# Investing in cybersecurity: building resilient cybersecurity programs and portfolios

## Information Security Forum (ISF) North America Conference 2021

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# About today's speakers

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# Agenda

1. Today's security landscape
2. 5 common themes in security program assessments
3. Making sense of the vendor ecosystem and cyber start-ups
4. Questions and answers

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# 1

# Today's security landscape

# Polling question 1

How would you describe the volume of cyber incidents in your organization (or clients' organizations) this past year?

A Increased dramatically

B Increased slightly

C Relatively unchanged

D Decreased slightly

E Decreased dramatically

# Polling question 2

Rank the threat actors that you have encountered this past year from most frequent to least frequent. (5 = most frequent; 1 = least frequent)

A Third-parties (e.g. vendors, partners, and suppliers)

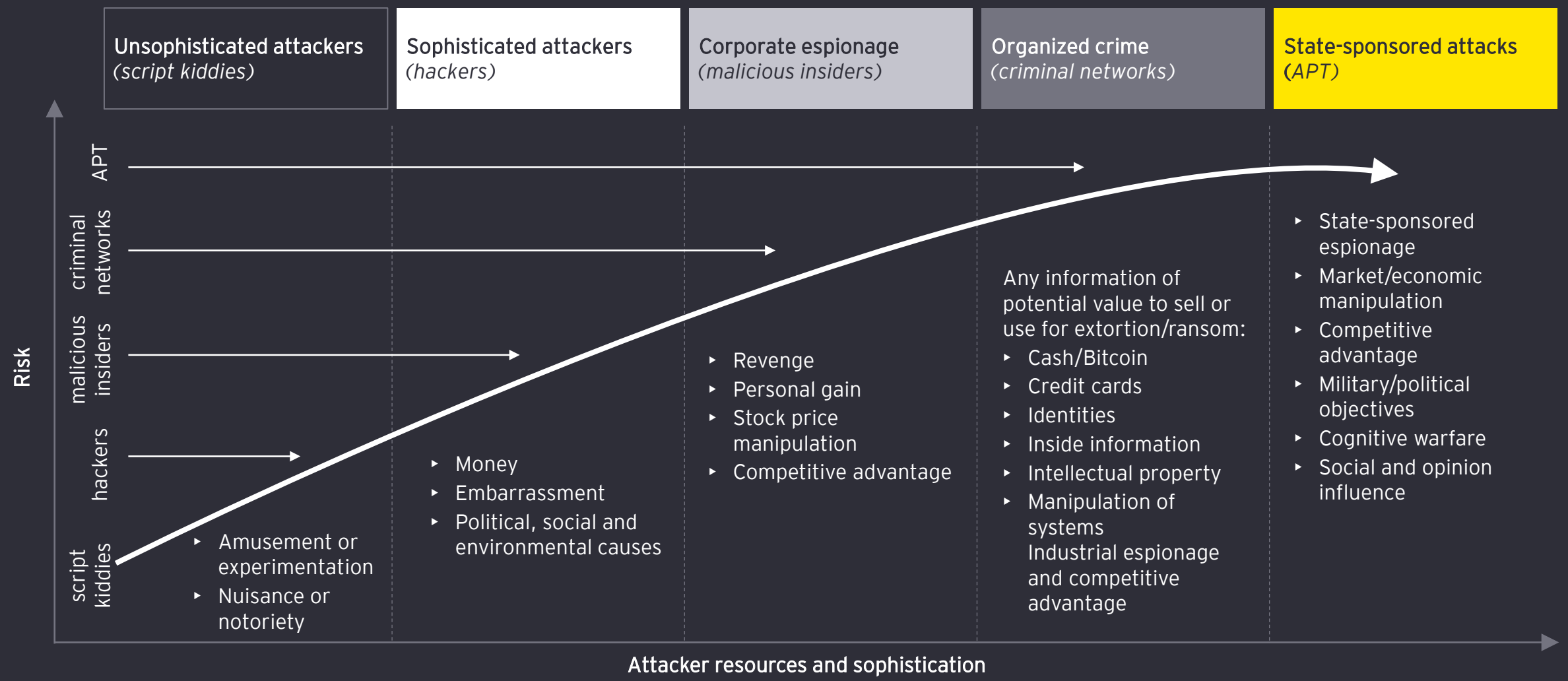
B Malicious insiders (e.g. employees)

C Hacktivists groups, politically motivated hackers, or "attention-getters"

D Cyber criminal rings/organized crime (e.g. ransomware groups)

E Nation-state actors

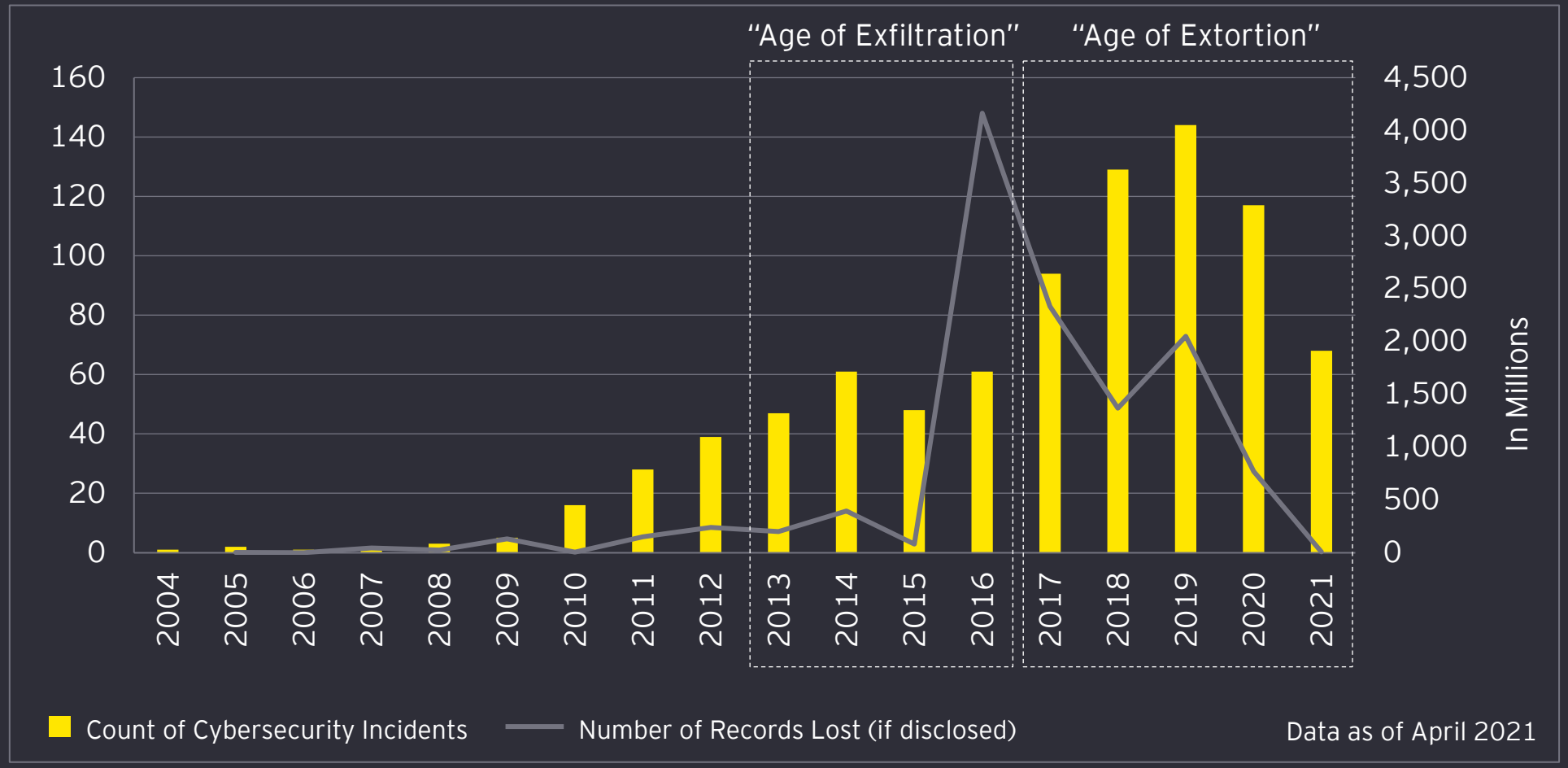
# Cyber threats continue to evolve and increase cyber risk exposure



