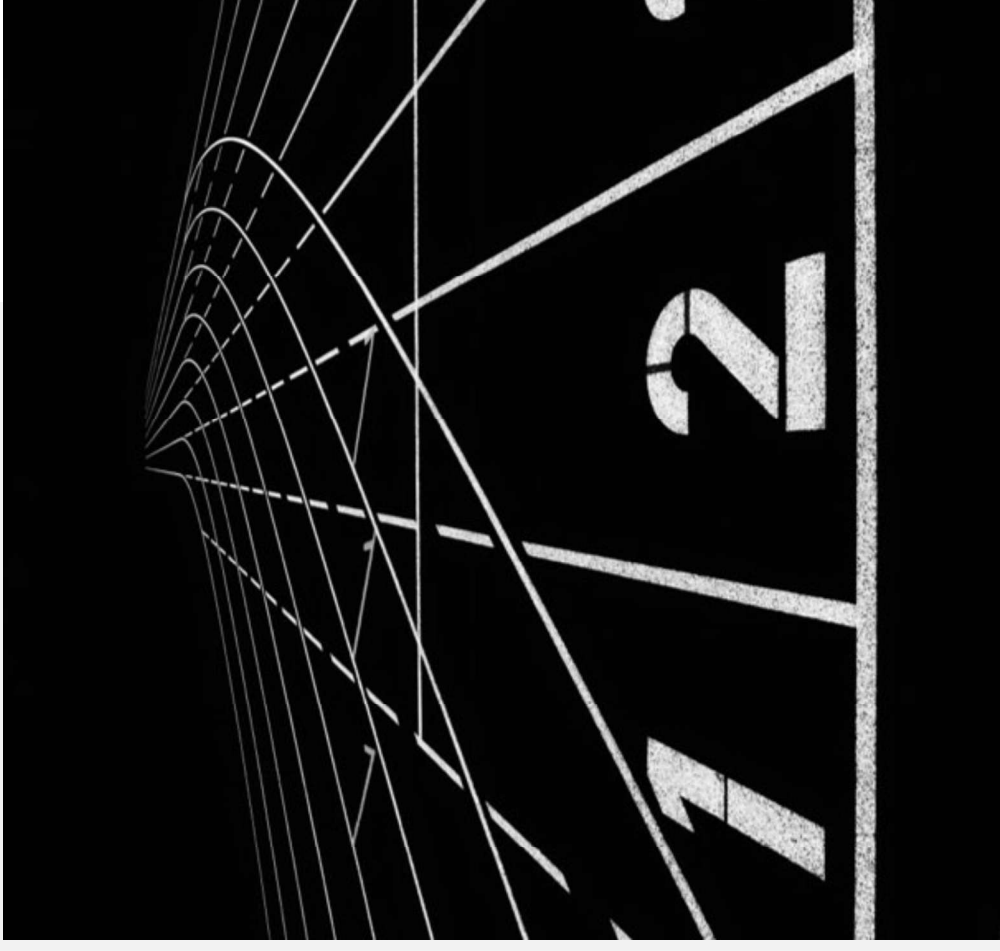
SUBJECTS: Business & Economic Development, Labor & Employment, Telecommunications & Information Technology

### BILL SUMMARY

On and after February 1, 2026, the act requires a developer of a high-risk artificial intelligence system (high-risk system) to use reasonable care to protect consumers from any known or reasonably foreseeable risks of algorithmic discrimination in the high-risk system. There is a rebuttable presumption that a developer used reasonable care if the developer complied with

# WHERE TO START?

1. What information do I need to protect?  
*IT assets, paper files, admin systems*
2. Where are my current gaps in compliance?  
*Compare existing systems to legal or competitor benchmarks*
3. What are my urgent priorities?  
*Develop a plan based on managed risk*
4. Where (and what) can I automate?  
*People, processes, technology*
5. Where else can I get help?  
*Vendors/partners*



