Cyberweek[25]

Perspectives Cybersécurité 2025-2030

Jeremy D'Hoinne

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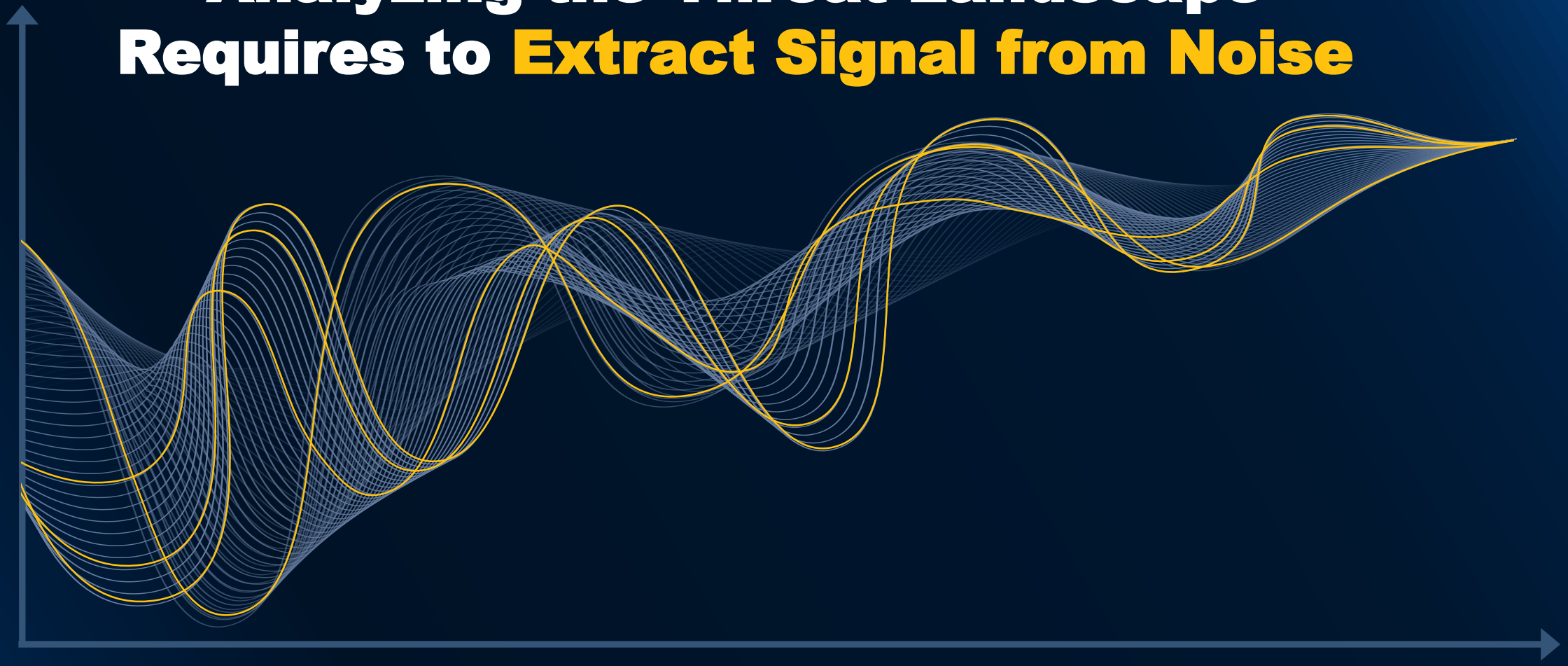
“

Mal nommer les choses, c’est ajouter au malheur du monde.

Albert Camus

Source: Wikimedia commons

Analyzing the Threat Landscape Requires to Extract Signal from Noise



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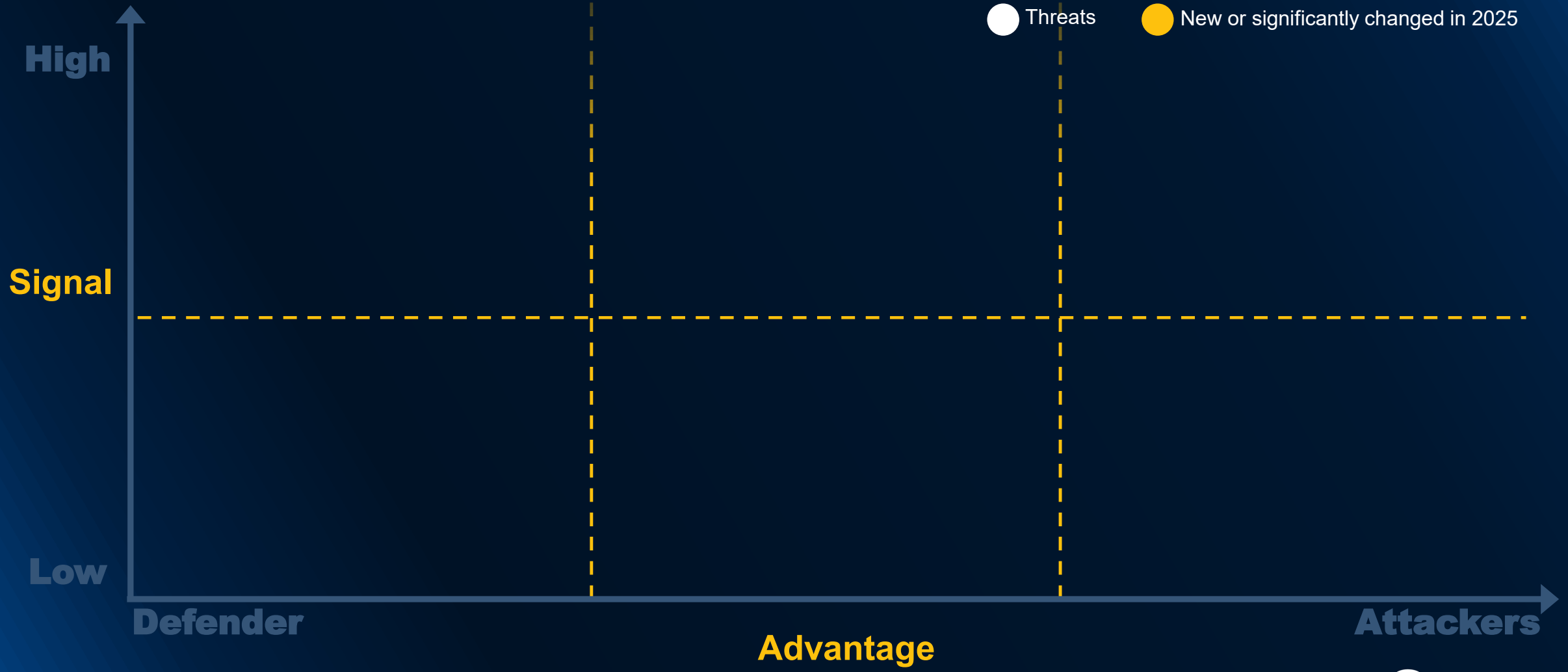
Visualizing Threats to Support Cybersecurity Decisions



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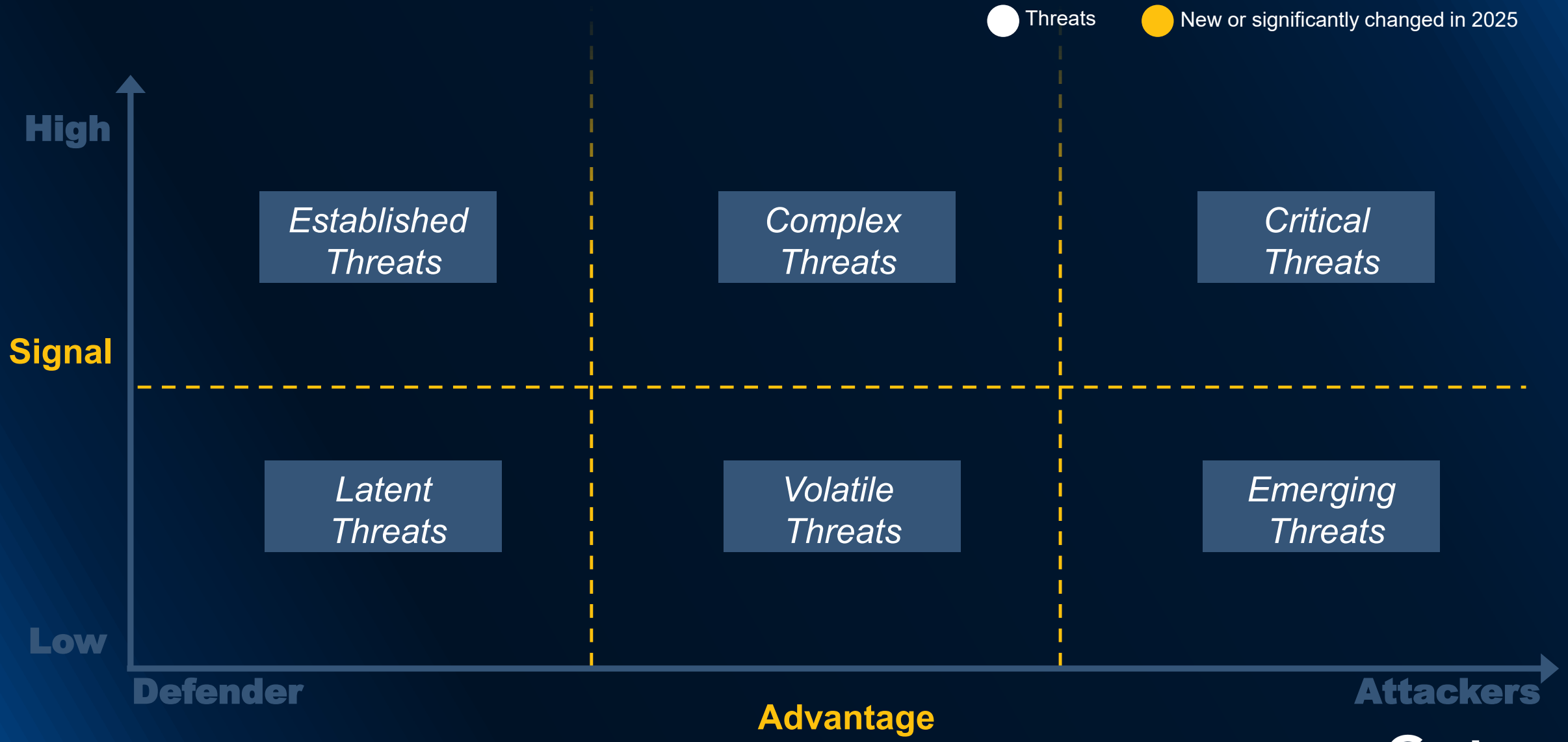
The ThreatScape Categories