# Cybersecurity incidents are on the rise and billions of records are lost each year

- "Double extortion" ransomware has significantly increased over the past 2 years
- Cyber insurance premiums are on the rise (↑20%-50%) and some may no longer cover extortion pay-outs to criminals
- Cyberattacks have become far more destructive
- An increasing number of companies are not able to recover critical data or systems

## Publicly Reported Cybersecurity Breaches and Total Records Lost



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# Shadow investigations have increased five-fold since 2020

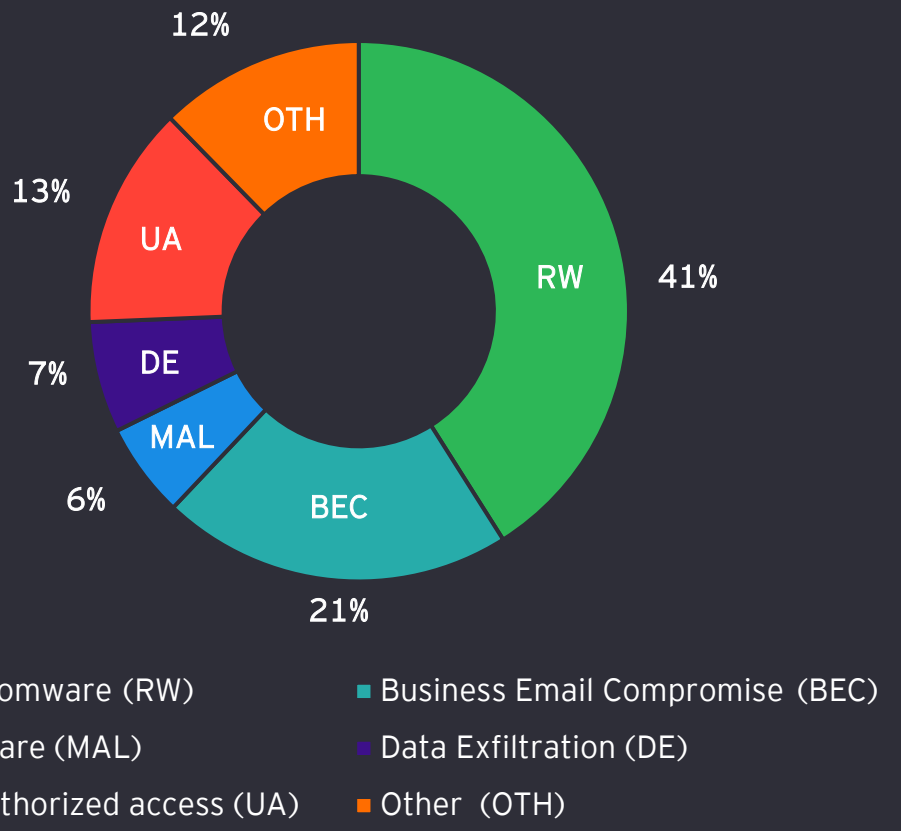
## Ransomware trends

- Ransom paid now routinely in millions
- Significant gaps in resiliency and a big disconnect with business continuity and disaster recovery plans
- Large majority of the attacks focused on Windows AD
- Insurance coverage is a large factor in payment
- Theft of [old] unstructured data is increasing
- Strong monitoring and expedited response are key to mitigating the impact

## Business email compromise trends

- Multi-factor authentication and zero trust architecture not deployed in email environments
- Switch routing of payables, receivables, or payroll
- Suspicious geographic monitoring and email box rule detection helps with response

## Shadow Investigations* By Incident Type

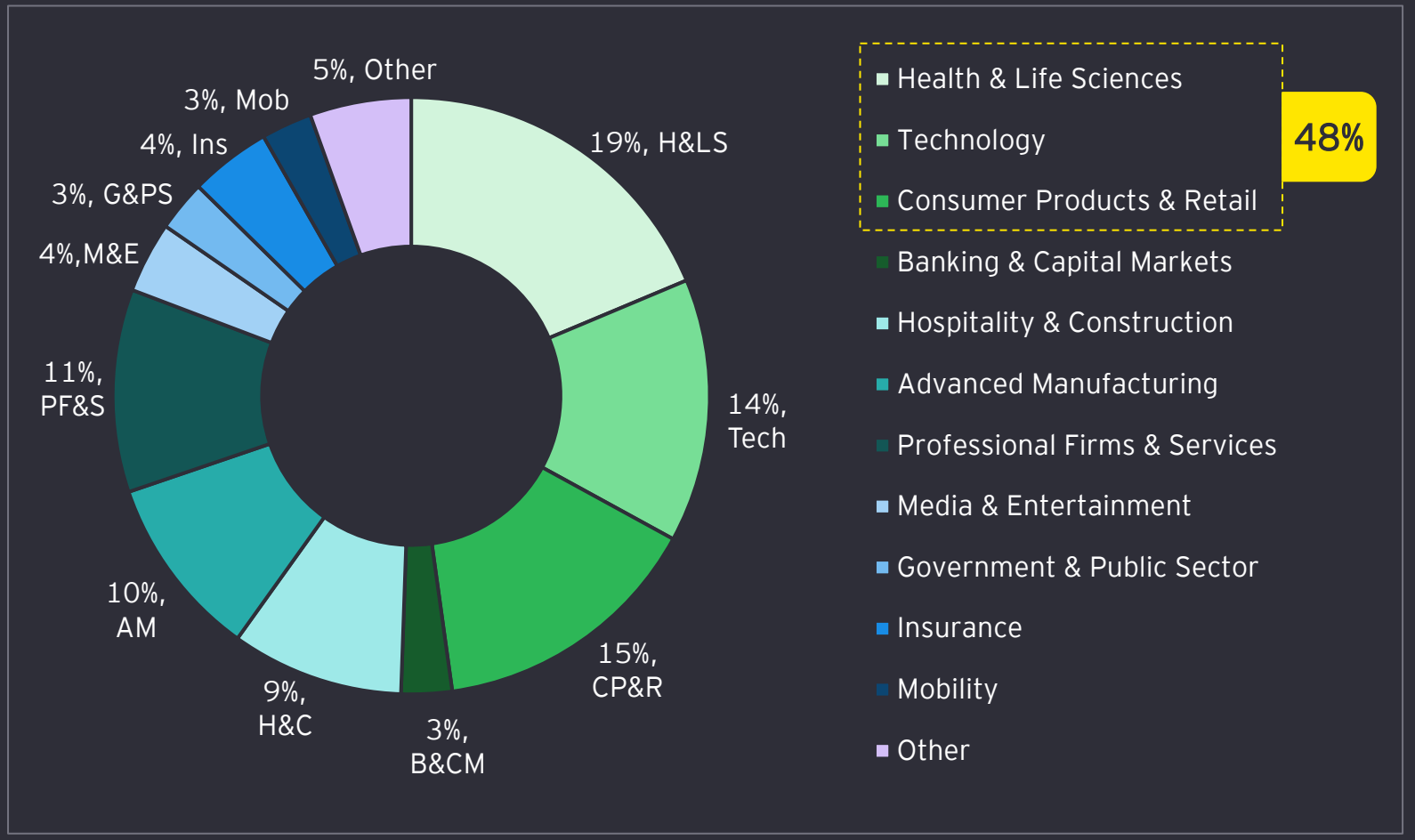



*Independent forensic investigation of a cyber incident or breach by a company's external audit firm*

# Threat actors are opportunistic and generally target companies likely to pay

- Three sectors comprise nearly 50% of the recent shadow investigations:
  - Health and Life Sciences
  - Technology
  - Consumer Products and Retail
- But no sector is immune!
- Don't discount the perceived value of the data in your organization
- You may not be the target, but rather a means of getting to the real target
- Increase in supply chain attacks
- Preparation is key; those who trained and exercised their program were able to limit the damage

## Shadow Investigations by Industry



# 2

# 5 common themes in security program assessments

# Polling question 3

At a high level, how would you rate your organization's (or clients' organizations) overall cybersecurity maturity?