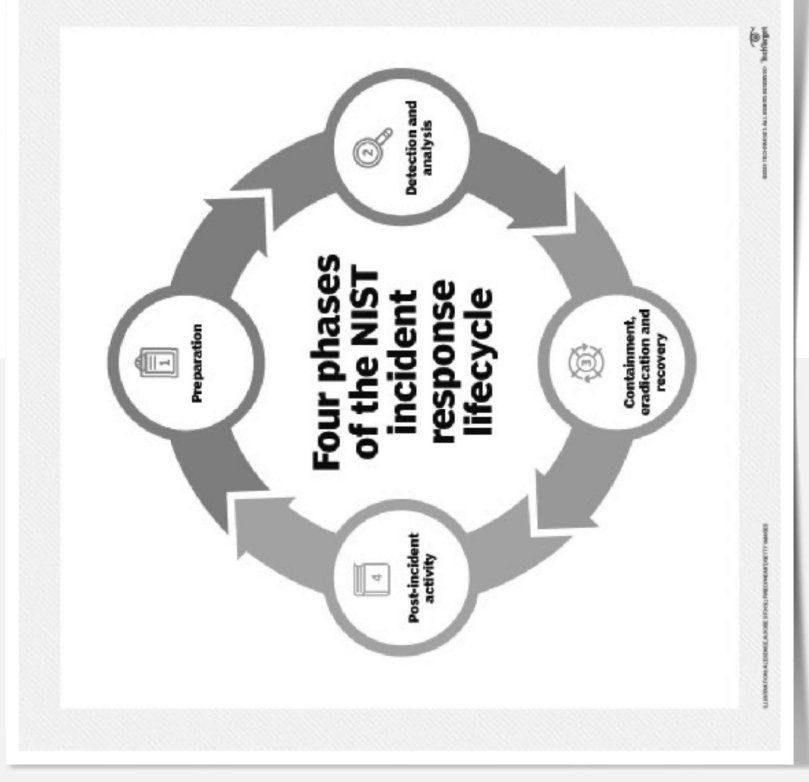




# Preparation

# CYBERSECURITY LIFECYCLE - PREPARE

- **Assess...your current environment**
  - Data mapping
  - Required for compliance with laws like the EU's GDPR
  - Identifies 'sensitive' data or high-risk information
  - Gap analysis - industry standards for information security
    - ISO 27001; **ISO 42001**
    - SOC 2, Type II
    - NIST 800-53 / 800-171; **NIST AI RMF**
    - CMMC
- **Plan...for the worst (pray for the best!)**
  - Bolster cyber defenses
    - Review technical sec. measures (e.g., SIEM, EDR, patch & vuln. mgmt.)
    - Build a response team (InfoSec response; Customer Care; Legal + team)
    - Consider cyber insurance
  - Provides financial coverage for costs associated w/computer hacking events, data breaches, ransomware, and related computer system failures
  - Review coverage, requirements



**Filing Status**  Single  Married filing jointly  Married filing separately (MFS)  Head of household (HOH)  Qualifying widow(er) (QW)  
 Check only one box. If you checked the MFS box, enter the name of your spouse. If you checked the HOH or QW box, enter the child's name if the qualifying person is a child but not your dependent ▶

Your first name and middle initial		Last name		Your social security number	
If joint return, spouse's first name and middle initial		Last name		Spouse's social security number	

Home address (number and street). If you have a P.O. box, see instructions.

City, town, or post office. If you have a foreign address, also complete spaces below.		State		Apt. no.	
Foreign country name		Foreign province/state/county		Foreign postal code	

At any time during 2021, did you receive, sell, exchange, or otherwise dispose of any financial interest in any virtual currency?  Yes  No

**Standard Deduction**  Spouse itemizes on a separate return or you were a dual-status alien  Your spouse as a dependent

**Age/Blindness You:**  Were born before January 2, 1957  Are blind  Spouse:  Was born before January 2, 1957  Is blind

**Dependents** (see instructions):

(1) First name	Last name	(2) Social security number	(3) Relationship to you	(4) <input checked="" type="checkbox"/> if qualifies for (see instructions): Child tax credit	Credit for other dependents
				<input type="checkbox"/>	<input type="checkbox"/>

If more than four



Filing Status

Check only one box.  Single  Married filing jointly  Married filing separately (MFS)  Head of household (HOH)  Qualifying widow(er) (QW) If you checked the MFS box, enter the name of your spouse. If you checked the HOH or QW box, enter the child's name if the qualifying person is a child but not your dependent ▶

Your first name and middle initial

Last name

Your social security number

If joint return, spouse's first name and middle initial

Last name

Spouse's social security number

Home address (number and street). If you have a P.O. box, see instructions.

Apt. no.

Presidential Election Campaign Check here if you, or your spouse if filing jointly, want \$3 to go to this fund. Checking a box below will not change your tax or refund.  You  Spouse

City, town, or post office. If you have a foreign address, also complete spaces below.

State

ZIP code

Foreign country name

Foreign province/state/county

Foreign postal code

At any time during 2021, did you receive, sell, exchange, or otherwise dispose of any financial interest in any virtual currency?  Yes  No

Standard Deduction

Someone can claim:  You as a dependent  Your spouse as a dependent  Spouse itemizes on a separate return or you were a dual-status alien

Age/Blindness You:  Were born before January 2, 1957  Are blind  Spouse:  Was born before January 2, 1957  Is blind

Dependents (see instructions):

First name

Last name

(2) Social security number

(3) Relationship to you

(4)  if qualifies for (see instructions):