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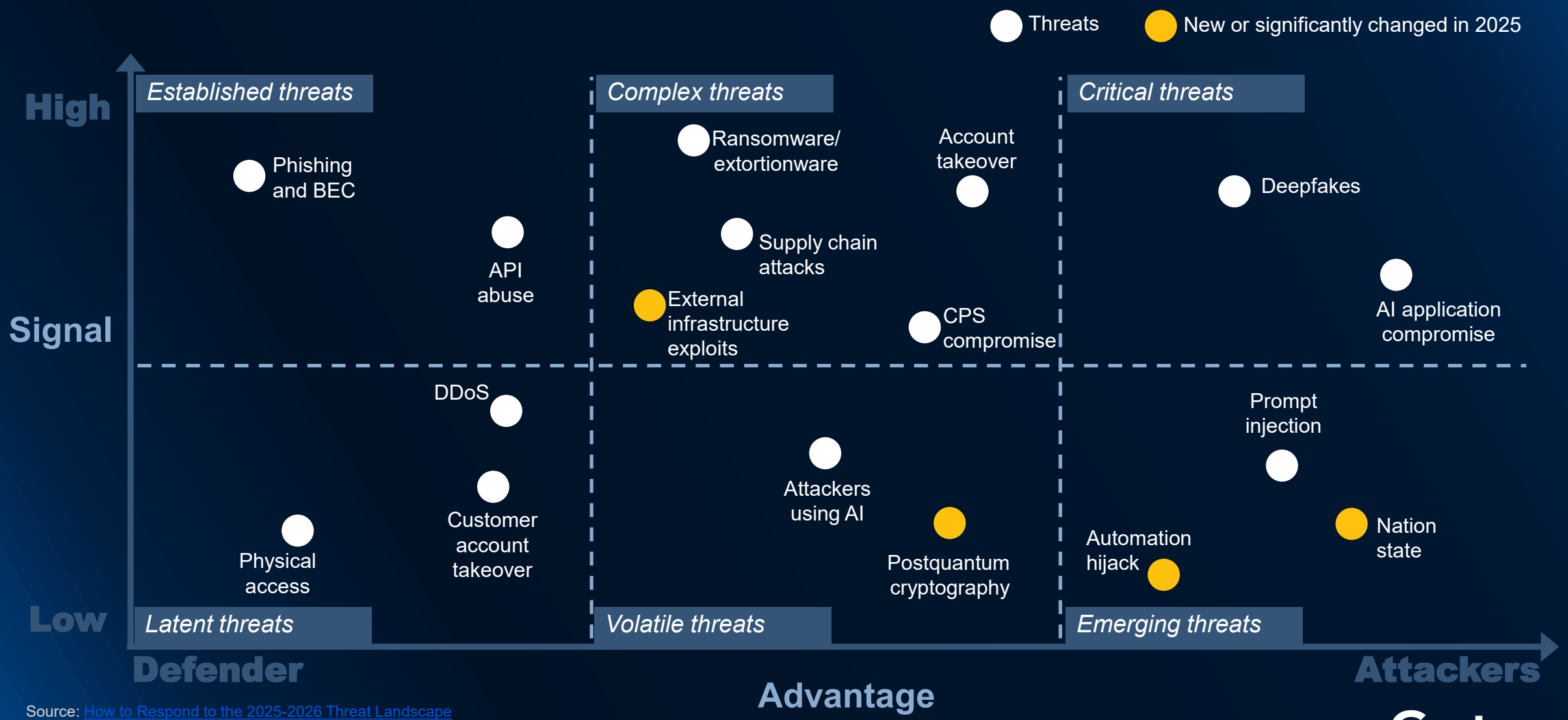
Gartner 2025 ThreatScape



Source: How to Respond to the 2025-2026 Threat Landscape

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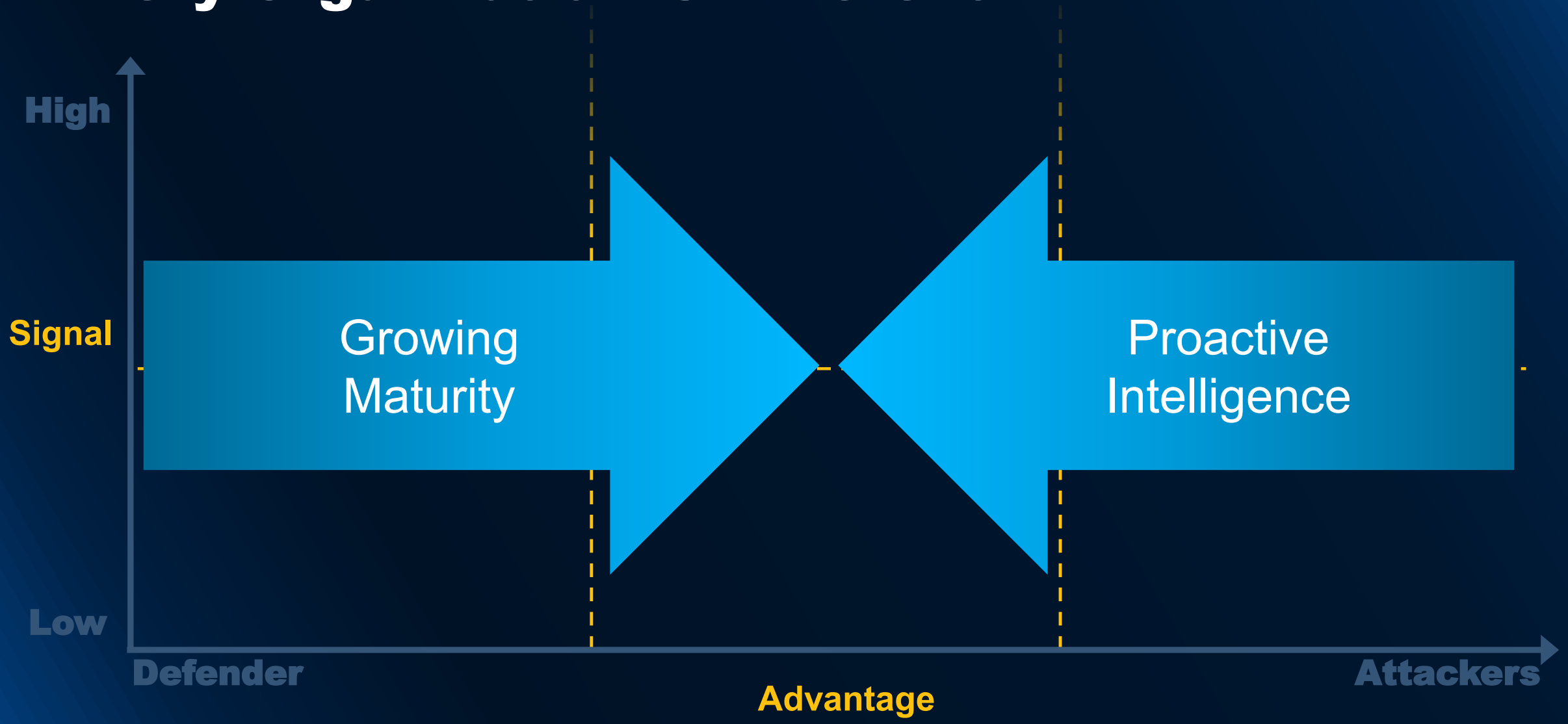
Every Organization is Different



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Emerging & Critical Threats

Emerging & Critical Threats

1. Automation Hijack
2. Nation-State Sponsored
3. Adversarial Prompting
4. AI Application Compromise
5. Deepfakes

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1 Automation Hijack

“Agent = Software”

Everything is an agent
Every workflow is now agentic

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1 Automation Hijack

Agent Risk Categorization

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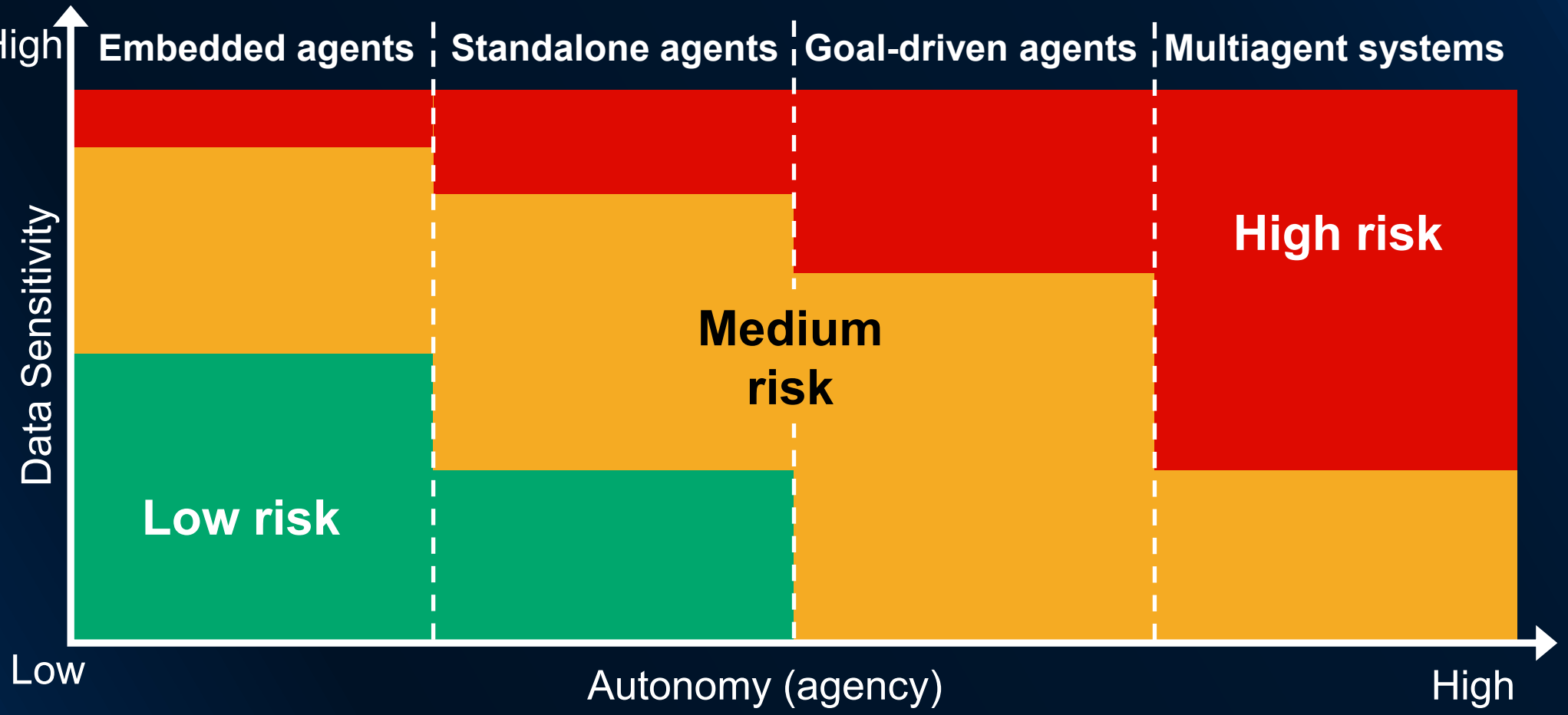
1 Automation Hijack

Agent Risk Categorization



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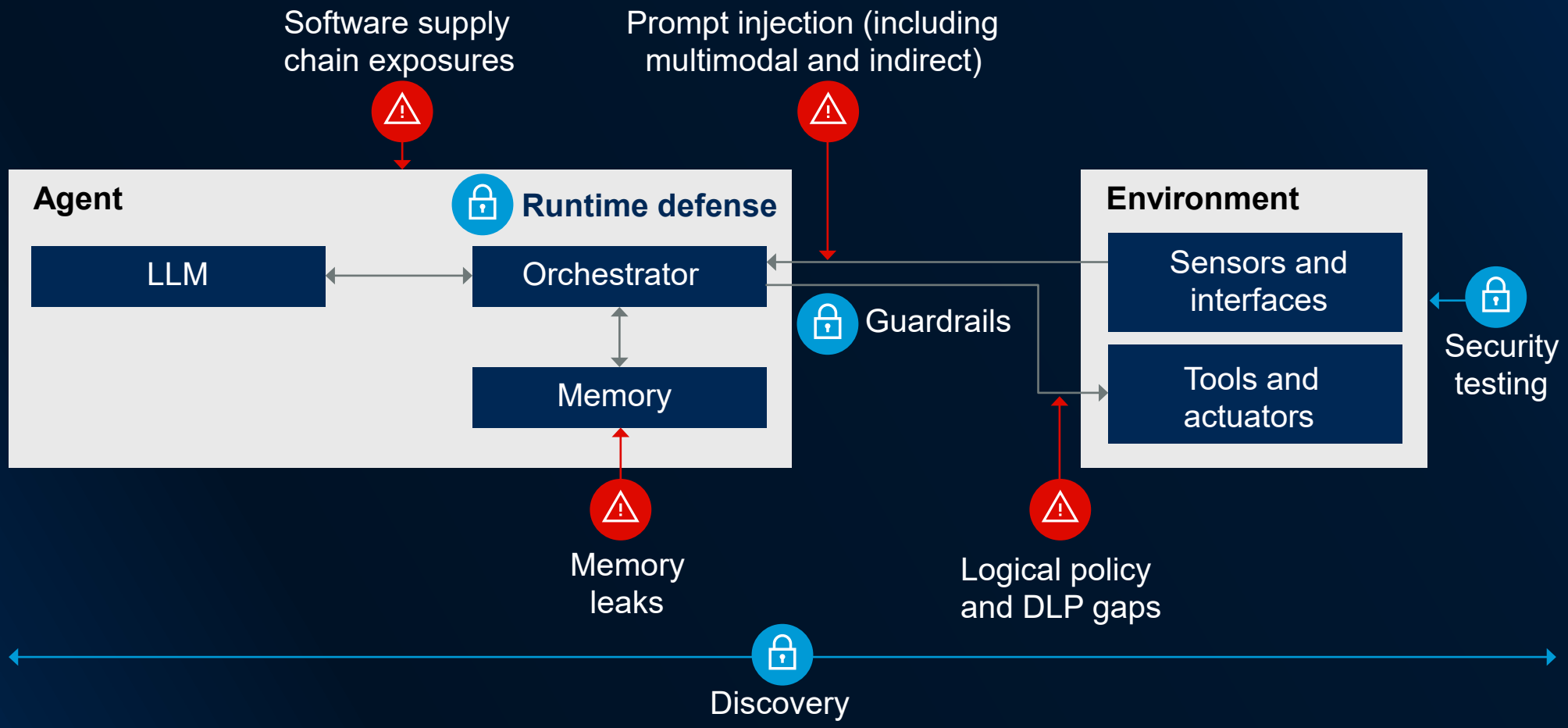
1 Automation Hijack