A Level 0: Incomplete – Ad hoc, unknown, and mostly incomplete

B Level 1: Initial – Unpredictable and reactive

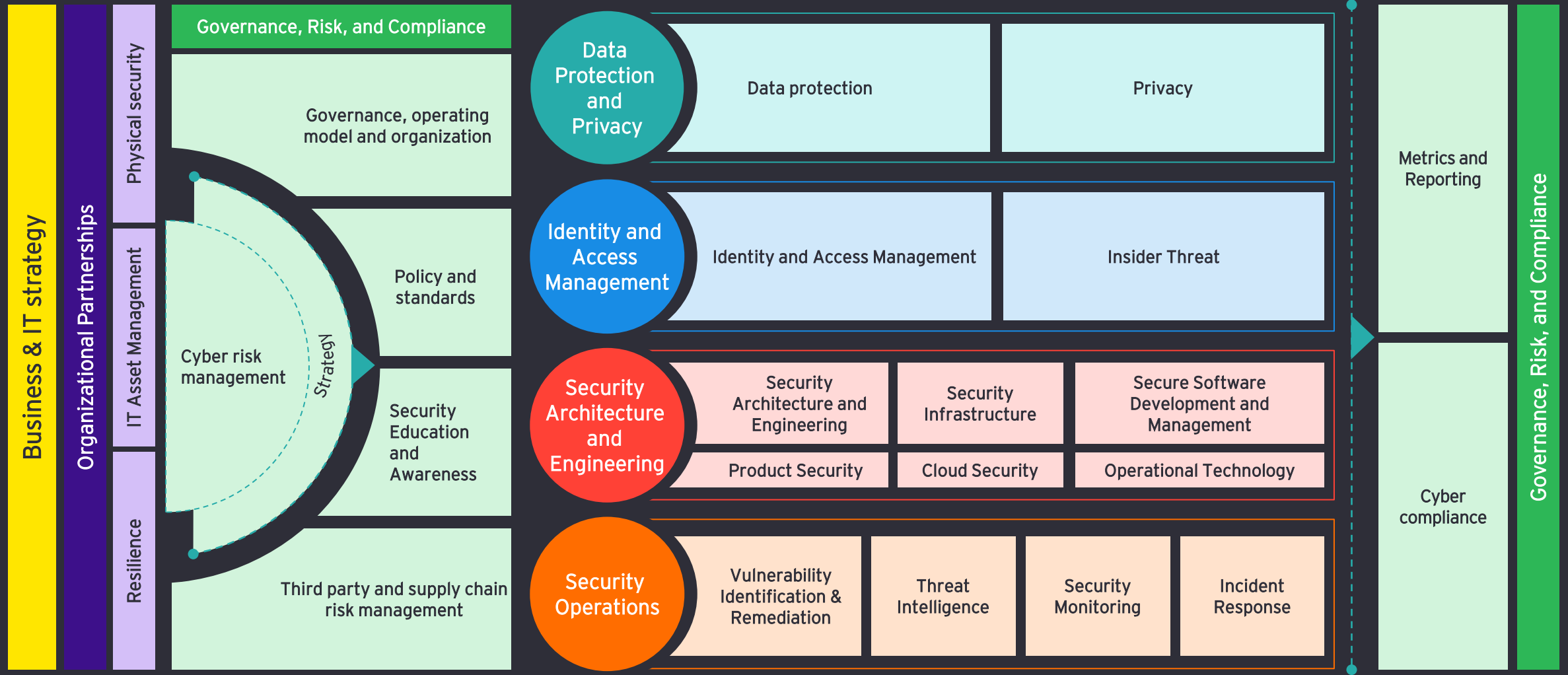
C Level 2: Managed – Managed at the individual capability level

D Level 3: Defined – Proactive and anticipates needs and changes

E Level 4: Quantitatively Managed – Measured, controlled, and verified

F Level 5: Optimizing – Stable, flexible, and continuously improving

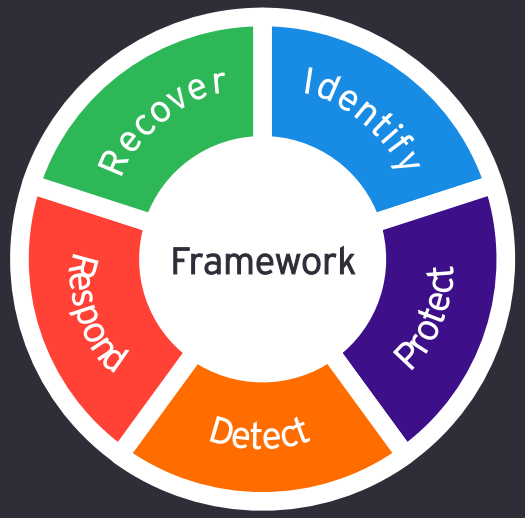
# A framework for evaluating cybersecurity programs



# Companies are relatively good at assessing, identifying risk, and building roadmaps...

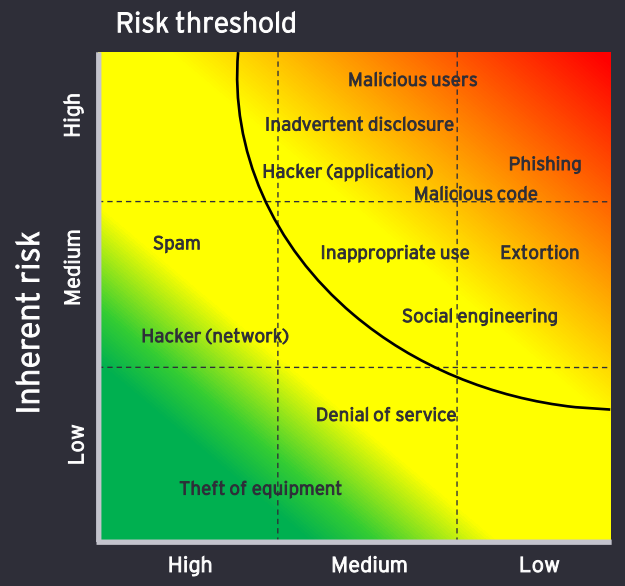
1 2 3 4 5

## Cyber framework and capabilities assessment

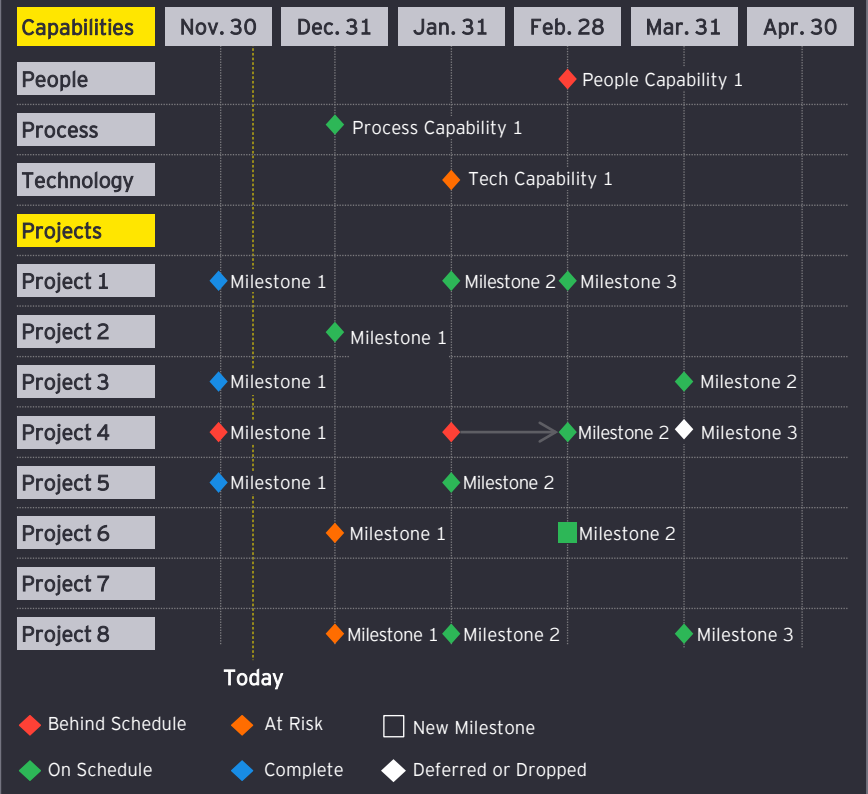



NIST Cybersecurity Framework (CSF)

## Risk and controls effectiveness analysis




## Strategy and initiative or investment roadmap

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# But they often overlook three critical elements for effective cyber-business integration