Child tax credit

Credit for other dependents

If more than four

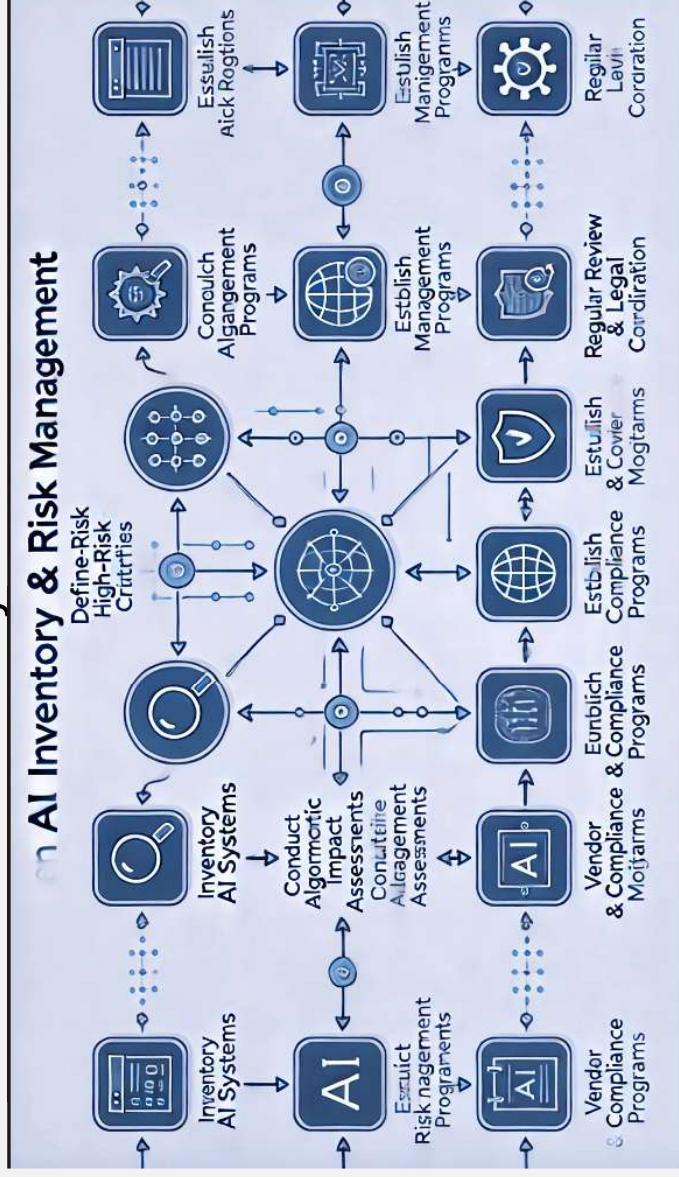
Personally Identifiable Information	Name & Contact Information	Personal Characteristics & Health & Ins Acct Information	Financial Data & Employment Information
<ul style="list-style-type: none"> <li>Social Security #</li> <li>State-issued ID #</li> <li>Driver's license #</li> <li>Passport #</li> <li>Mother's Maiden Name</li> <li>Credit history</li> <li>Criminal history</li> </ul>	<ul style="list-style-type: none"> <li>Initials</li> <li>Address</li> <li>Telephone number</li> <li>E-mail address</li> <li>Mobile number</li> <li>Date of birth</li> <li>EFINs / PTINs / CAF #</li> </ul>	<ul style="list-style-type: none"> <li>Age</li> <li>Gender</li> <li>Marital status</li> <li>Nationality</li> <li>Insurance account #</li> <li>Prescriptions</li> <li>Medicare and Medicaid info</li> </ul>	<ul style="list-style-type: none"> <li>Credit, ATM, debit card #s</li> <li>Bank Accounts</li> <li>Security/Access Codes</li> <li>Passwords</li> <li>Income/Salary</li> <li>Service fees</li> <li>Compensation info</li> <li>Background check info</li> </ul>



Business function	Purpose of processing	Business Critical	Source of the data (external)	Source of the data (internal)	Categories of personal data	Types of personal information
Taxes	Outside records on sales and use taxes, telecommunications taxes, property taxes, federal, state and local tax returns, payroll and payroll taxes, billing, and accounting records	Tax consultant Payroll provider	Finance Team	B2B contact info	Name, company address	Finance Team ("R" drive)
Company Insurance	Insurance policies (D&O, E&O, Workers Comp, and General Liability policies, applications, quotes, audits and adjustments, annual insurance loss summary reports, certificates of insurance, insurance claims files and correspondence)	Insurance Carrier	Finance Team	B2B contact info	Name, Company Address; Contract number	FinanceTeam (policies and COI's) Sales Team (COI's) Legal Team (COI's)
Financial Planning & Analysis	Financial planning (budgets, revenue data, sales data, budgeting and trending, averages, forecasting, marketing discounts, ROI data, models, data, analysis, P&L reviews, reports, ad hoc reporting, management reporting)	ERP System Third party vendor (usage and sales metrics)	Finance Team AR Stats - Usage	B2B contact info	Name	Finance Team Senior management as needed
Employee payroll	Employee payroll (deductions, registers, FLSA, comps, time sheets, wage and tax registers, payroll tax returns, check deposits, reversals, direct deposit, payroll related forms, W-4s, W-2s); commissions, bonuses, incentives, awards, board compensation approvals; unemployment wage records, reports and tax returns	Employee bank State (taxes)	Data subject (employee)	Payroll info	Name, Role/Title	Finance Team
Equity management	stock purchase plan records (option grants, election records, exercise forms, vesting, expiration records, pre-clearances, timing windows, board records, FRS Equity records, DLA/UBS records, AST stock sale records)	N/A	Data subject (employee)	Employee contact info	Name, email address, options granted	Employees
Payroll reporting	backup materials (payroll withholding records); reconciliations	payroll system	Data subject (employee) HR Team	Employee payroll info	Names, company address, email address, phone number, SS#, job title, wage/compensation	Finance
Financial records	General ledger and associated documentation (subledgers, journal and subjournal entries, postings, reconciliations, spreadsheets, servers SAP extracted data, accounts receivable invoices, cash receipts, aging and allowance calculations, fees, deposits, receipts, accounts payable invoices, master files, W-9s, e-transfers, wire records, employee expense reports, vouchers, 1099 forms and reports, travel and entertainment details, payment registers, reconciliations, credit cards, fixed assets, adjustments invoices, asset write up, capital property, inventory records travel and entertainment receipts, depreciation reconciliations, depreciation schedules, credit facilities, charitable contributions); audited financial reports; External technical accounting memos	Third - parties (incl. vendors & customers)	All departments as applicable	B2B banking info	Names, company address, email address, phone number, banking information	Finance Team Senior management as needed