Custom-built AI Agents Threats, Attacks and Security Measures



Source: Gartner
824390_C

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2 Nation-State Sponsored

Threat assessment questions	Considerations
What do we have that is of interest to a nation state attacker?	Contracts with defense entities, intellectual property of interest to a nation state, access to large amounts of compute and storage
Why would a nation state target our organization?	Innovation prowess, critical infrastructure, client base, lucrative data
Where do we do business and where are the assets of interest to a nation state?	Competition against state owned entities (for example, mining or manufacturing), political connections, affiliation with hostile countries
How would a nation state gain access to our environment?	Gaps in security monitoring, unsecured infrastructure, business association connections, novel attack methods
Who are the nation states known to target our industry?	Sophistication of attacks, financing of attacking nations, proxy organizations

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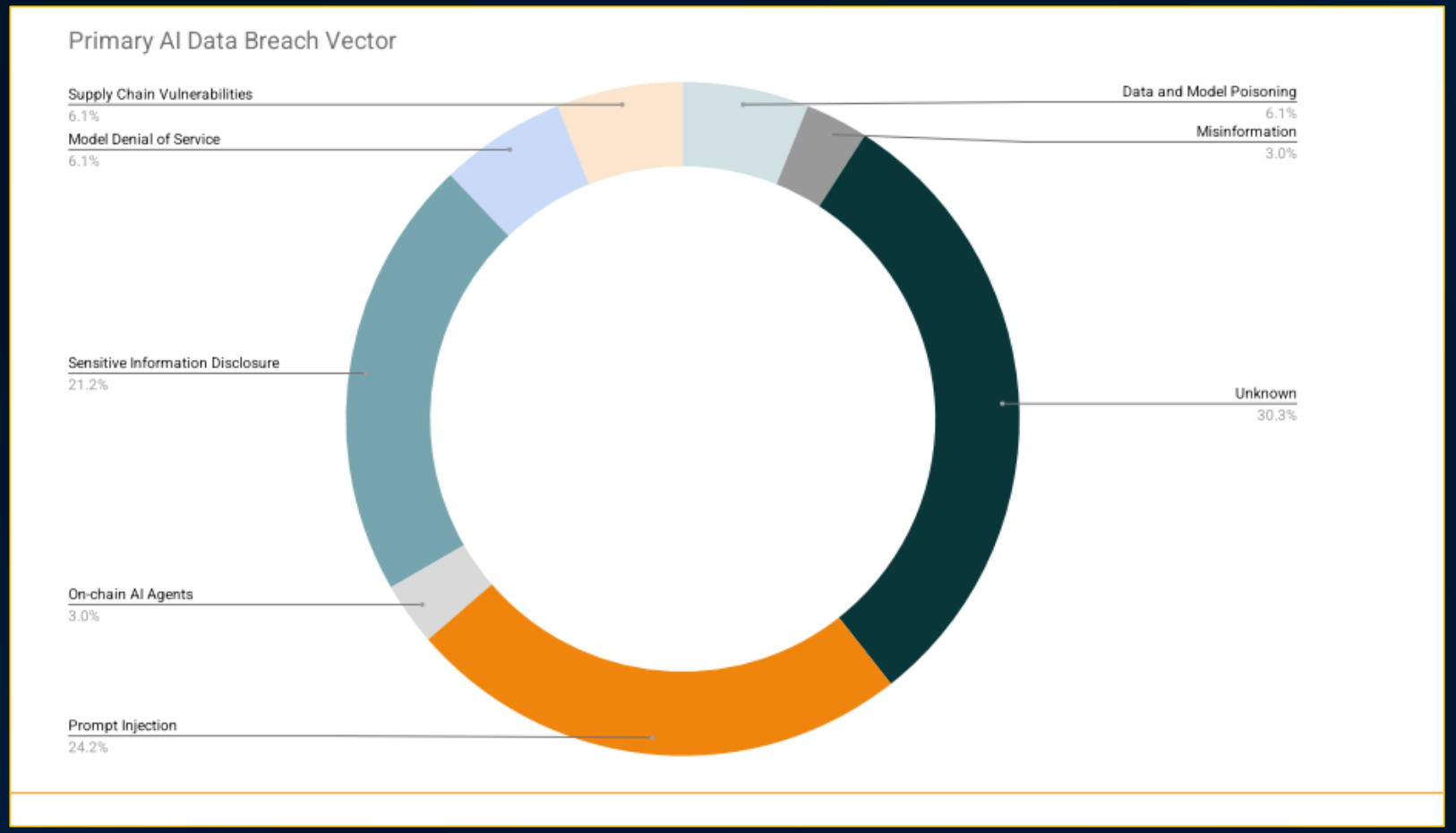
3 Adversarial Prompt

Direct and Indirect Prompt Injections



Source: Firetail State of AI and API Security, 2025 , April 2025

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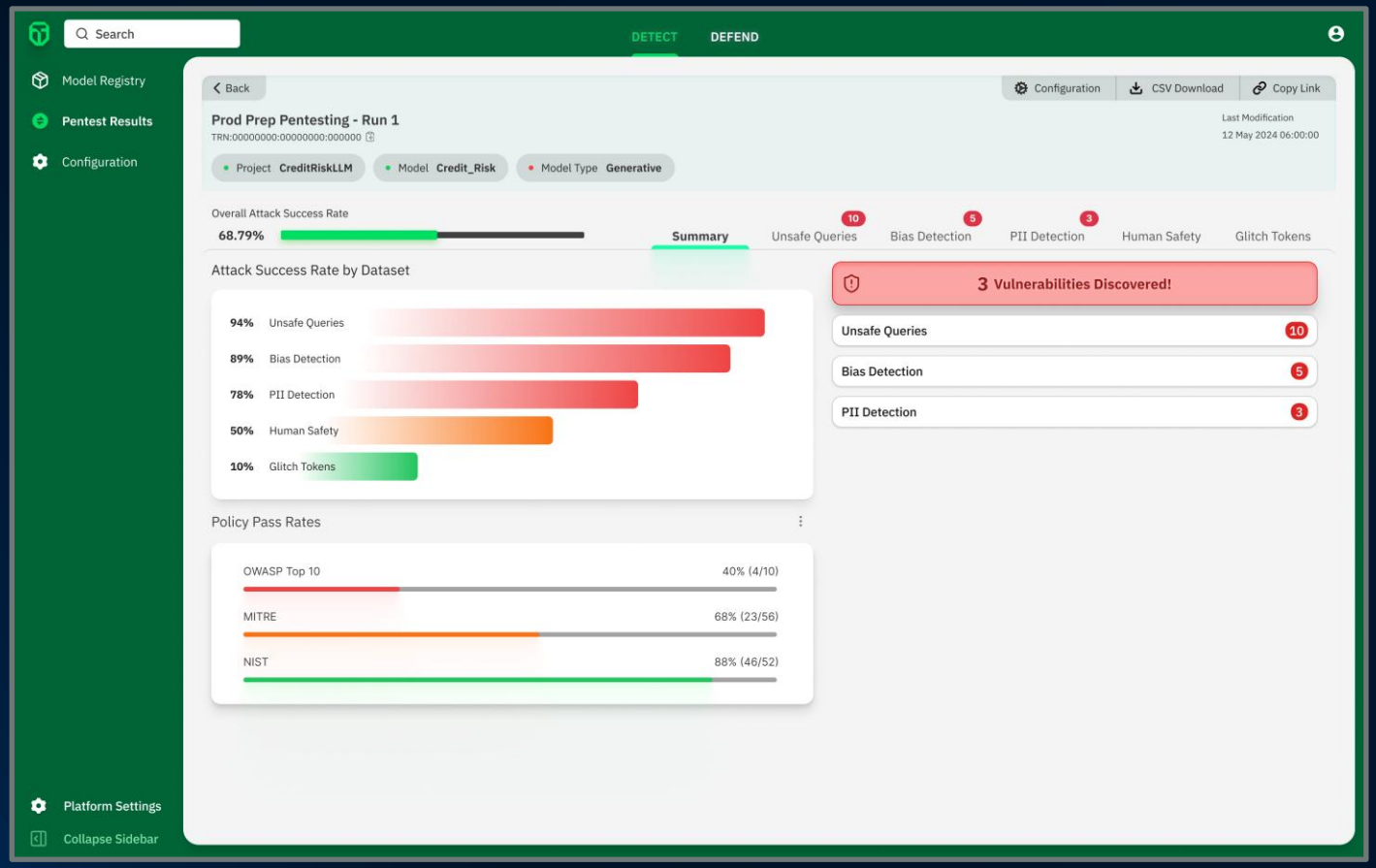
3 Offensive Security Testing

Include AI Applications in your Red Teaming Efforts



Source: TrojAI Detect

Key elements

- Scope
  - Models (LLMs, multimodal)
  - Application
- Test categories
- Scheduling & retest
- Alerting & reporting

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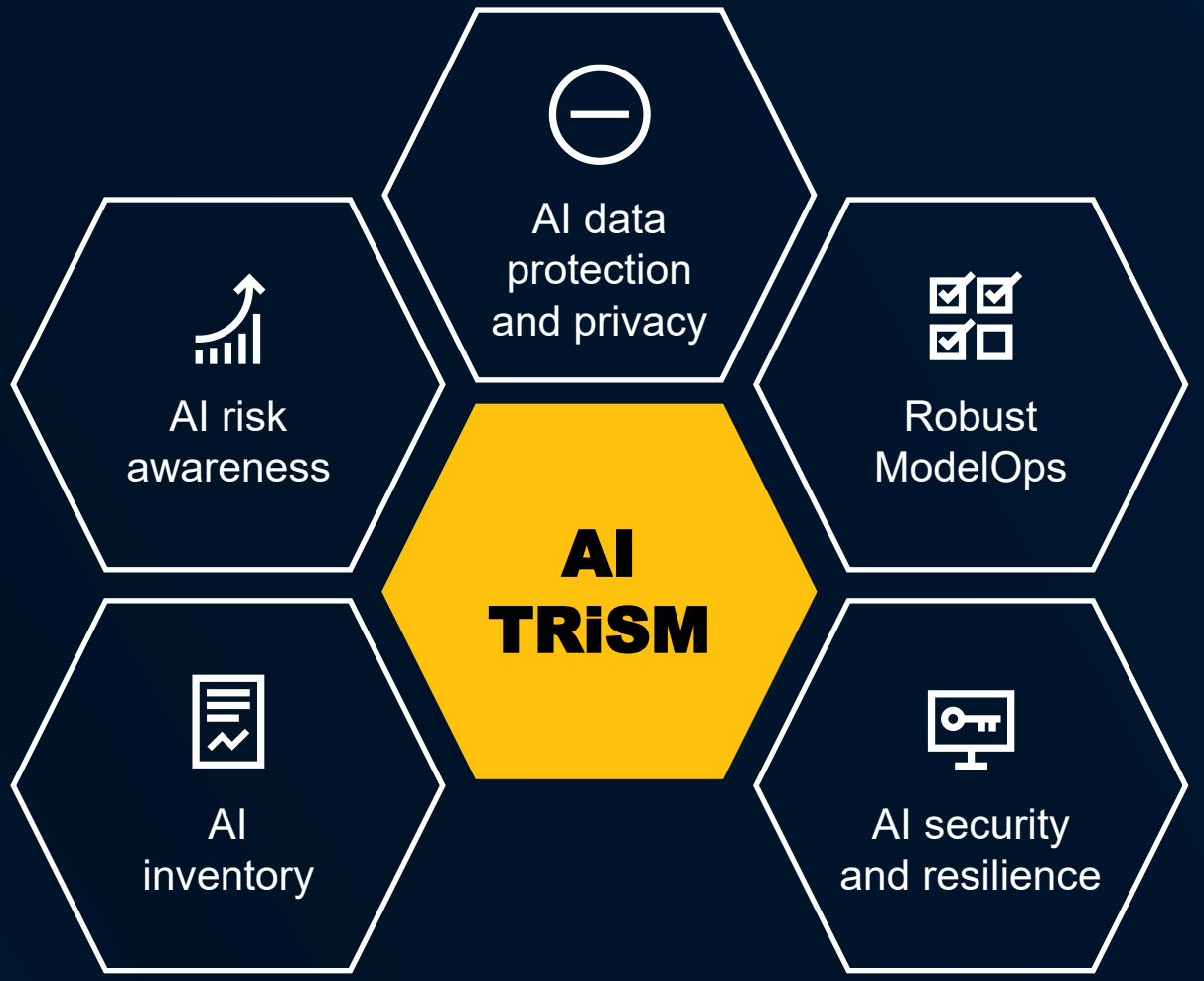
4 AI Application Compromise
Prioritize Securing AI Applications