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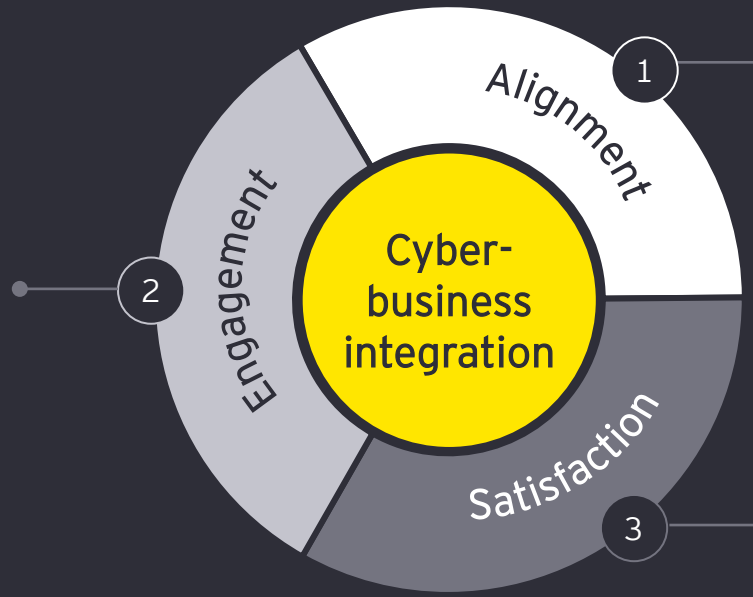
**Engagement** and communication mechanisms with business stakeholders

- Service catalog with engagement mechanism and cost chargeback
- Communication and governance channels (bi-directional)
- Performance reporting mechanisms




**Alignment** to business goals and objectives

- Mapping of cyber strategy to business and IT strategy
- Establish risk profile to align to business goals and anticipate needs
- Apply appropriate levels of controls to protect the things that matter most

**Satisfaction** with performance and delivery of security services

- Feedback loops from the business and key stakeholders
- Escalation paths when adjustments and attention is needed
- Recognition for exceptional performance and service



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# Security architecture must "look everywhere"

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**Look Left** (West)

- Secure SDLC and DevSecOps
- Security and privacy by design
- Certifications and continuous testing assurance (as a testing *producer*)

**Look Right** (East)

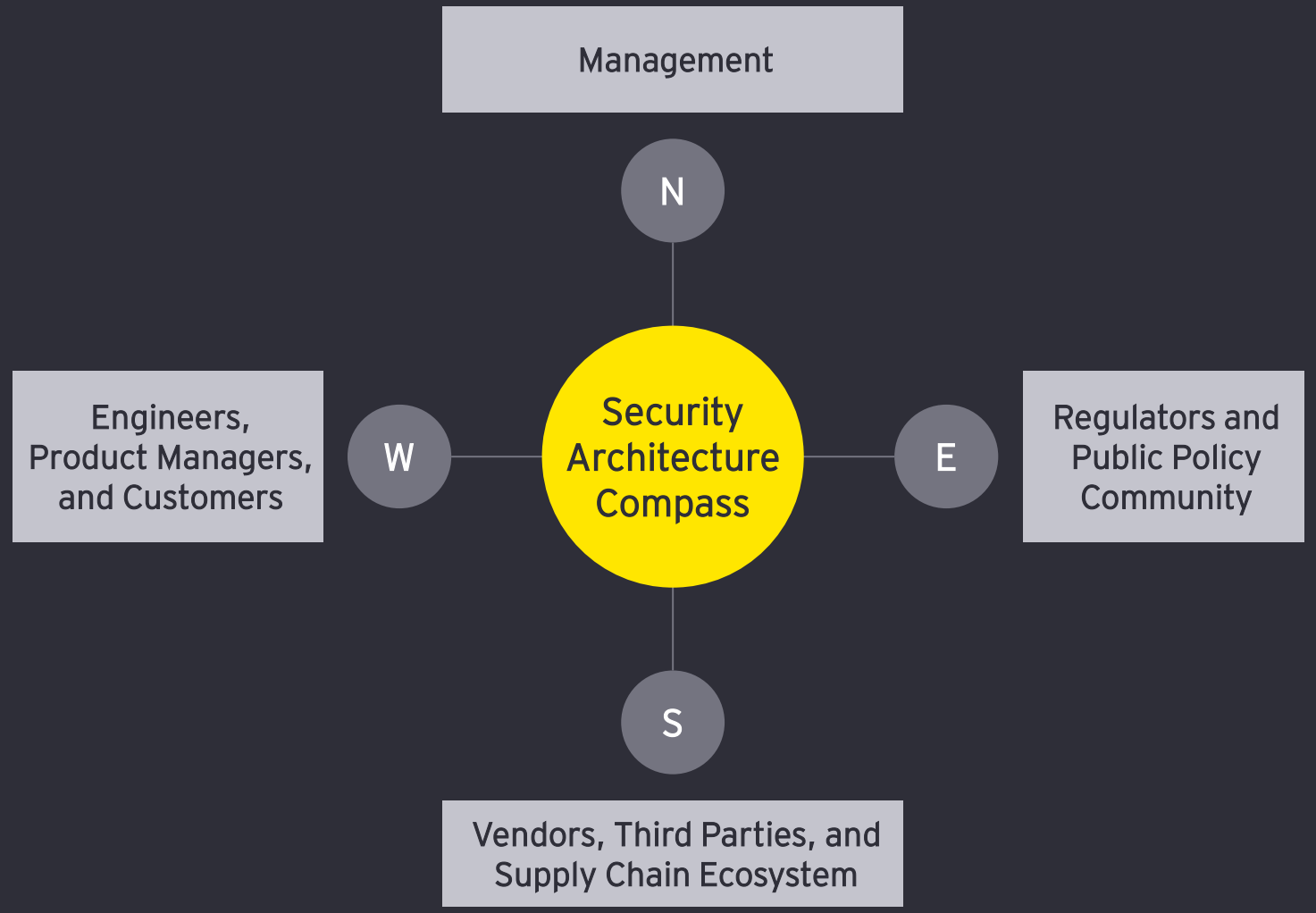
- Certifications and attestations
- Proactive regulatory "mappings" and transparent regulatory response

**Look Up** (North)

- Reporting, communications, visibility and accountability
- Budgeting and resource allocation

**Look Down** (South)

- Enhanced standards and testing (as a testing *consumer*)
- Zero trust architecture



# Traditional third-party risk management programs do not protect against supply chain attacks

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Company identifies a business need and decides to procure software or services from a third-party

# Traditional third-party risk management programs do not protect against supply chain attacks

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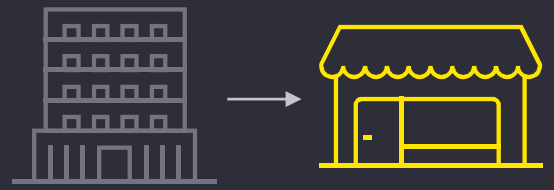
Vendors compete and eventually a service provider or solution is selected (and sometimes is a factor in the selection)



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Vendor security questionnaire is submitted to the vendor by the company

# Traditional third-party risk management programs do not protect against supply chain attacks

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Vendor completes questionnaire and submits required evidence, certifications, or documentation