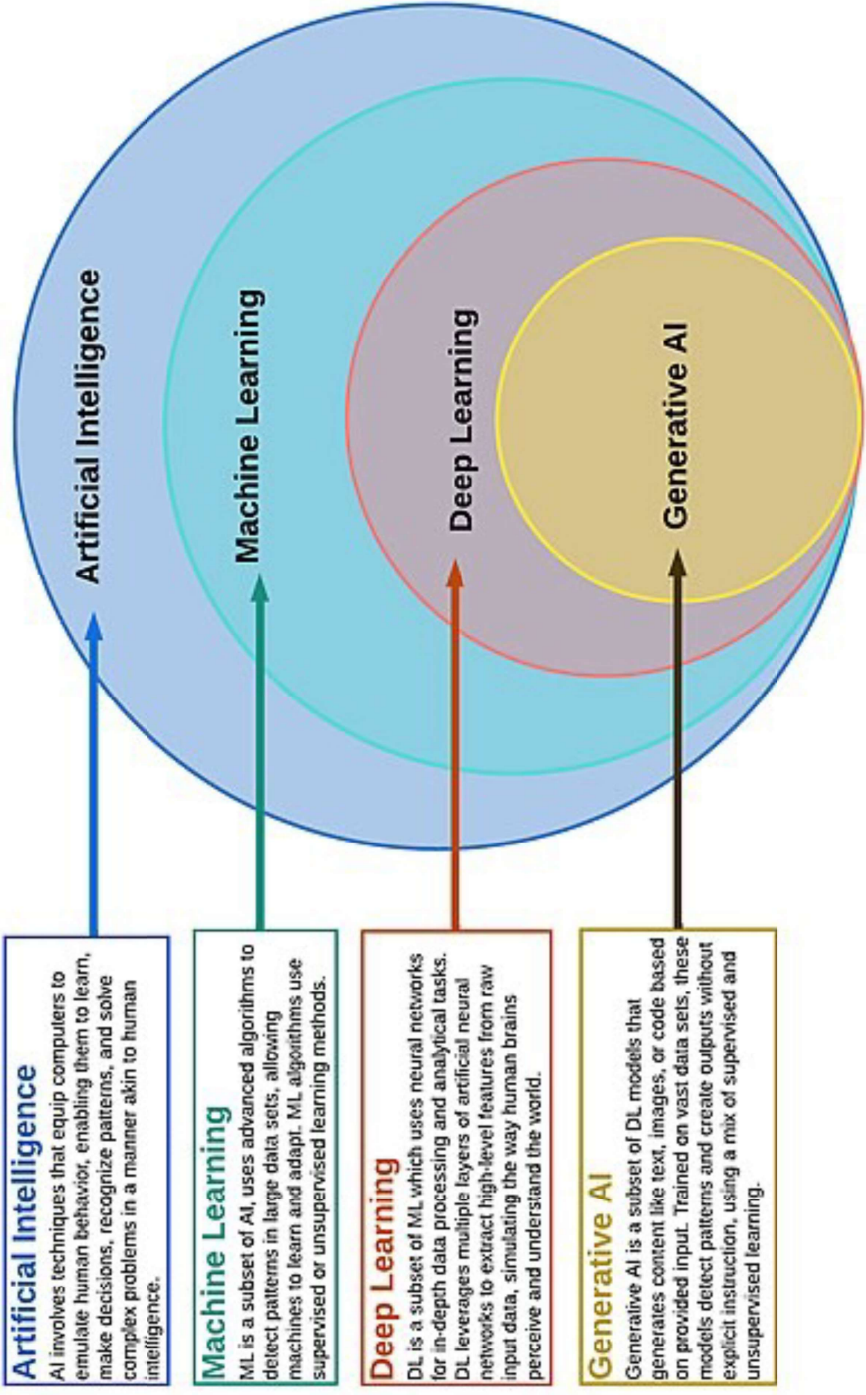
# CYBERSECURITY LIFECYCLE - PREPARE

- Inventory AI Systems
- List all AI/ML tools in use, especially those in decision-making and client services.
- Look for systems that process sensitive data, automate decisions, or could impact individuals financially.