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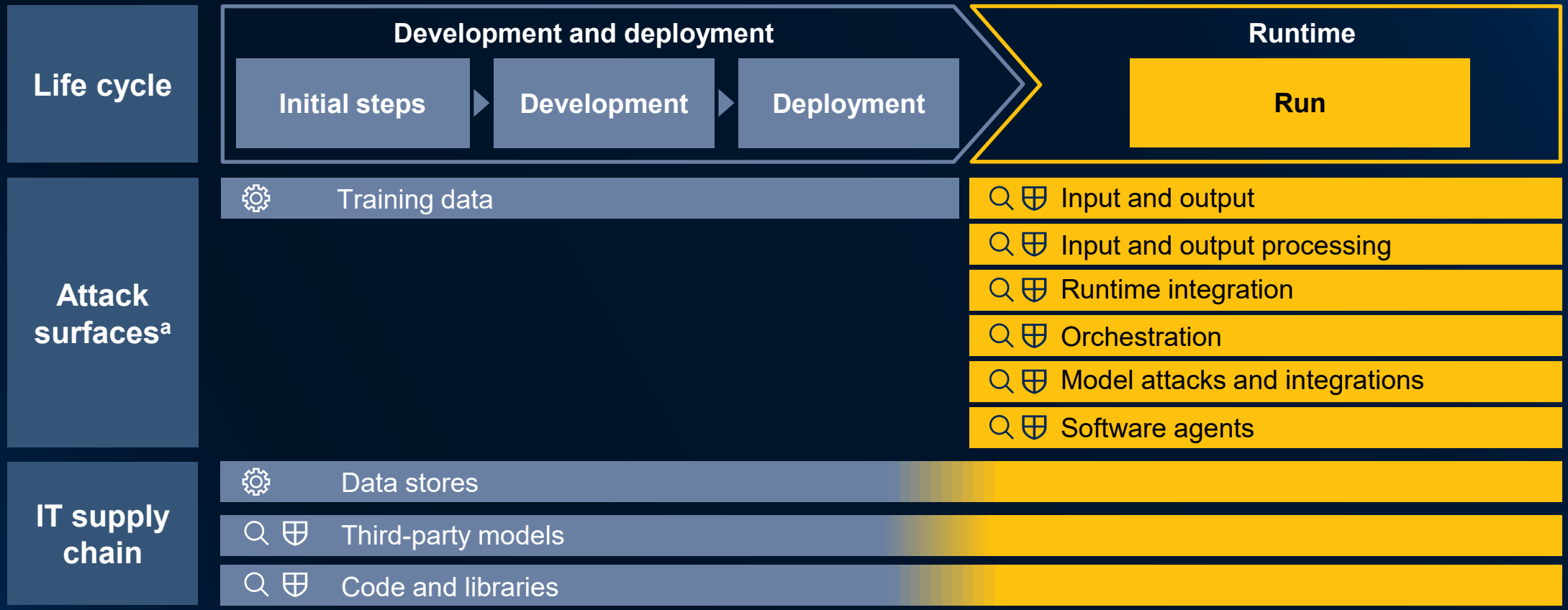
4 AI Application Compromise

Attack Surfaces Across the AI Life Cycle

AI TRiSM technology: Content anomaly detection | Data protection | Application security



[a] Main sample attack surfaces only; others not shown

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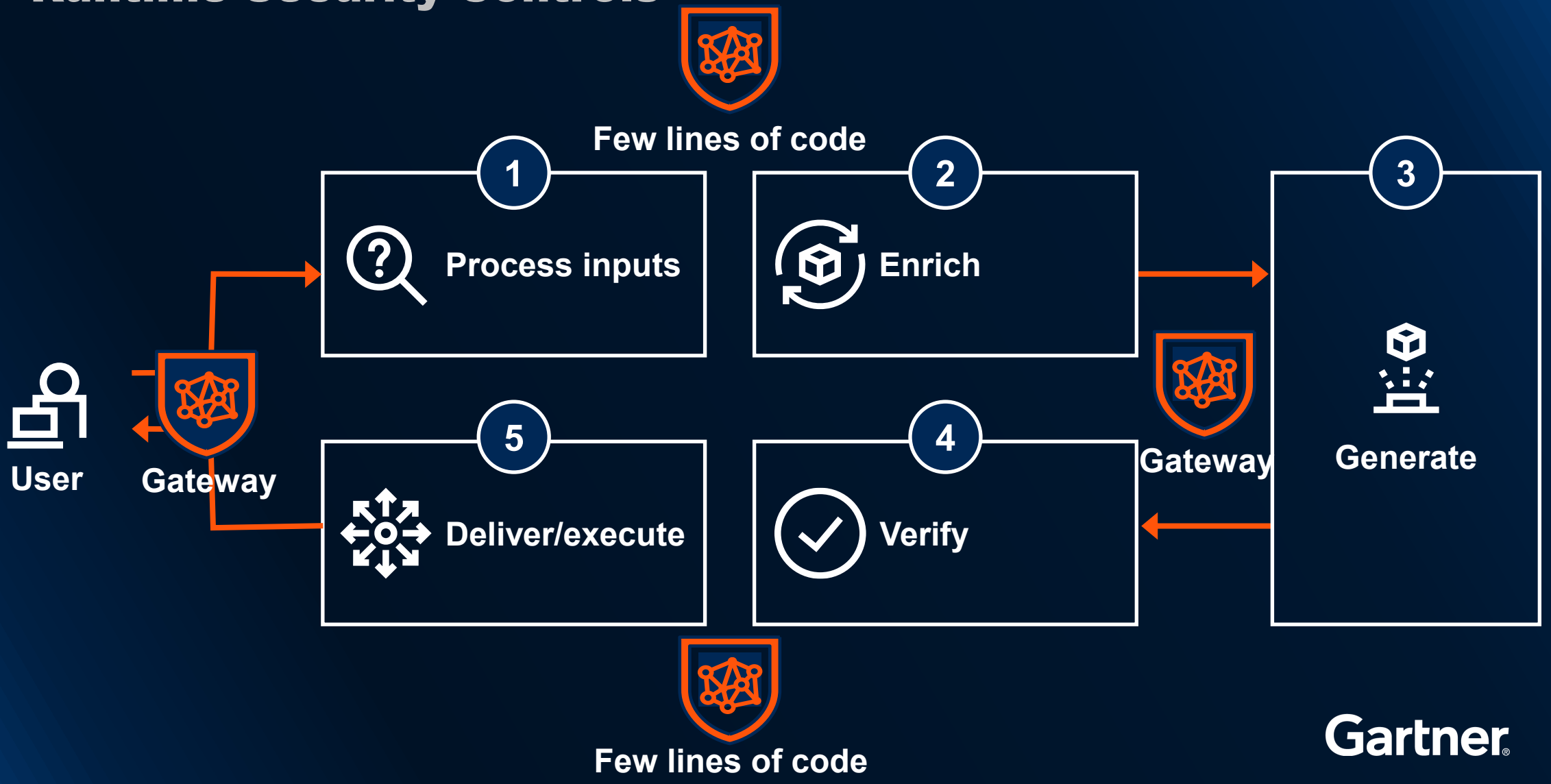
4 AI Application Compromise

Runtime Security Controls



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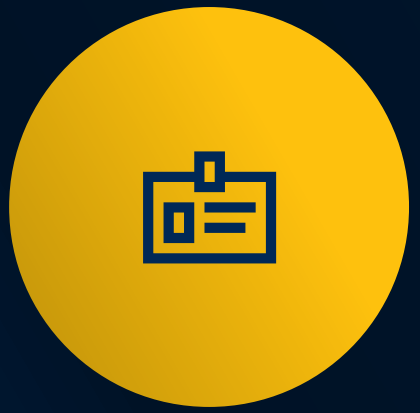
5 Identity Impersonation and Deepfakes



Identity verification face biometrics

Voice biometrics

Enterprise internal authority impersonation

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5 Identity Impersonation and Deepfakes

62%

We experienced **at least one** minor incident involving audio or video deepfake.

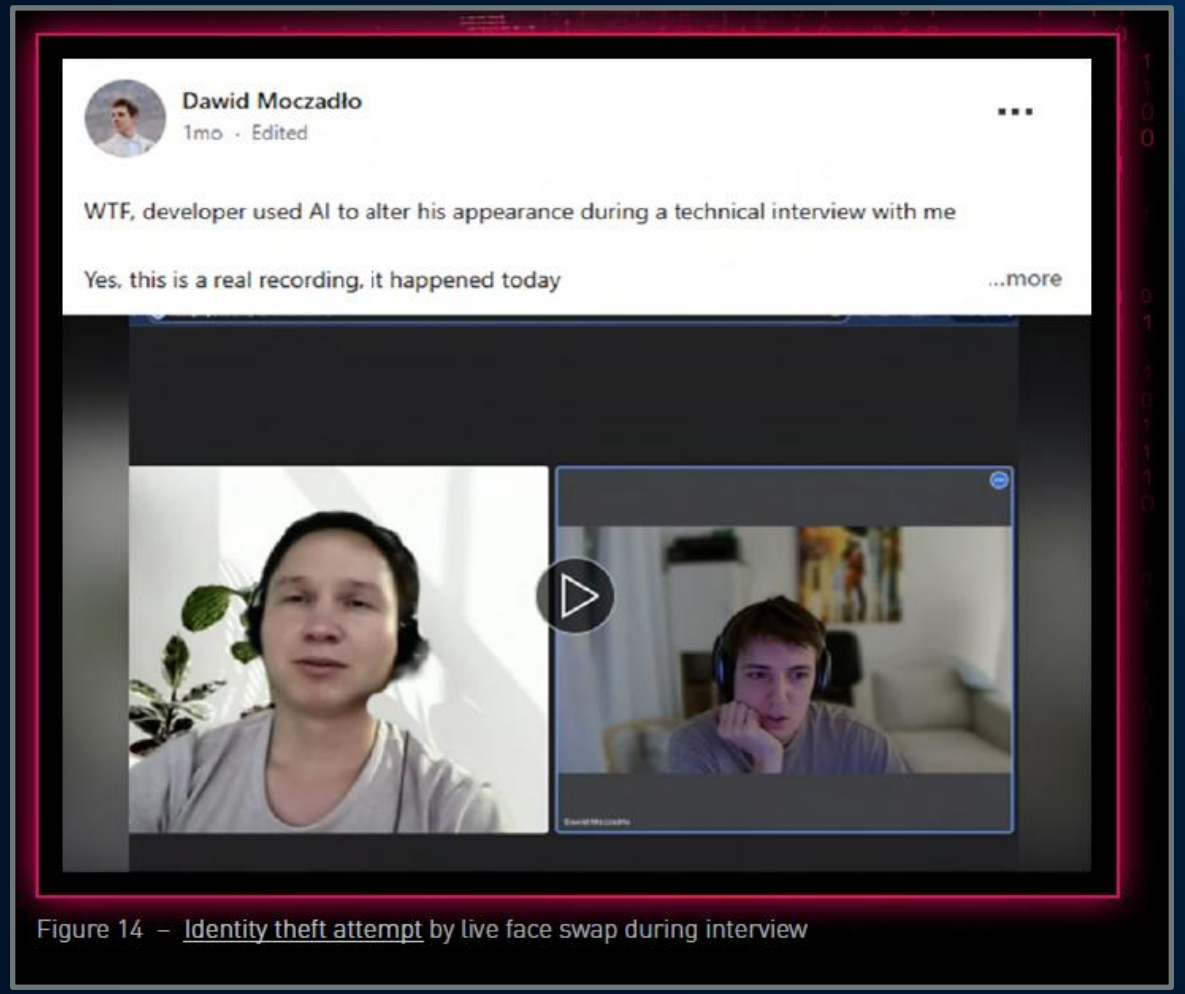

Figure 14 – Identity theft attempt by live face swap during interview

Source: Cyber Security Resource Center, Check Point Software Technologies

n = 293-296, excluding unsure

Q: In the last 12 months, has your organization observed any of the following GenAI-augmented cyberattacks or attacks on GenAI assets?