# Traditional third-party risk management programs do not protect against supply chain attacks

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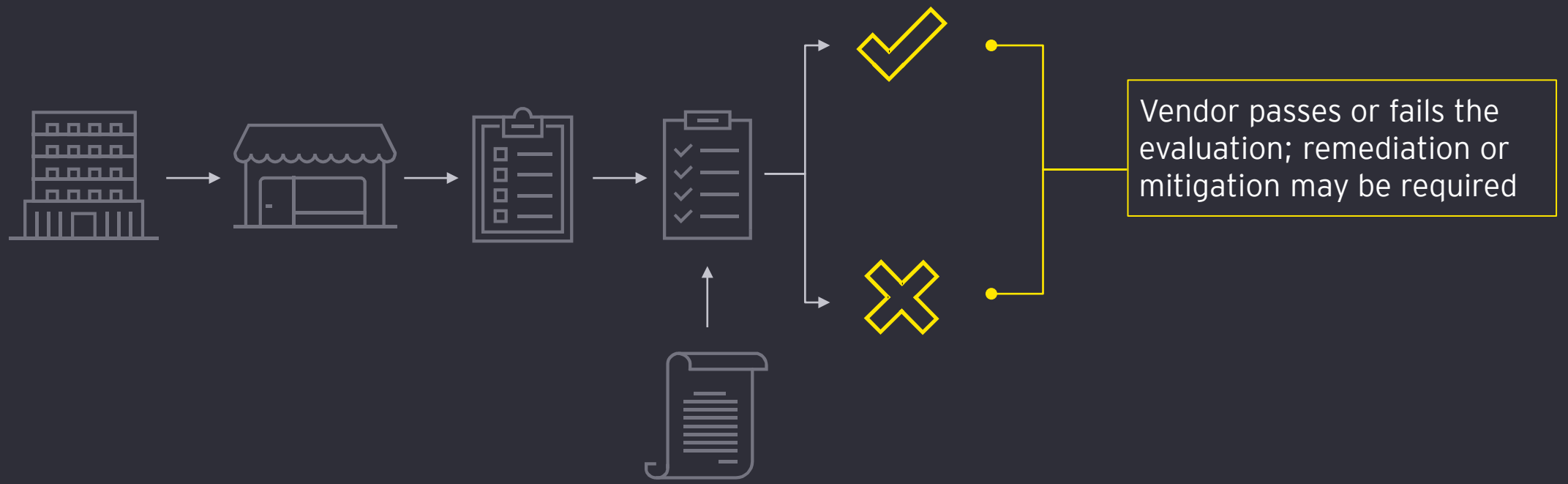

Vendor passes or fails the evaluation; remediation or mitigation may be required



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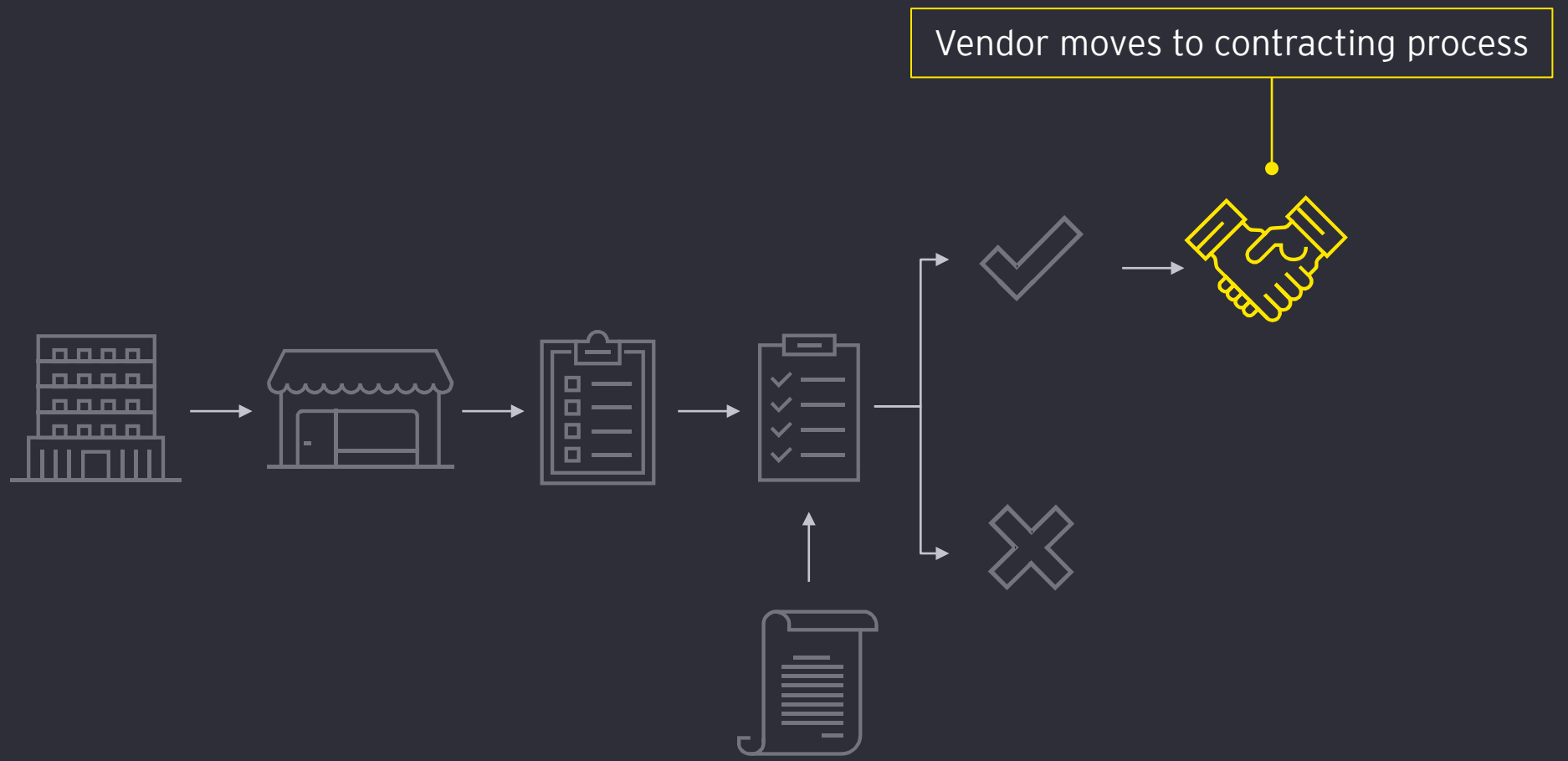

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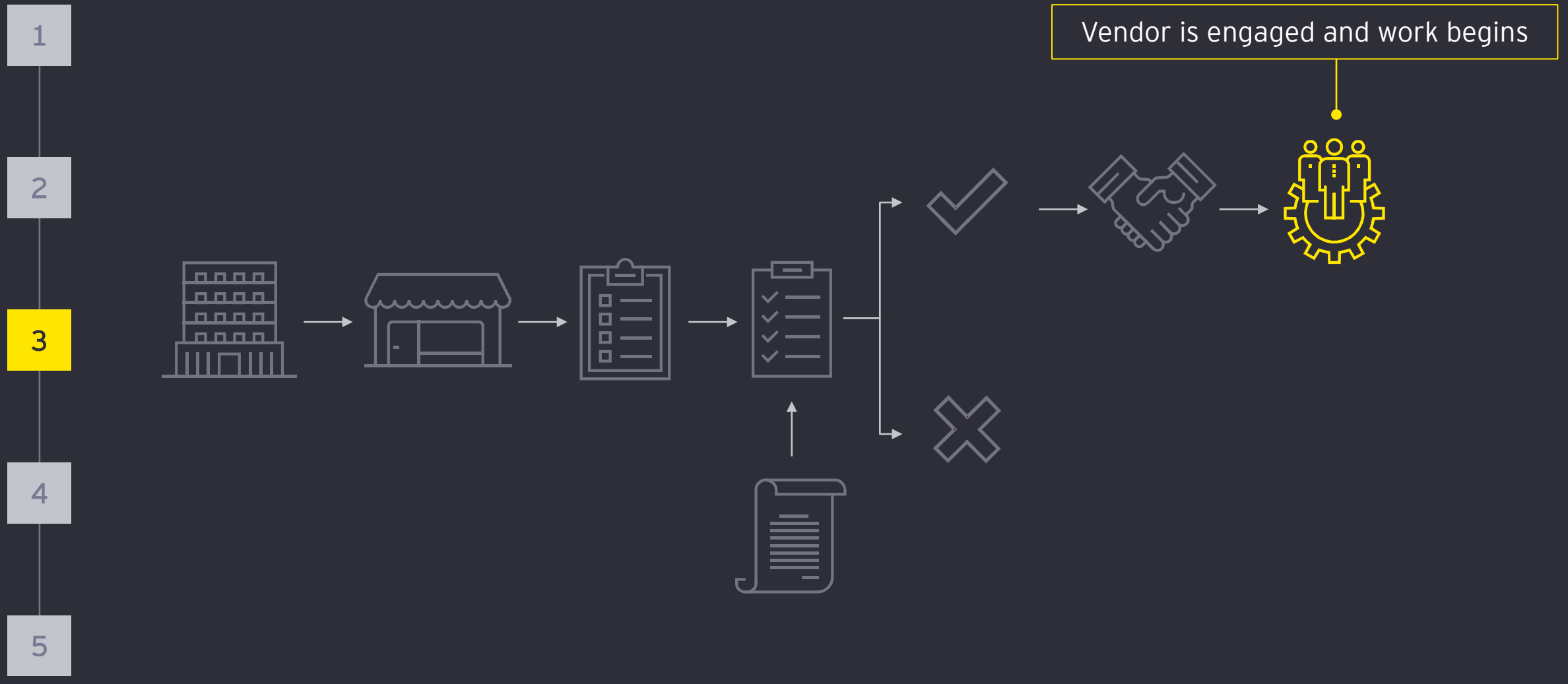