- Establish Risk Management Programs

- Set up programs to monitor, disclose, and document risks, focusing on transparency with clients.
- Conduct Algorithmic Impact Assessments (AIAs)
  - Assess potential biases, impacts on protected groups, and risk of errors for each high-risk system.
- Vendor & Compliance Monitoring
  - Require third-party vendors to document their compliance practices and monitor evolving legal requirements.
- Regular Review & Legal Coordination
  - Ensure continuous alignment with regulatory standards and legal guidance on AI risks.



**Unraveling AI Complexity - A Comparative View of AI, Machine Learning, Deep Learning, and Generative AI.**  
(Created by Dr. Lily Popova Zhuhadar, 07, 29, 2023)



# Detection & Analysis



# CYBERSECURITY LIFECYCLE - DETECTION & ANALYSIS

- *Identify...threats and vulnerabilities*
  - Monitory cyber-advisory services
  - CISA - Cybersecurity and Infrastructure Security Agency (CISA)
  - OWASP - nonprofit that produces articles, documents, tools, and technologies in the field of web application security.
  - Scan for chinks in the armor
  - Vulnerability scanning - assess computers, networks, or applications for known weaknesses ([tools](#))
  - Penetration testing - simulated cyber attack against your system to check for exploitable vulnerabilities
  - Phishing simulations - the fraudulent practice of sending emails inducing individuals to reveal personal information
  - Smaller organizations (1-250 employees) have the highest targeted malicious email rate at 1 in 323. ([Symantec](#))
- **Monitor...risks associated with staff**
  - 30% of data breaches involve internal actors. ([Verizon](#))
  - On average, every employee has access to 11 million files. ([Varonis](#))
    - 17% of all sensitive files are accessible to all employees. ([Varonis](#))
  - About 60% of companies have over 500 accounts with non-expiring passwords. ([Varonis](#))
  - The average annual security spending per employee increased from \$2,337 in 2019 to \$2,691 in 2020. ([Deloitte](#))





# CYBERSECURITY LIFECYCLE - DETECTION & ANALYSIS



- Continuous Monitoring of Model Behavior
  - Implement anomaly detection to identify unusual model behavior or outputs that may signal an attack or malfunction.
- Performance Deviation Alerts
  - Establish benchmarks and thresholds for metrics like accuracy, precision, and recall. Trigger alerts when performance deviates from expected levels.
- Automated Log Analysis
  - Utilize AI-powered log analysis to spot patterns of abnormal behavior (e.g., input data anomalies) that could indicate attacks or emerging model bias.
- Incident Triage for AI-Specific Threats
  - Assess incident severity based on the model's impact on critical decisions (e.g., financial or healthcare-related) and prioritize high-impact risks to users.

# CYBERSECURITY LIFECYCLE - DETECTION & ANALYSIS

## Issue reporting

- How are issues reported and recorded?
- **Event vs. incident vs. breach** (“*knowledge*”)
- Begin investigation

## Collect evidence

- Record key details (e.g., date/time, data affected, etc.)
- Evidence must maintain forensic value in case of legal action
- Insurance broker or cyber-carrier may require early notification

## Initiate formal response plan

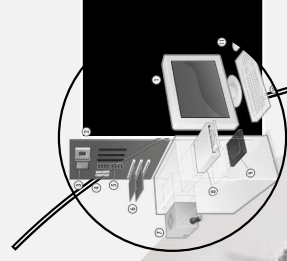
- Assemble the pre-identified incident response team
- Classify risk level; alert staff as appropriate
- Prepare & review notification procedures



A black and white photograph of a hand holding a pen, with a dark diagonal overlay at the bottom. The hand is positioned in the upper left, with fingers gripping the pen. The background is a light, slightly blurred surface. The lower right portion of the image is covered by a dark, diagonal gradient overlay.

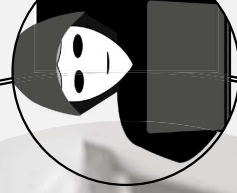
# Respond

# CYBERSECURITY LIFECYCLE - CONTAINMENT



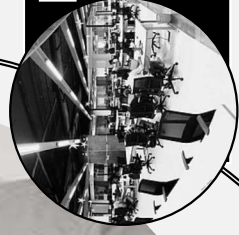
## Containment Protocols

Set protocols for rolling back or isolating malfunctioning models to prevent broader service disruption.