Source: 2025 Gartner Cybersecurity Innovations in AI Risk Management and Use Survey

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5

By 2028, one in four candidate profiles worldwide will be fake.

Mitigate Rising Candidate Fraud Through Identity Verification

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5 Deepfake Scenario Planning

Impersonation in business process	Fake voice or fake video used to hijack some less visible but important process: • Requesting a SIM card because you “lost your phone” • Asking HR to update banking details
Supply Chain Deepfake	Impersonating an employee in a conversation with a contractor/partner. IT employee, asking a managed service provider to “open a port”. Procurement employee, asking to change an order…
Deepfake as-a-Service	Criminal organizations like to deliver “attack kits”. How much targeted deepfakes can we get if an attacker can upload a voice/video sample, and a script text, and get back a credible deepfake.
Remote hire	How much of the hiring process for remote employee could be impacted by credible deepfake? What would need to change to ensure that background checks are sufficient? (see also FBI warning on the topic)

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Build resilience, detection and response to emerging and critical threats

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Complex & Volatile Threats

Complex & Volatile Threats

1. PostQuantum Cryptography
2. Attackers Using AI
3. CPS Compromise
4. External Infrastructure Exploit
5. Supply Chain Attacks
6. Account Takeover
7. Randomware/Extortionware

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1 Postquantum Cryptography

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1 Postquantum Cryptography Secure Plan of Action

2025

- Inventory usage
- PQC policy
- Data use timeframe (short, medium, long)
- Plan transition

2026 to 2029

- Purge weak crypto
- Implement transitional policies
- Implement crypto agile applications

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1 Postquantum Cryptography Secure Plan of Action

Regulations

2030

- End-of-life nonagile crypto applications
- Enforce strong crypto policies
- Test new postquantum algorithms

Weak algorithms
such as Diffie-Hellman, Elliptic Curve Diffie-Hellman, Rivest-Shamir-Adleman (RSA), etc.
no longer approved

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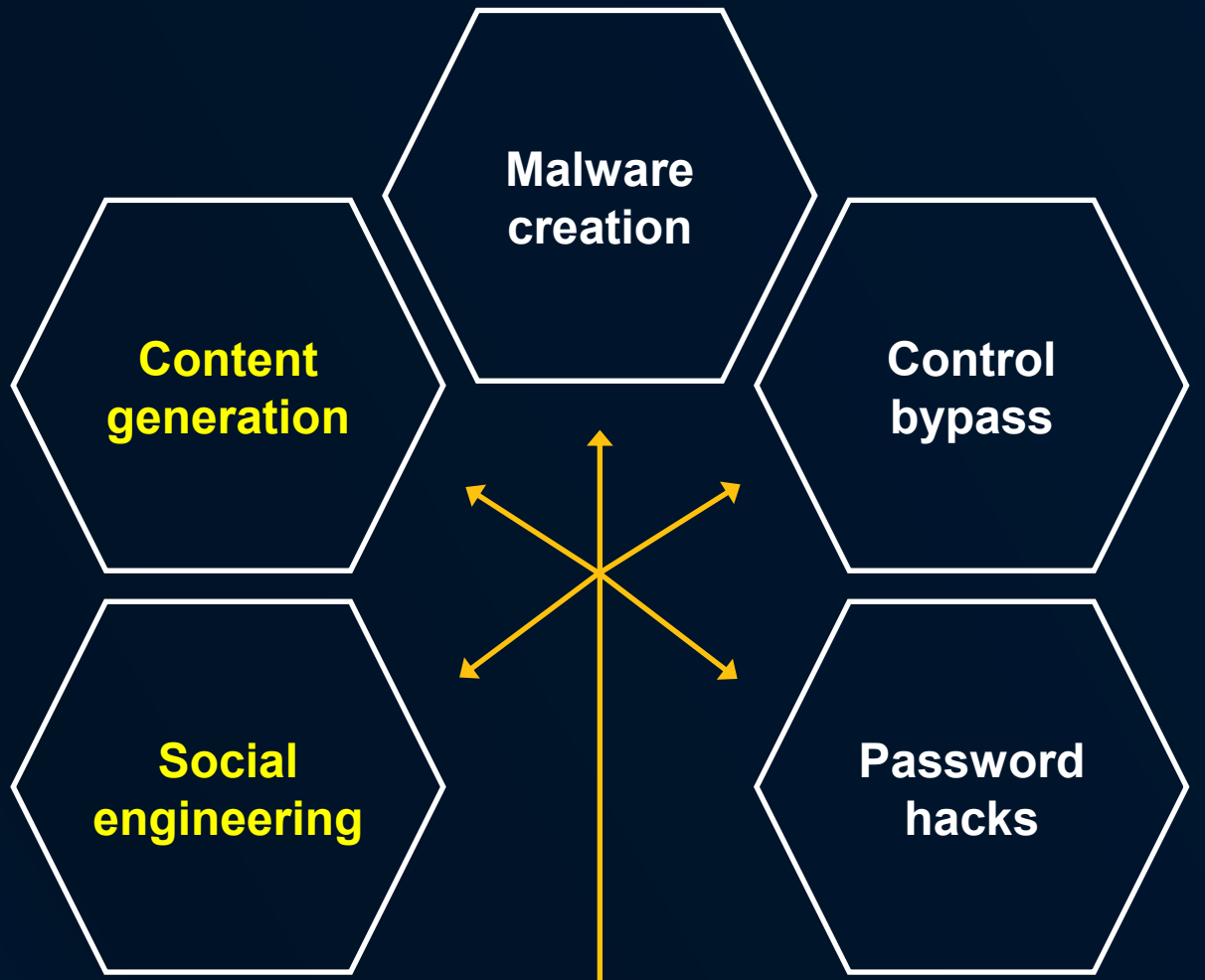
2 Attacks Using AI



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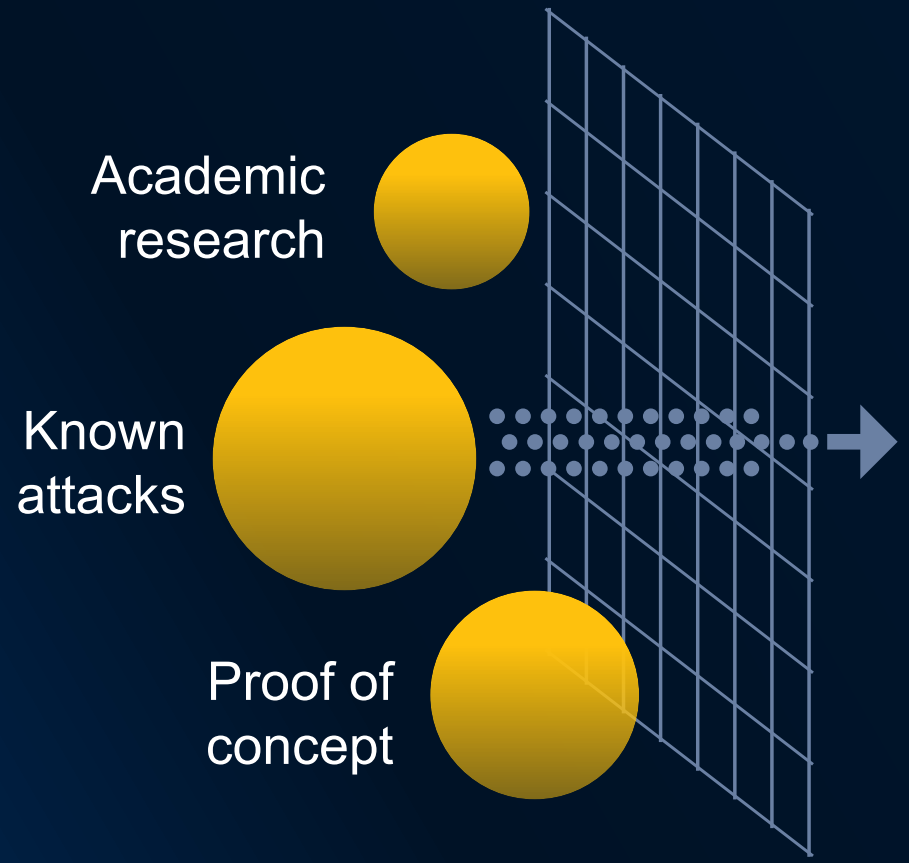
2 Attacks Using AI
Pragmatic Approach to Uncertain AI Attacks



"AI attack" threat intelligence + Threat exposure + Scenario planning

Security team

Tune or upgrade controls

Adapt business workflows

Improve resilience

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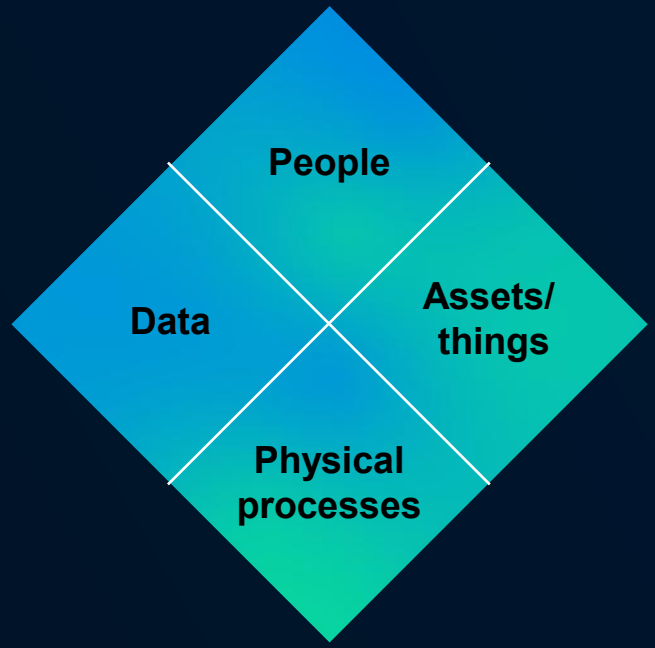
3 CPS Compromise

Cyber

- Ransomware prompting proactive shutdowns
- Internet-connected assets with default passwords
- Remote operations
- DDoS and lateral movement



Physical

- Drones eavesdropping, payload delivery
- Sneakernet
- Temperature, humidity, light, time tampering
- GPS jamming/ tampering