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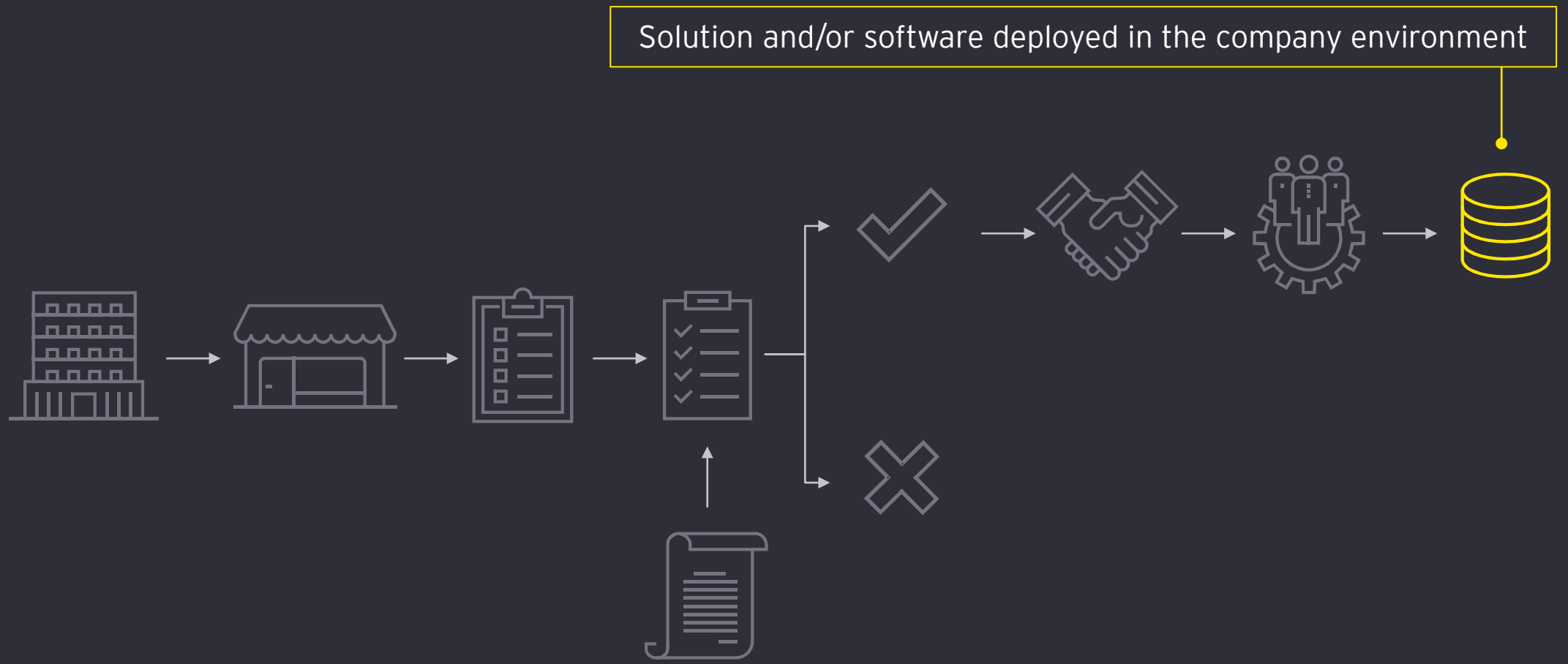

# Traditional third-party risk management programs do not protect against supply chain attacks

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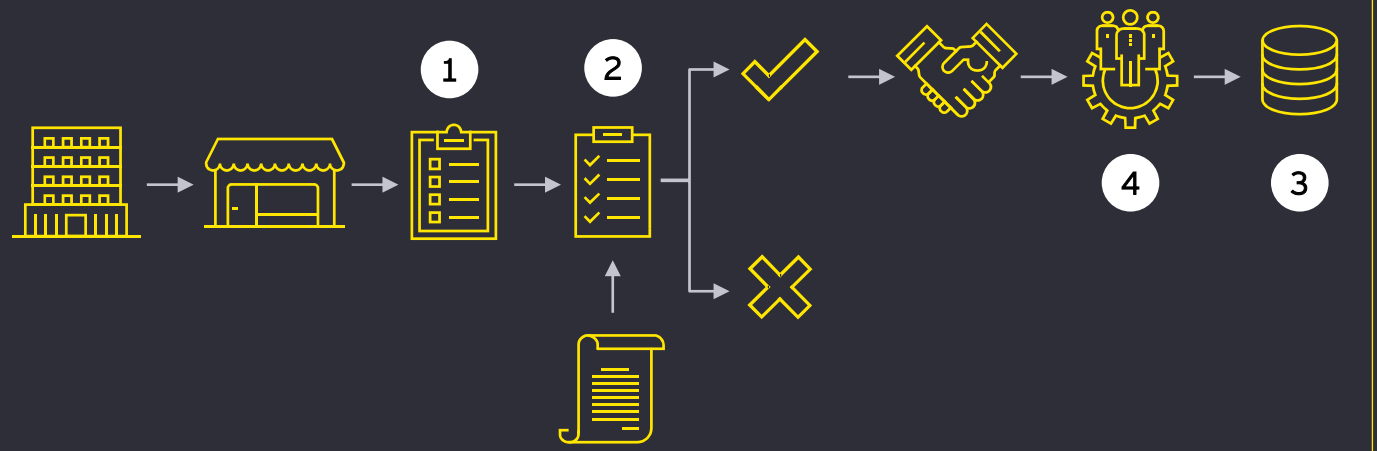
1. Questionnaires and certifications ≠ code/solution testing
2. Ongoing testing (periodic & triggered) > point-in-time evaluations
3. If vendors do not test their code/solutions *with each release*, you must. If they do, make them prove it; and you should likely reperform the testing in your environment anyway…
4. Nth-parties (vendors of vendors) pose just as big a risk as the primary vendor




**Third-party security risk management basic hygiene checklist**

- ☑ A complete vendor list
- ☑ Procurement channels and shadow IT
- ☑ Vendor tiering and evaluation criteria for each tier
- ☑ Evidence and documentation analysis
- ☑ Re-evaluation schedule and triggers
- ☑ Vendor risk monitoring and governance



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# Greater visibility and enhanced monitoring does not necessarily mean better response *(but it could)*