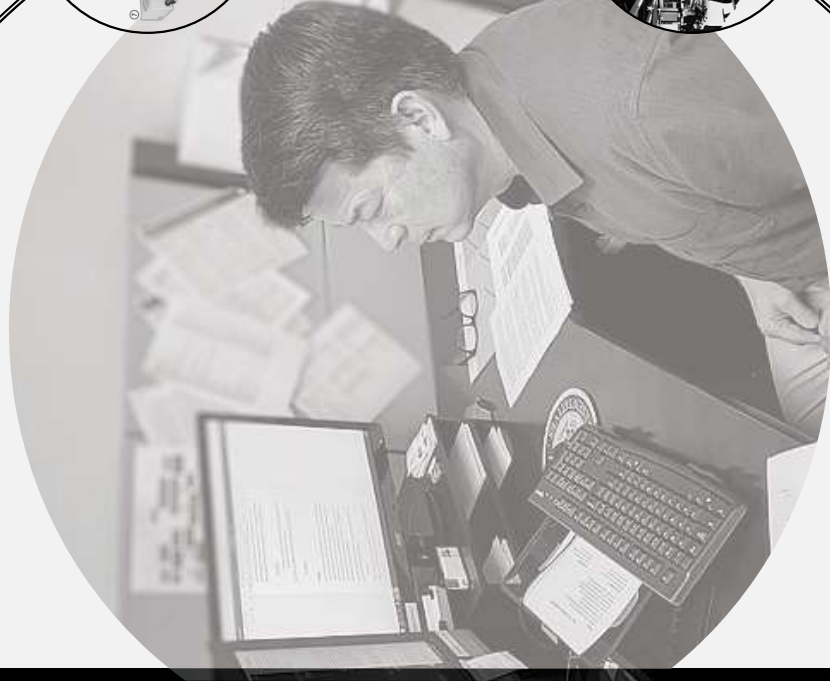
## Model retraining

- Retrain degraded models using fresh data or redeploy previously verified versions.



## Data validation techniques

- Validate data to scrub or replace corrupted datasets
- Apply fairness interventions (e.g., re-sampling data, parameter adjustments) if bias is detected.



# INCIDENT RESPONSE LIFECYCLE - CONT.

## Eradicate

- Completely remove the threat. Extra validations should be performed to ensure the issue / vuln. cannot reoccur.
- Once confirmed, operating procedures may be returned to normal.

## Recover

- Restore business operations in sequential order
- Debrief with Disaster Recovery Team, Legal, HR, Marketing

## Report

- *Internal Communication* - awareness, communication guidelines
- *External Communication* - customers, media relations
- *Breach Notification* - regulators (e.g., Atty. Gen.), data subjects





# AFTER THE INCIDENT: FOLLOW-UP

## Artificial Intelligence:

Mimicking the intelligence or behavioural pattern of humans or any other living entity.

## Machine Learning:

A technique by which a computer can "learn" from data, without using a complex set of different rules. This approach is mainly based on training a model from datasets.

## Deep Learning:

A technique to perform machine learning inspired by our brain's own network of neurons.

## Documentation

- Be thoughtful about communications regarding an incident
- Attempt to maintain Privilege