Source: Gartner 827923_C

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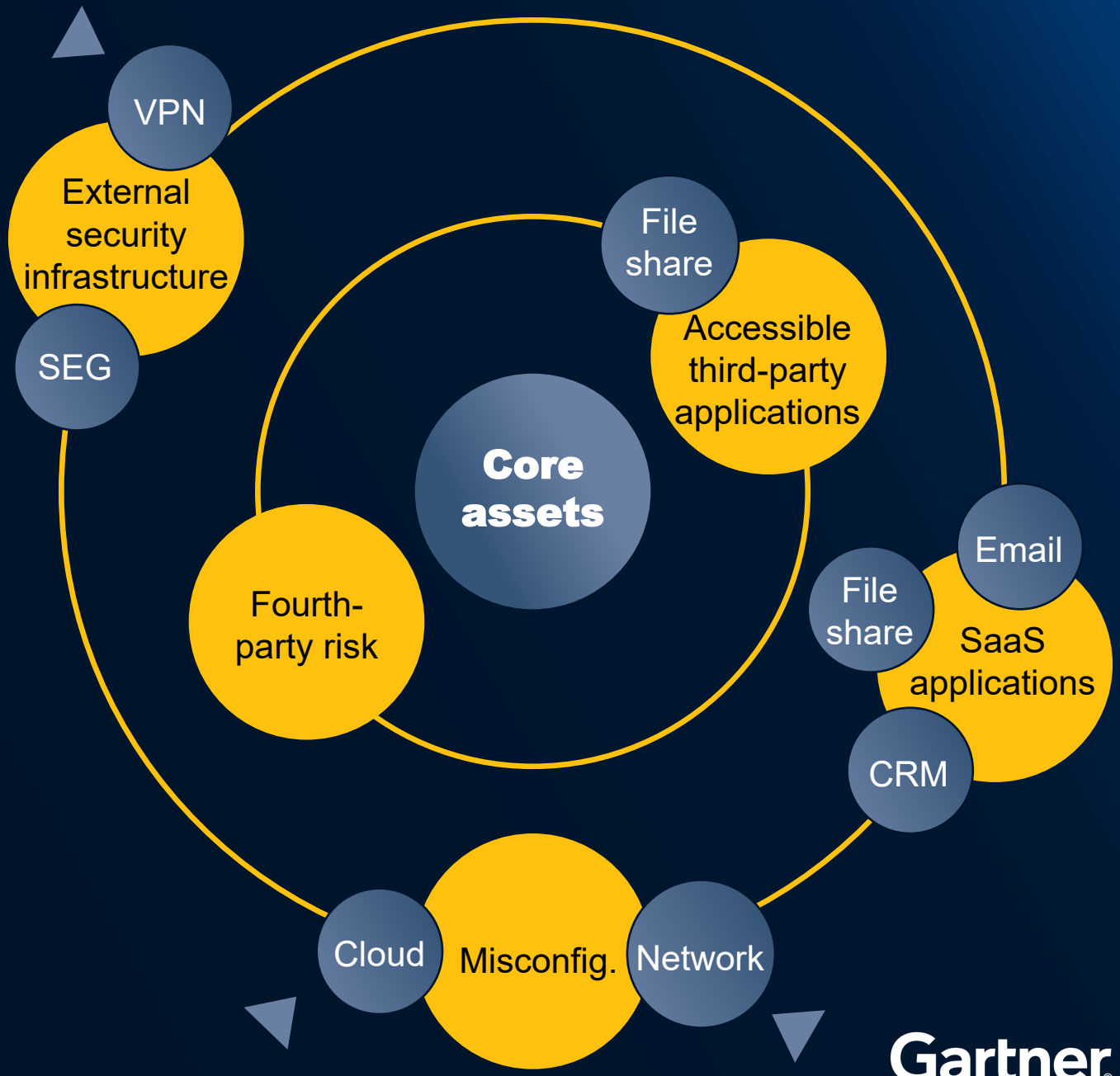
4 External Infrastructure Exploits



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5 Supply Chain Attacks

Source: Open Source Security Foundation

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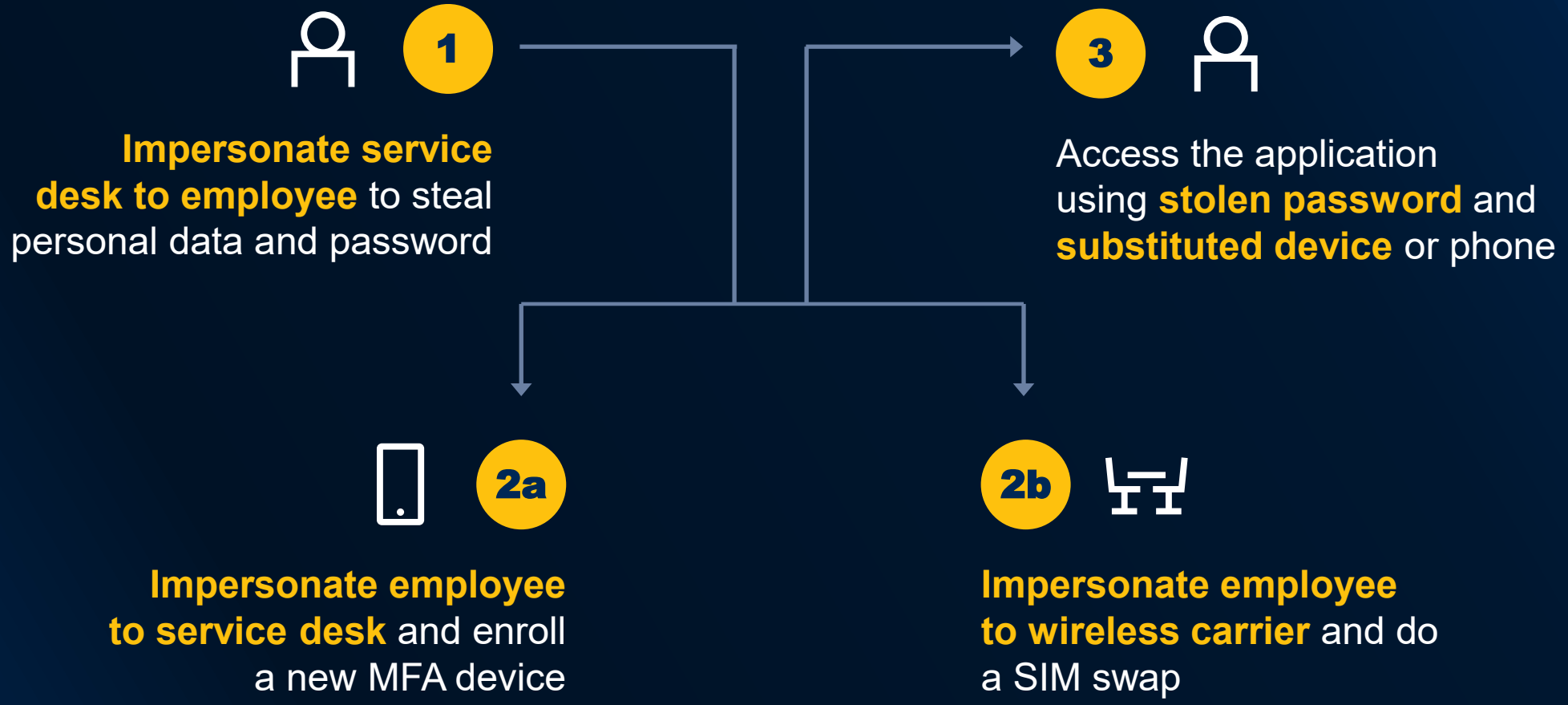
6 Account Takeover (human & machine)



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7 Ransomware — Extortionware

Initial access and ransomware delivery

- Ransomware as a service
- Initial access brokers
- Account takeover
- Misconfigurations

Impact and urgency drivers

Data exfiltration

Data encryption

Data corruption

Frequent Government Recommendation: Never pay a ransom

Ransomware payment risks and implications

- Double extortion
- Increased ransoms
- Sanctions violations

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57%

of Gartner clients report they **do not have advanced network segmentation** — a key control to limit the impact of ransomware.

n = 468, all respondents

Source: 2024 Gartner Cybersecurity Control Assessment

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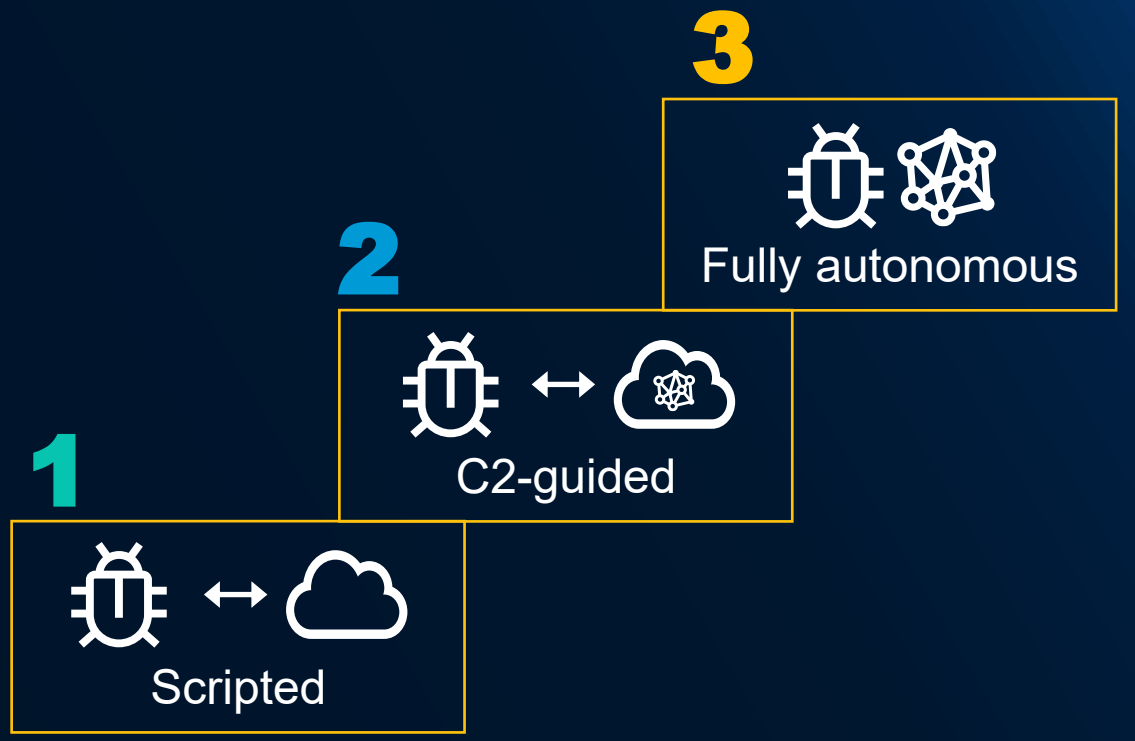
7 The Threat of Autonomous Malicious Agent

Workflow



Architecture

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Established & Latent Threats

1 **API Abuse**

2 **Social Engineering, phishing & BEC**

3 ***Latent Threats***

Established & Latent Threats

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Successful API attacks lead to at least

10x

more **breached records** than an average cybersecurity breach.

Source: Various industry estimates

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2 Social Engineering, Phishing and BEC

Email

More credible scams

Profiling

LLM content

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2 Social Engineering, Phishing and BEC

Leveraging profiling to target employees through their personal digital identities

Personal

Business

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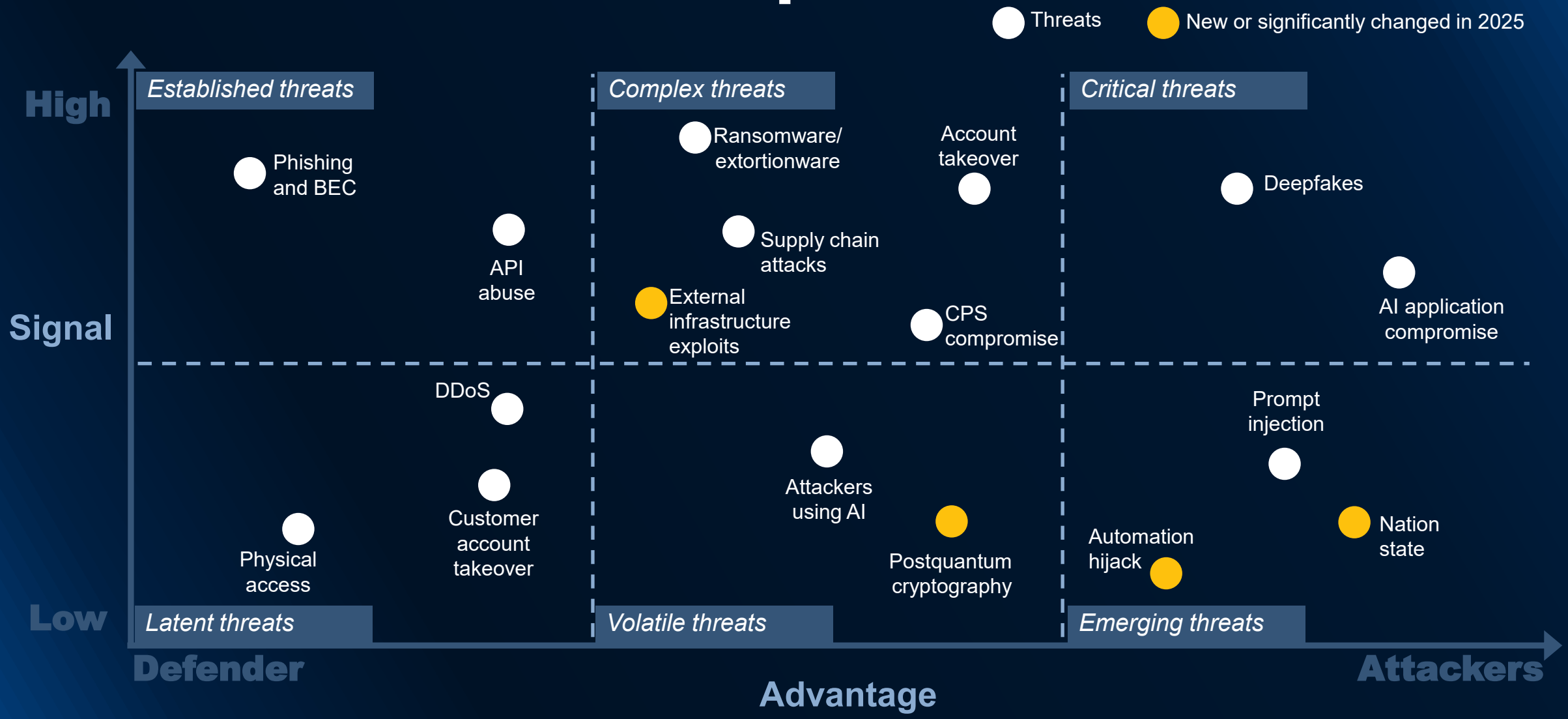
Gartner 2025 ThreatScape



Source: How to Respond to the 2025-2026 Threat Landscape

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Responding to the threat landscape is about prioritization

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But how do we adapt?