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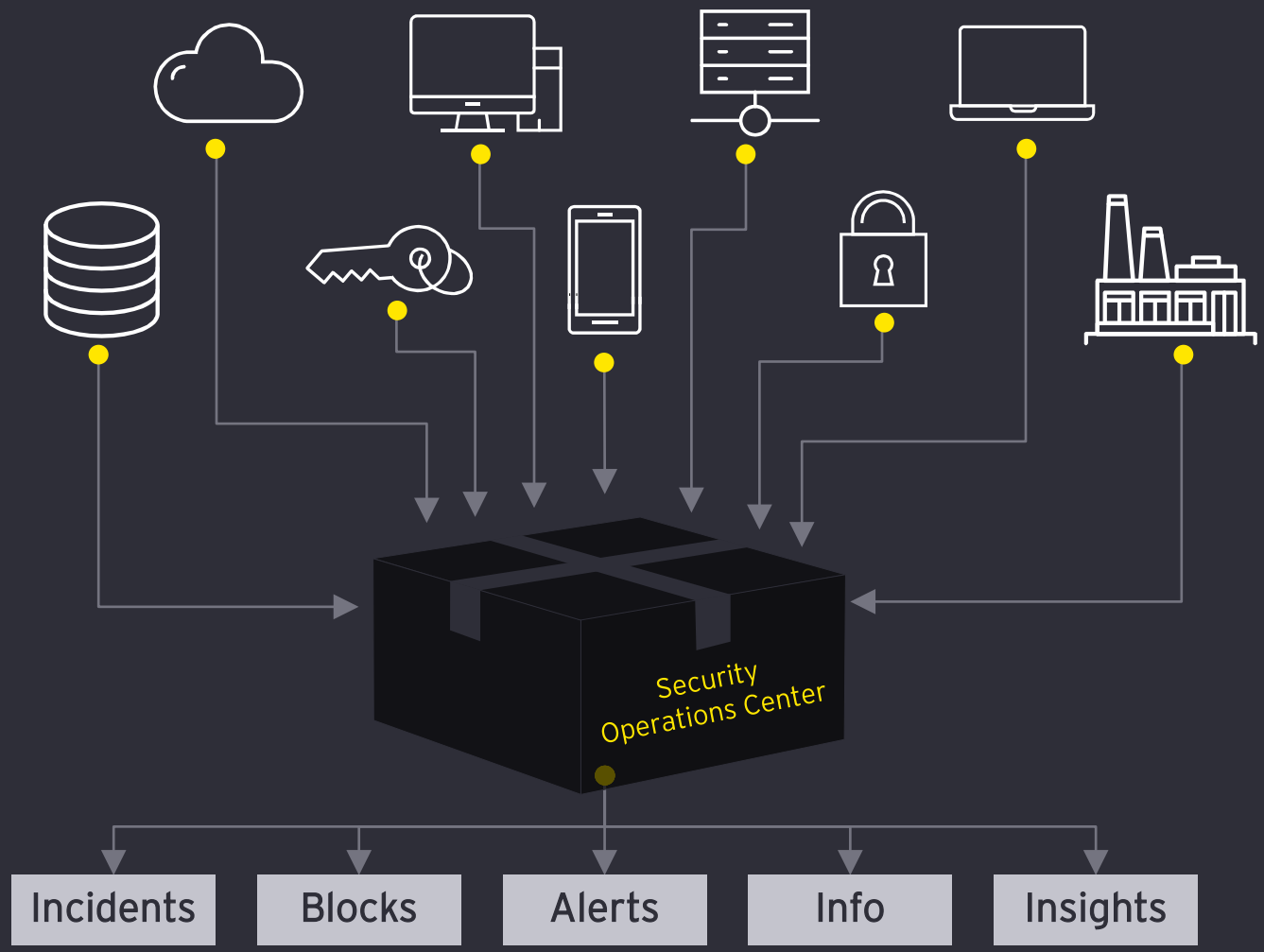
- Depth (type/amount of data) and breadth (BU, geographies, products, etc.) of monitoring scope
- Business stakeholder integration and system ownership
- Operational technology (OT) environments
- "Black box" SOCs (security operations centers)
- Threat hunting and active defense finds problems before they become problems
- Alert noise: qualification and investigation
- Overreliance on technology; processes playbooks and communication protocols
- Level 3 hand-offs, especially for MSSPs
- Automation versus manual processes; get ready for huge increase in volume



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# Cyber reporting, metrics, and dashboarding is missing some critical elements before it can elevate cyber maturity

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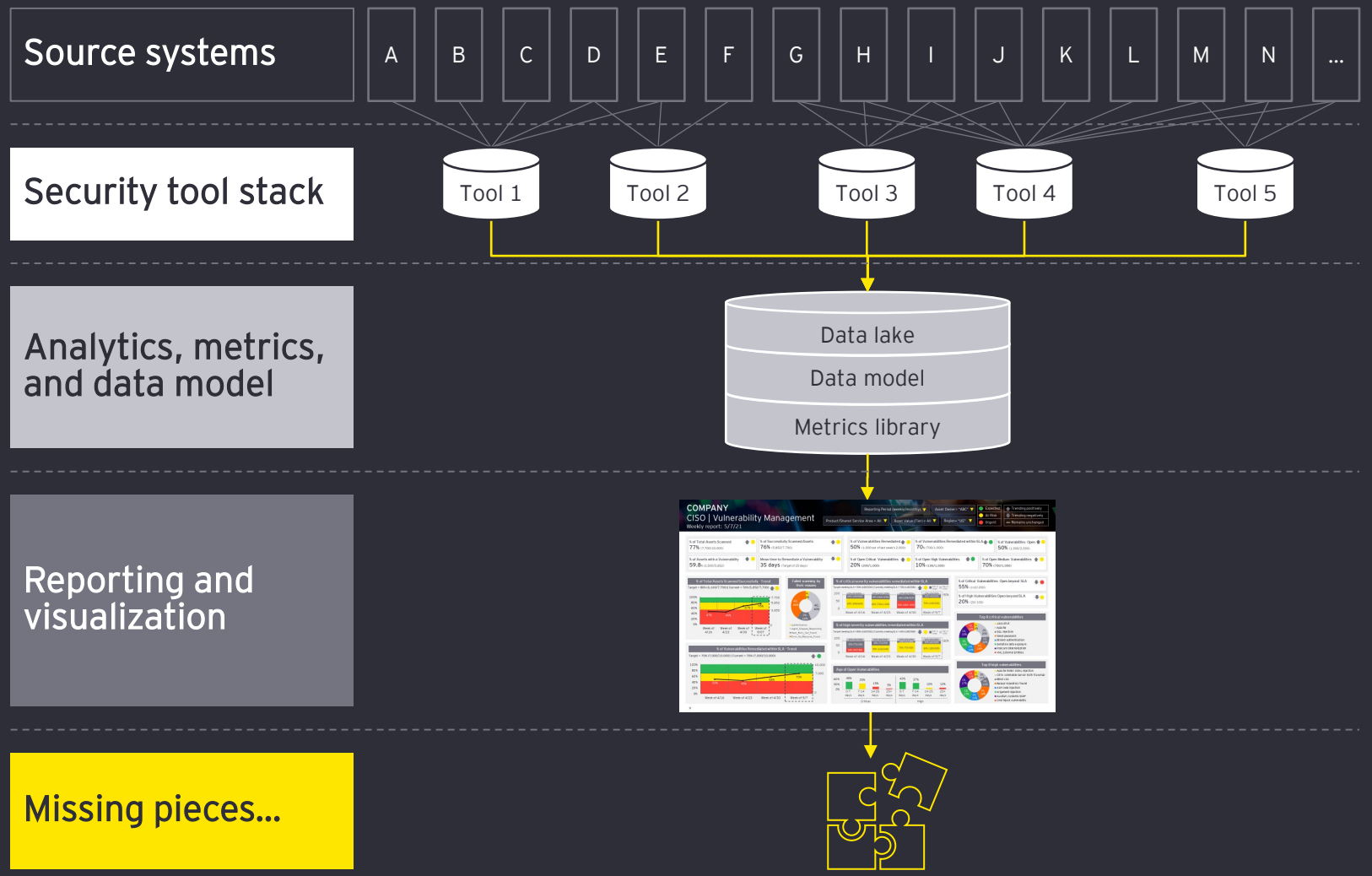
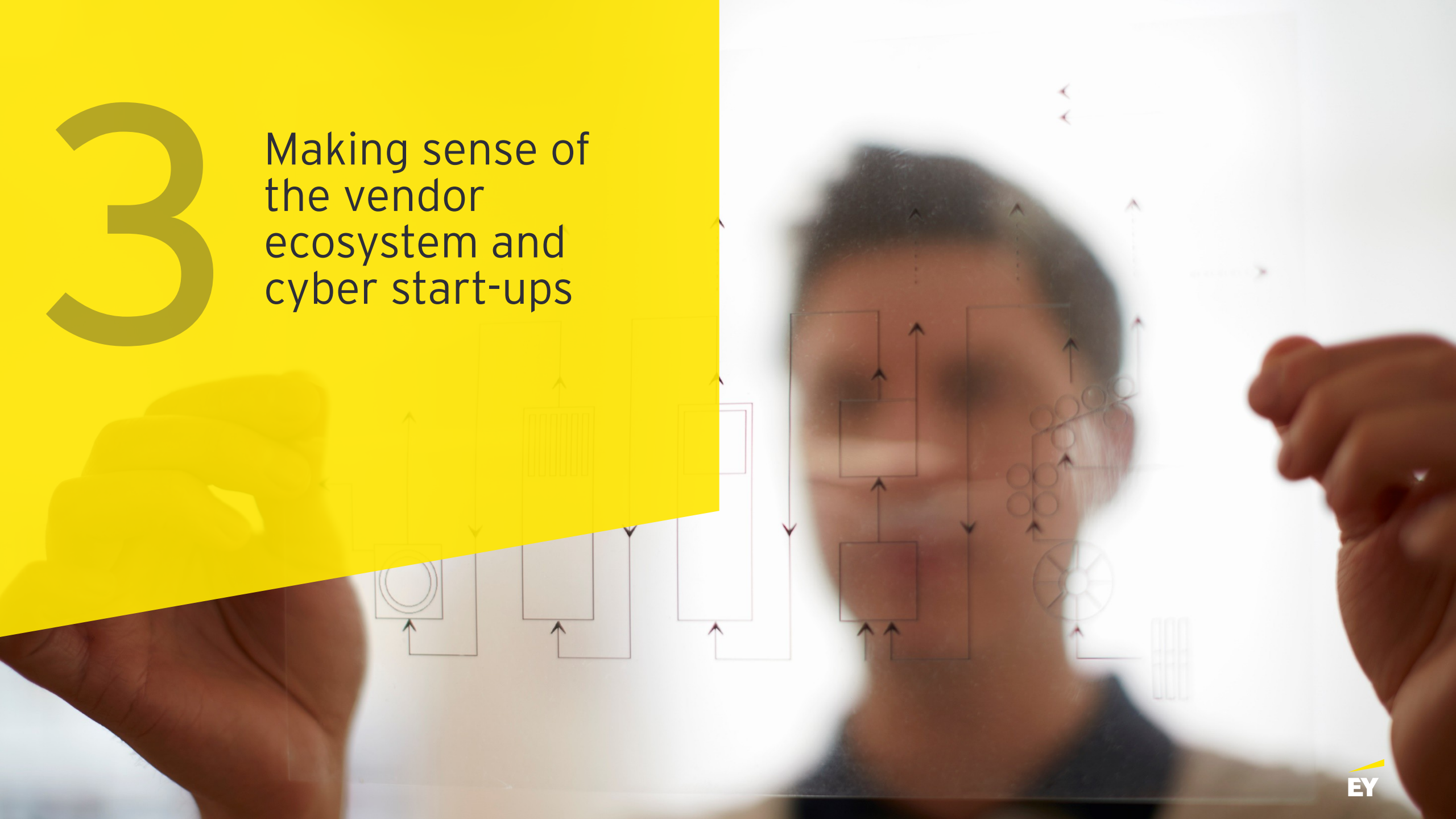
## Common missing pieces...