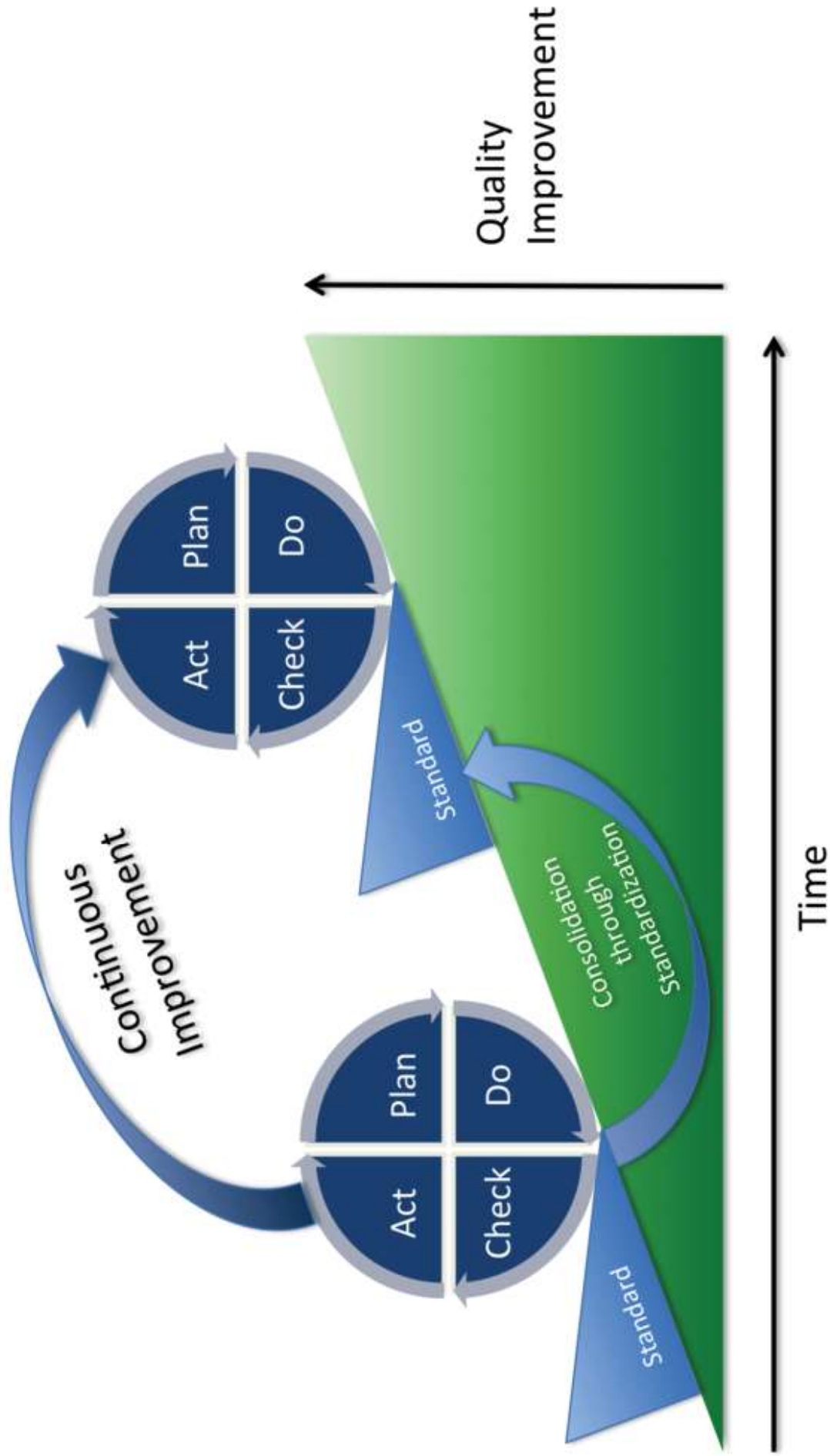
## Post-Incident Report

- Collect information, perform root cause analysis, identify and investigate problems, and take appropriate and effective corrective action to prevent their recurrence actions

## Corrective actions & corrections

- Address exposed vulnerabilities
- Review effectiveness of IRP





# ISO 27001 (ISMS) and 27701 (PIMS)

## and 42001 (AIMS)

### 10. Continual Improvement

- **Learn and Adapt:** Continuously learn from experiences and adapt AI practices.
- **Stay Updated:** Keep abreast of AI technology advancements and best practices.

### 9. Internal Audits and Reviews

- **Regular Audits:** Conduct internal audits to check compliance with ISO/IEC 42001.
- **Management Review:** Periodically assess the AI management system's effectiveness.

### 8. Documentation and Records

- **Document Control:** Maintain records related to AI management.
- **Training Materials:** Develop training materials for employees involved in AI activities.

### 7. Feedback and Improvement

- **Feedback Loop:** Set up channels to gather feedback from users, stakeholders, and employees.
- **Improvement Actions:** Regularly review and enhance AI processes based on feedback and performance data.

### 1. Understanding and Commitment

- **Awareness:** Ensure stakeholders grasp ISO/IEC 42001's purpose and benefits.
- **Commitment:** Gain top management's commitment to implementing and maintaining an AI management system.

### 2. Scope Definition

- **Identify AI Activities:** Determine which AI processes, products, or services are included.
- **Exclusions:** Clearly define any excluded areas.

### 3. Leadership and Governance

- **Appoint a Responsible Person:** Designate someone to oversee AI management.
- **Policy Development:** Create an AI policy aligned with organizational goals.

### 4. Risk Assessment and Opportunity Identification

- **Assess Risks:** Identify and evaluate risks linked to AI deployment.
- **Identify Opportunities:** Spot chances to enhance AI processes.

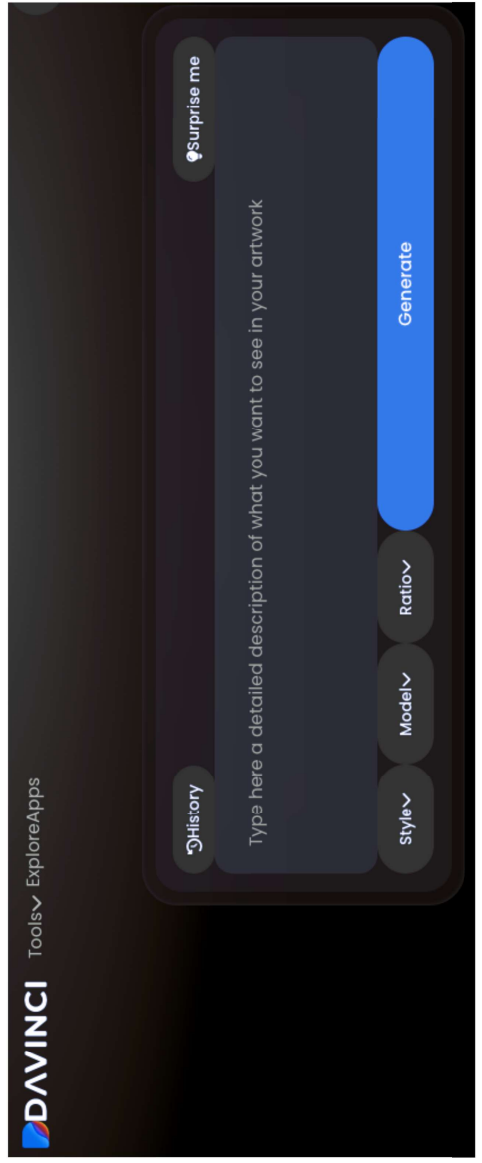
### 5. AI Implementation and Operation

- **Design and Development:** Implement AI systems following established guidelines.
- **Data Management:** Ensure data quality, privacy, and security.
- **Testing and Validation:** Validate AI models and algorithms.
- **Deployment:** Roll out AI solutions in a controlled manner.