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To anticipate future threats

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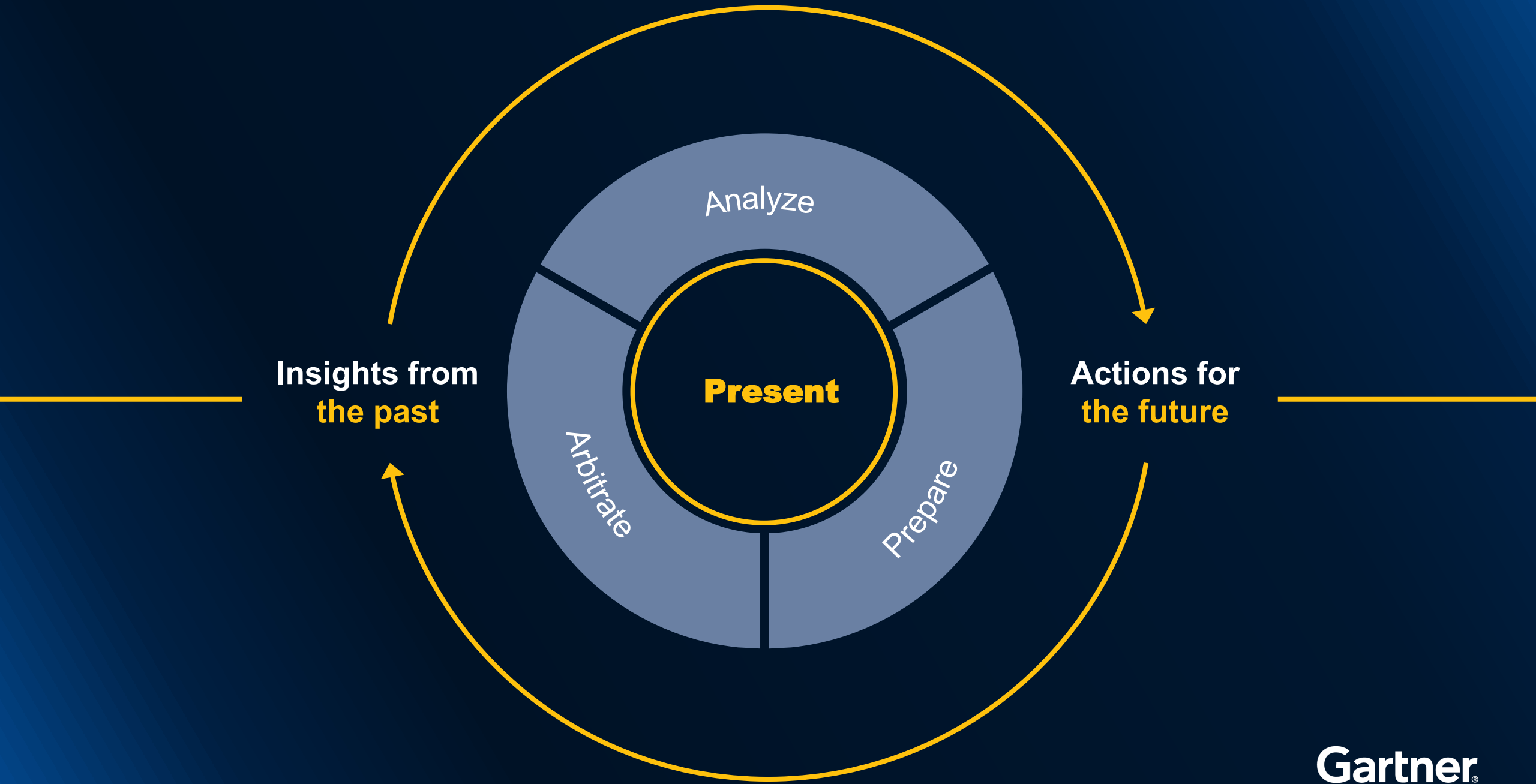
Insights from
the past
Analyze
Present
Arbitrate
Prepare
Actions for
the future

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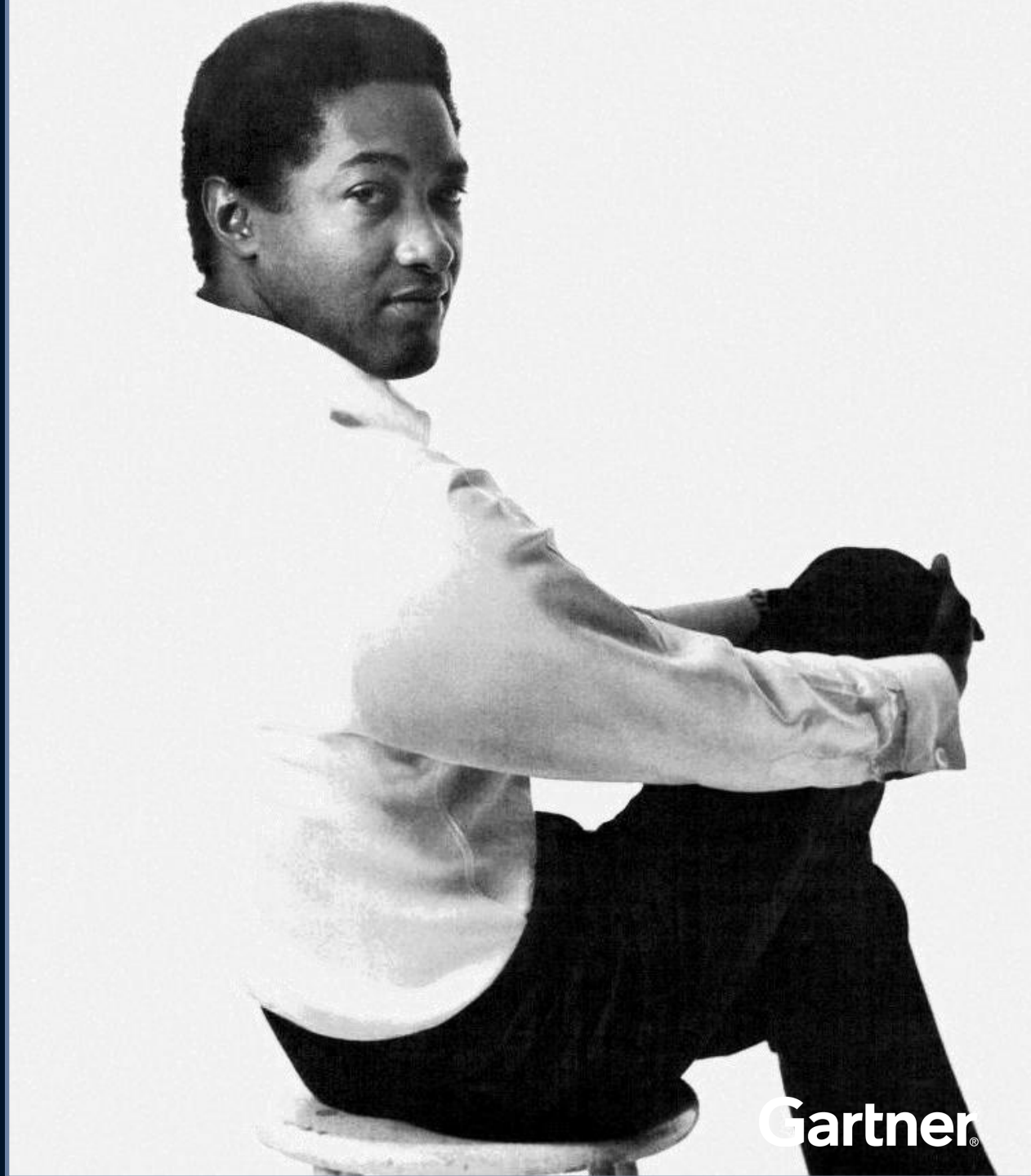
The AI Wave Will Not Recede for You

> There been times
> that I thought
> AI couldn't last for long

Sam Cooke

"A Change Is Gonna Come" — slightly modified



Source: Wikimedia Commons

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5 Foundational Elements for the Future of AI

1. AI agents
2. **Composite AI** (e.g., decision intelligence and neurosymbolic)
3. AI engineering
4. AI literacy
5. Responsible AI

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Technology or concept of the year will not solve everything.

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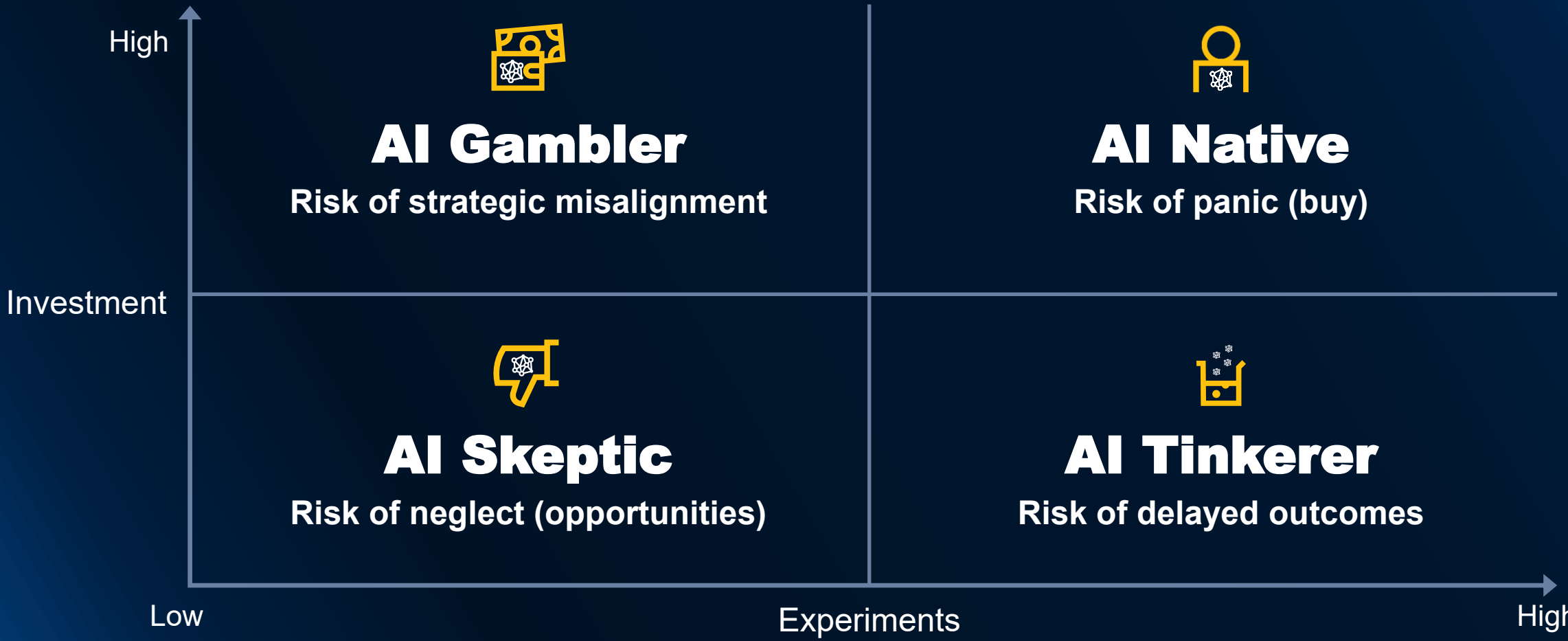
The 4 AI Personas Shaping Roadmaps

Embracing AI diversity to enhance our strategic approach



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AI Tinkerer CISOs Multiply Safer Experiments

Continually experiment and adjust by scaling, extending or pausing based on value

1. AI usage control
2. Automated data classification
3. AI runtime controls
4. AI security testing
5. SOC augmentation
6. SOC replacement
7. Risk prioritization
8. Automated policy analysis

Next 6 months

AI Tinkerer

12-18 months

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Focus on Solving the Right Problems

Score vulnerabilities	Avoid creating vulnerabilities
Add automation to event triage	Reduce false positive rates
Replace or deskill staff	Augment and upskill team
Reduce cybersecurity cost	Reduce cost of breaches

AI adoption should be guided by identifying the right problems to solve, rather than allowing AI to dictate use-case design and development.