- Infusion of business context information
- Persona and audience definition
- Reporting visibility and risk governance
- Interpretation in "plain language"
- Automation and notifications
- Accountability for KPIs and KRIs within defined personas
- Historical trending and future predictive modeling



# 3 Making sense of the vendor ecosystem and cyber start-ups



# Polling question 4

## In which NIST CSF domain is your organization focusing most heavily over the next year?

**A** **Identify**
Asset Management; Business Environment; Governance; Risk Assessment; and Risk Management Strategy

**B** **Protect**
Identity Management and Access Control; Awareness and Training; Data Security; Information Protection Processes and Procedures; Maintenance; and Protective Technology

**C** **Detect**
Anomalies and Events; Security; Continuous Monitoring; and Detection Processes

**D** **Respond**
Response Planning; Incident Response Communications; Response Analysis; Mitigation; and Improvements

**E** **Recover**
Recovery Planning; Restoration Improvements; and Recovery-Based Communications

# Next Evolution of NIST's Framework

| Landscape Overview | | | | |
|---|---|---|---|---|
| | Identify | Protect | Detect | Respond/Recover |
| Endpoint | | | | |
| Network | | | | |
| Application | | | | |
| Data | | | | |
| Identity | | | | |

- Simplify NIST's five categories into four
- Adding a second dimension helps to make CSF "real"
  - Credit to the Cyber Defense Matrix for the original inspiration
- Framework can also be used to show a maturing security program (Green, Yellow, Red)



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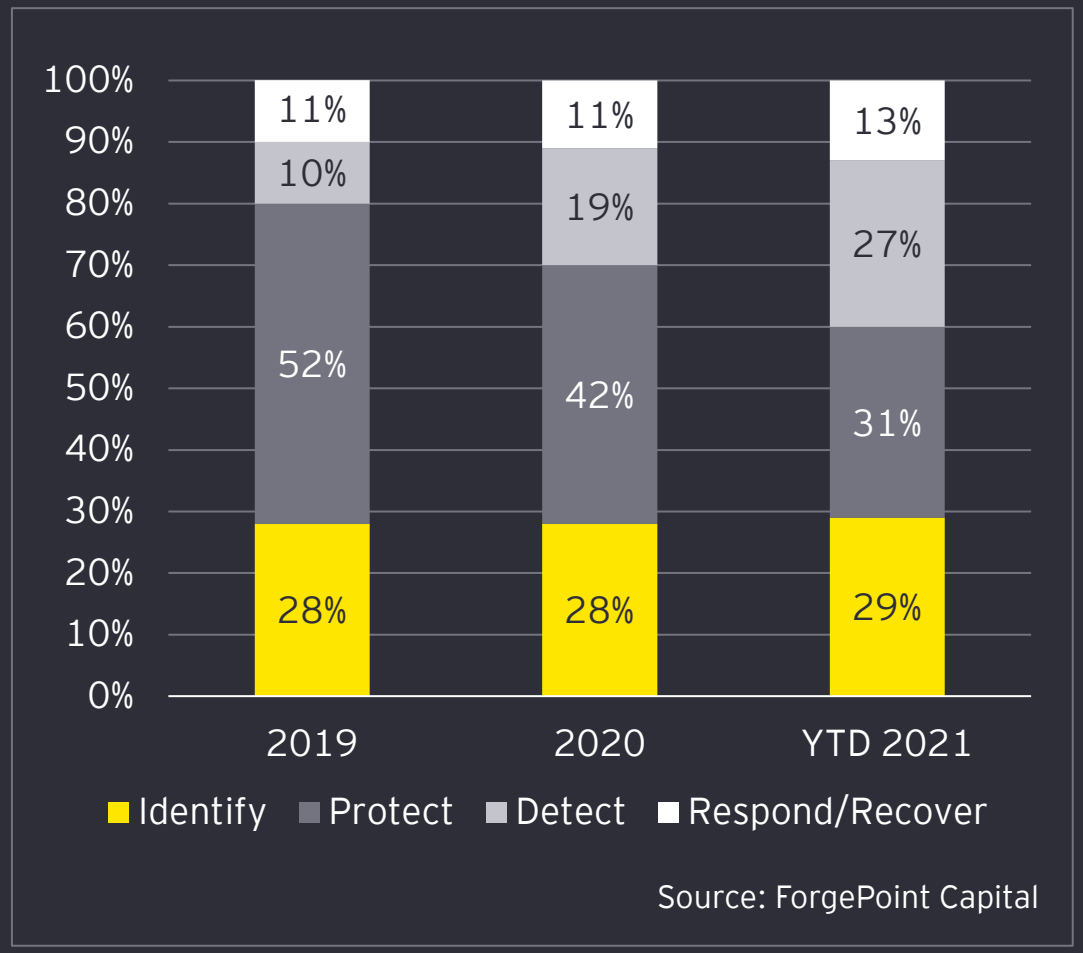
# Applying the framework in the leadership setting

| Security Program at Current State | | | | |
|---|---|---|---|---|
| | Identify | Protect | Detect | Respond/Recover |
| Endpoint |  |  |  |  |
| Network |  |  |  |  |
| Application |  |  |  |  |
| Data |  |  |  |  |
| Identity |  |  |  |  |

- "Based on the risks unique to our company and industry, I believe the red items are our current gaps and lowest hanging fruit to reduce risk to our organization"
- "I'm working to change those from red to yellow, in the next 6 months and will share the new dashboard then"

# Investment by Category

Investment in innovation over time saw the largest shift from protecting to detecting




Source: ForgePoint Capital

| Landscape Overview | | | | |
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| Endpoint | | | | |
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# Cyber Defense Matrix

| | Identify | Protect | Detect | Respond | Recover |
|---|---|---|---|---|---|
| Devices | | | | | |
| Applications | | | | | |
| Networks | | | | | |
| Data | | | | | |
| Users | | | | | |


- Created by Sounil Yu, former Security Innovation Lead at Bank of America
- Process is critical to all types of controls
- As we move further right, increased dependency on people (i.e. SOC)

# 4 Questions and answers

# THANK YOU

Justin Greis

Will Lin

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