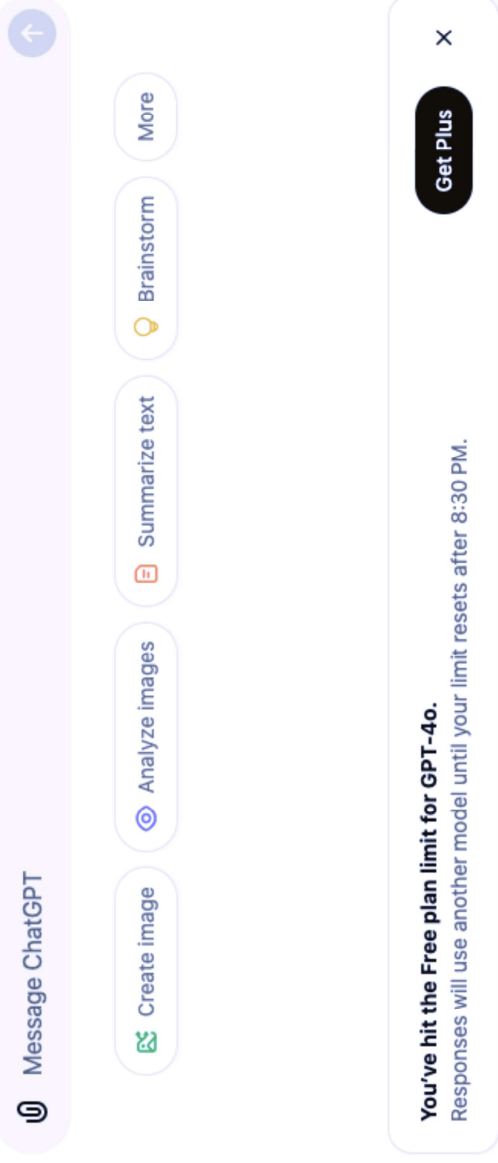
### 6. Monitoring and Measurement

- **Performance Metrics:** Define metrics to gauge AI performance.
- **Monitoring:** Continuously monitor AI systems for effectiveness and compliance.



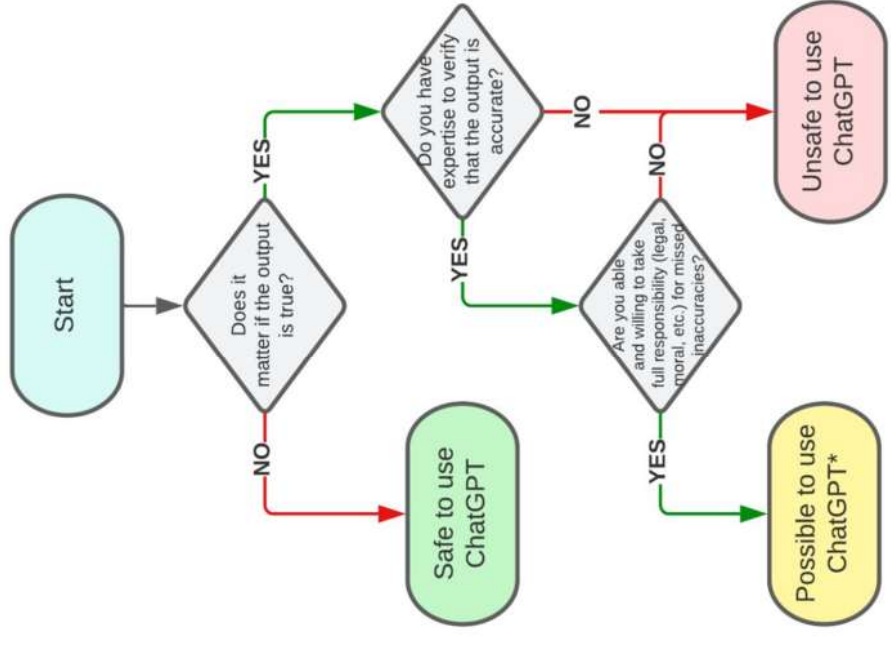


## What can I help with?



## Is it safe to use ChatGPT for your task?

Aleksandr Tiulkanov | January 19, 2023



\* but be sure to verify each output word and sentence for accuracy and common sense







Questions?

# THANK YOU

Calc - you - later!

Preston Bukaty

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