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Implement Scenario Planning

1. Start with what is real

Extend possible scenarios from threat and business intelligence.

2. Develop scenario library

Incorporate GenAI impact in the most likely threat vectors.

3. Run AI scenario exercises

Run simulations and tabletop exercises.

4. Tune roadmap

Strengthen process. Prioritize exposure reduction.

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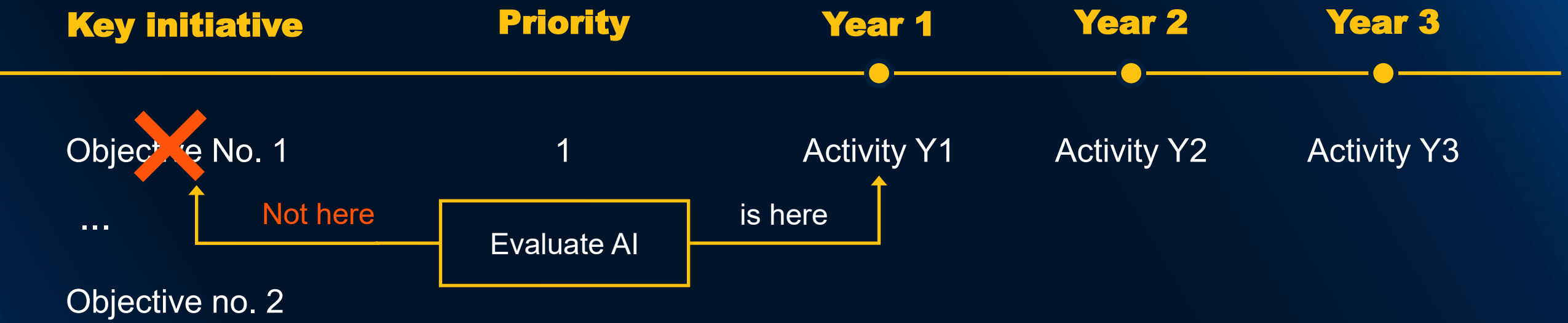
AI Must Improve on Key Cybersecurity Objectives



Objective no. 1 — Detail

Current situation	Gap	Target situation	Action plan and timeline
		Security metrics	AI experiments

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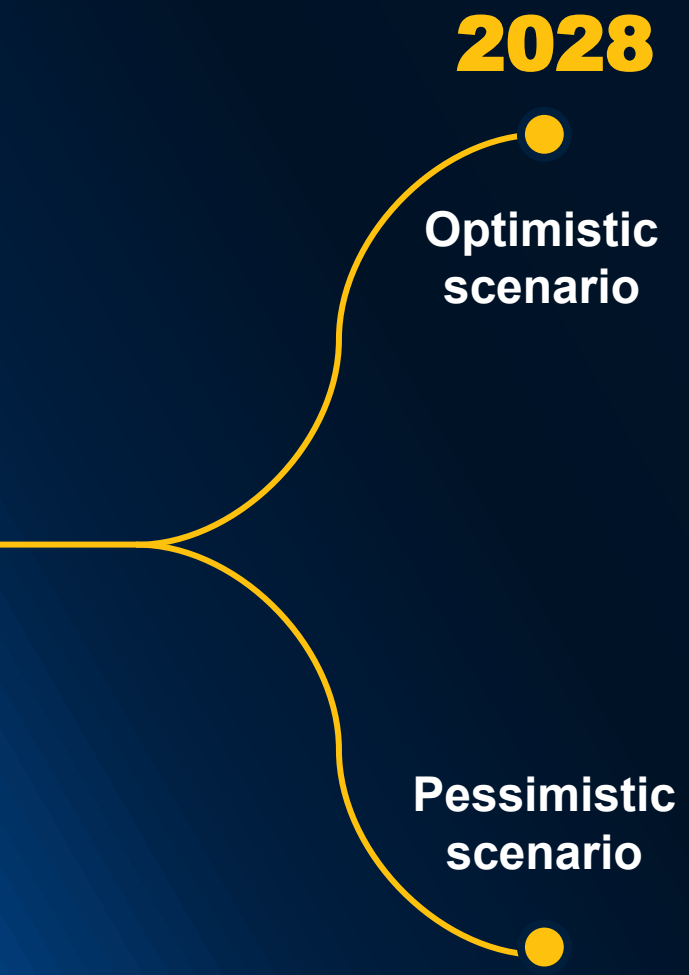
AI Agents Might Help But the Jury Is Still Out



By 2027, 25% of common SOC tasks will become **50% more cost efficient due to automation** enhancements and hyperscaling strategies.

Predict 2025: There Will Never Be an Autonomous SOC

By 2027, 30% of SOC leaders will have been **unsuccessful in their efforts to integrate GenAI** into production processes due to inaccuracies and hallucinations in outputs.

Predict 2025: There Will Never Be an Autonomous SOC

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“By 2027, **90% of successful AI** implementation in cybersecurity will be **tactical —** task automation and process augmentations — rather than role replacing.
”

Source:Predicts 2025: Navigating Imminent AI Turbulence for Cybersecurity

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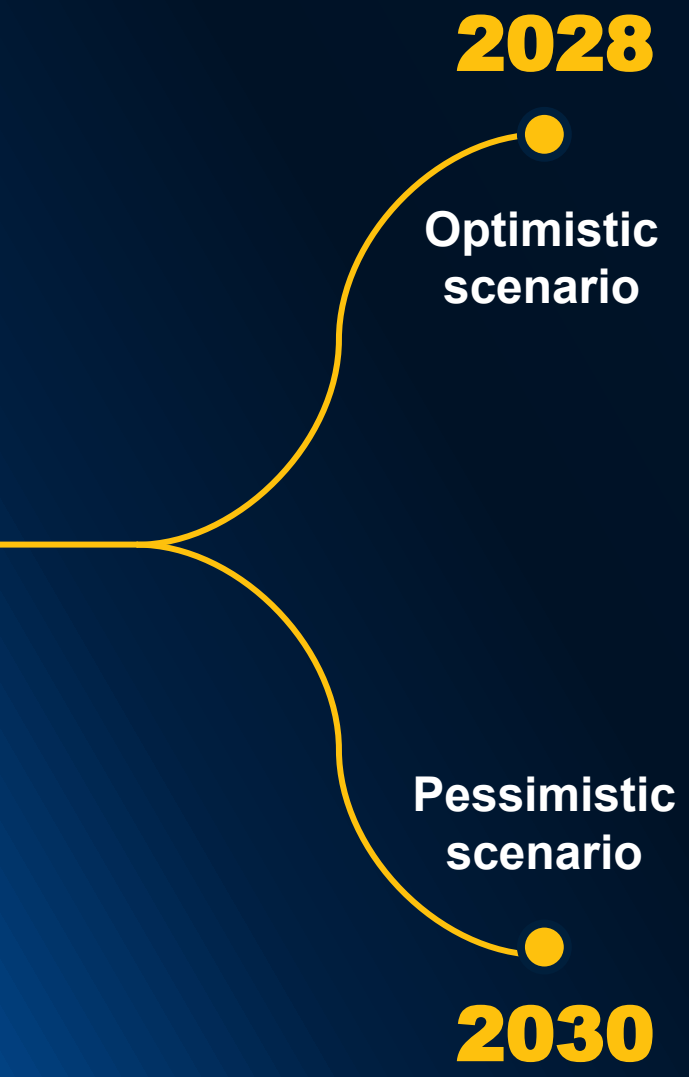
We need to Upskill for Cybersecurity in 2030



By 2028, **80% of digital workers will use** multimodal interfaces with **generative AI,** significantly improving task efficiency and workplace accessibility.

Predicts 2025: Empowering Workers With Intelligent Applications

By 2030, half of enterprises will **face irreversible skill shortages** in at least two critical job roles due to GenAI accuracy decline, skill erosion and uncompetitive pay.

Predicts 2025: AI and the Future of Work

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“By 2030, the half-life of technical skills will shorten to two to five years from eight to 12 years, resulting in **adaptability and learning velocity** being the primary metric for hiring.”

Source: Predicts 2026: AI’s Impact on the Future of Workforce

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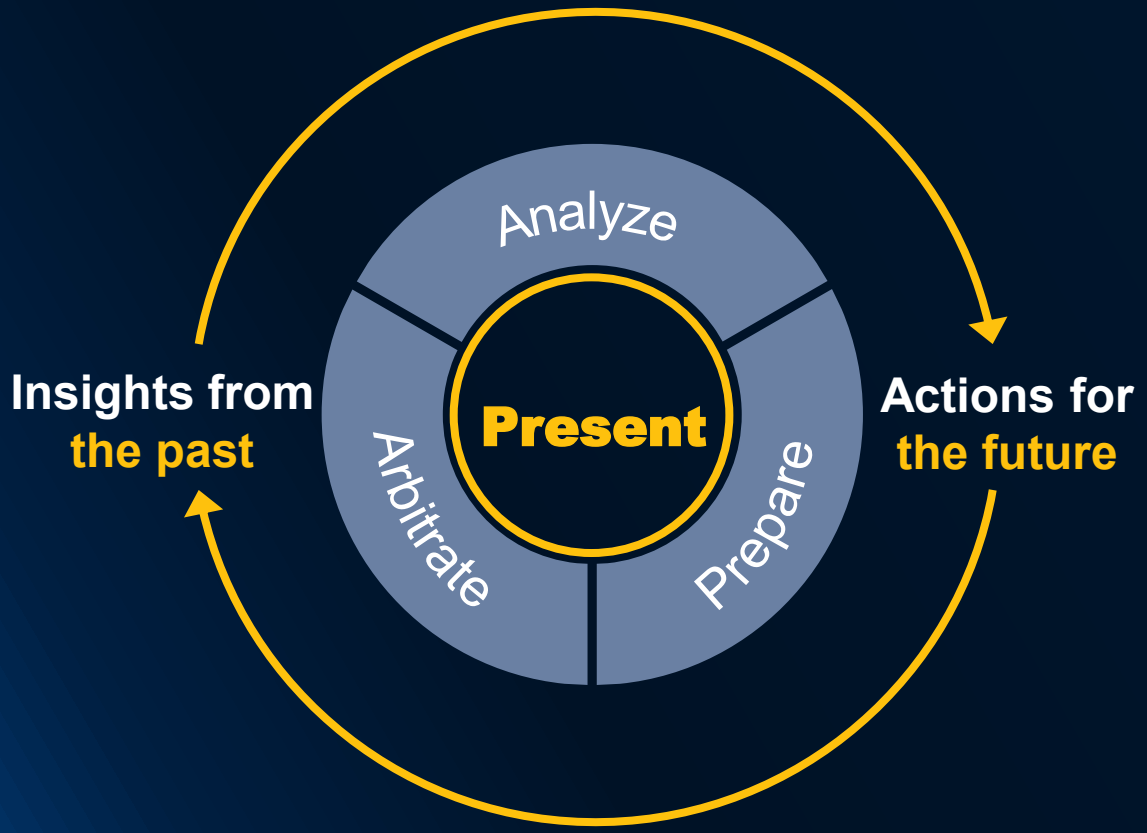

- Defend increased investments
- Augment your team, don’t replace
- Adopt tactical AI as a strategic principle
- Work on compressed time horizons
- Select AI by cybersecurity objective
- Measure on outcomes
- Be an AI Tinkerer

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“Il semble que la perfection soit atteinte, non quand il n’y a plus rien à ajouter mais quand il n’y a plus rien à retrancher.”

— Antoine de Saint-Exupery,
Écrivain, poète, journaliste et aviateur

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Perspectives Cybersécurité 2025-2030

Jeremy D'Hoinne

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