TIAA

Balancing the Good and Bad of Agentic AI In Cybersecurity

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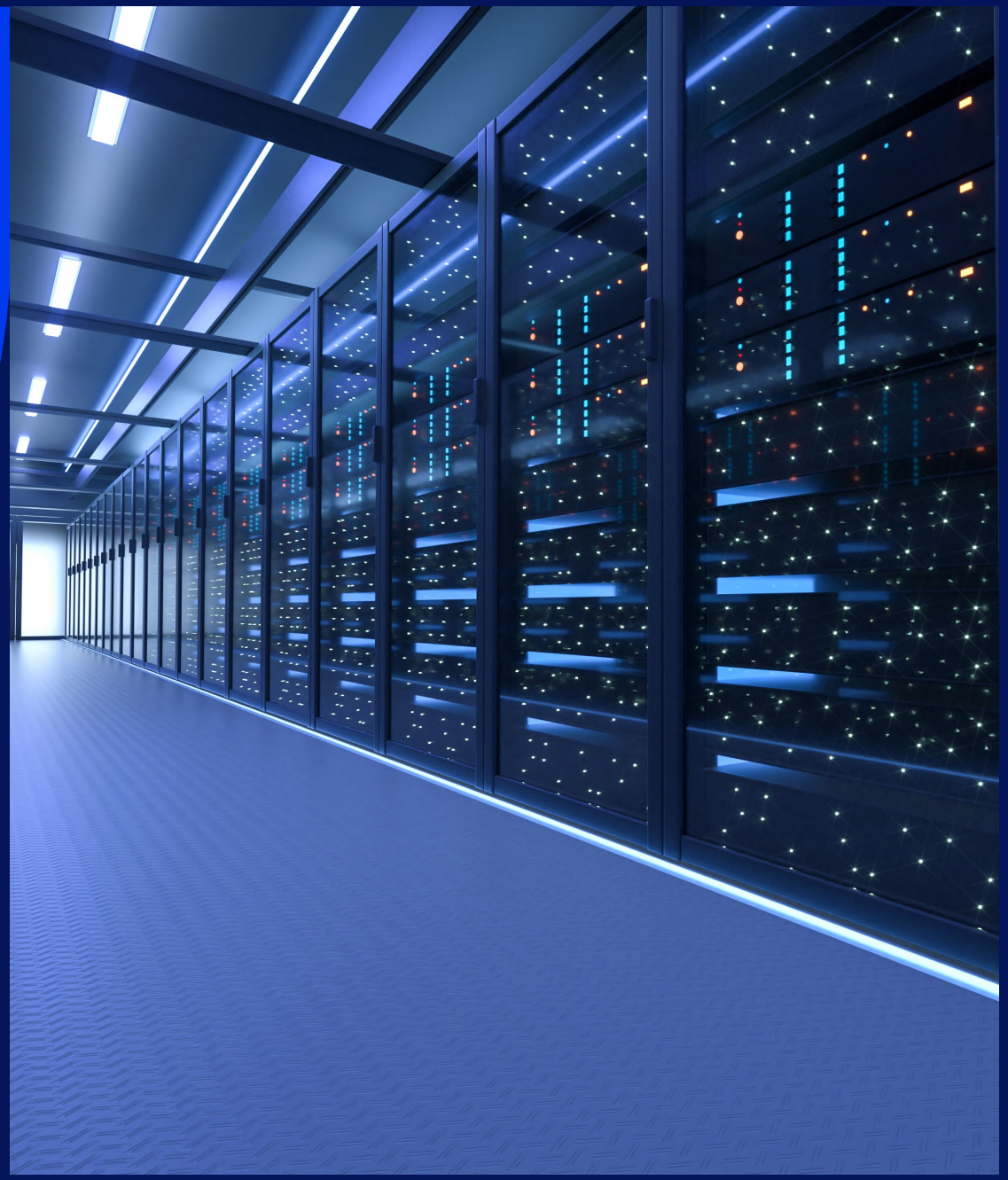


Why is this topic important now?

3 Objectives

01 To demystify AI agents and Agentic AI – **To define and provide ways to understand them**

02 To cover how AI agents and Agentic AI **strengthen and weaken cybersecurity**

03 To highlight AI agents and Agentic AI opportunities that TIAA is exploring

What you'll get: knowledge and actionable insights about agentic AI & AI agents in cybersecurity

Part One

Setting context

- Definitions
- Illustrative Example – Higher Education

Part Two

Cybersecurity strengths/ weaknesses

- Good News/Bad News
- Amazing List of Agentic AI Capabilities
- How Agentic AI & AI Agents Strengthen Cybersecurity
- How Agentic AI & AI Agents Weaken Cybersecurity

Part Three

TIAA's cybersecurity Agentic AI opportunities

- Automated Security Policy Enforcement
- Pentesting/Bug Bounty Program
- Actionable Insights

Part One: Setting Context

How industry views AI Agents and Agentic AI

AI Agents & Agentic AI - Defined

AI Agent

- **Follows rules/script & completes a single task**
- **Goal-oriented**
- **Example:** ChatGPT's Deep Research – searches/synthesizes hundreds of online sources and produces comprehensive report – like a research analyst

Agentic AI

- **Multiple AI agents**
- **Write its own script to achieve a goal**
- **Acts independently to achieve broader, multi-step goals**
- **Dynamically reasons**
- **Makes decisions & acts on them**

Major Takeaway…

Agentic AI is more adaptable and autonomous than an AI agent

An example – Higher education

AI Agent

- Sends reminders to students about deadlines of assignments
- **One Task!**

Agentic AI

- Professor teaches class, grades work, spots a student struggling, and schedules office hours to meet with student – all autonomously
- Focuses on success of student throughout college
- Multi-step reasoning
- **Multi-Step Tasks!**

Part Two: Cybersecurity Strengths/Weaknesses

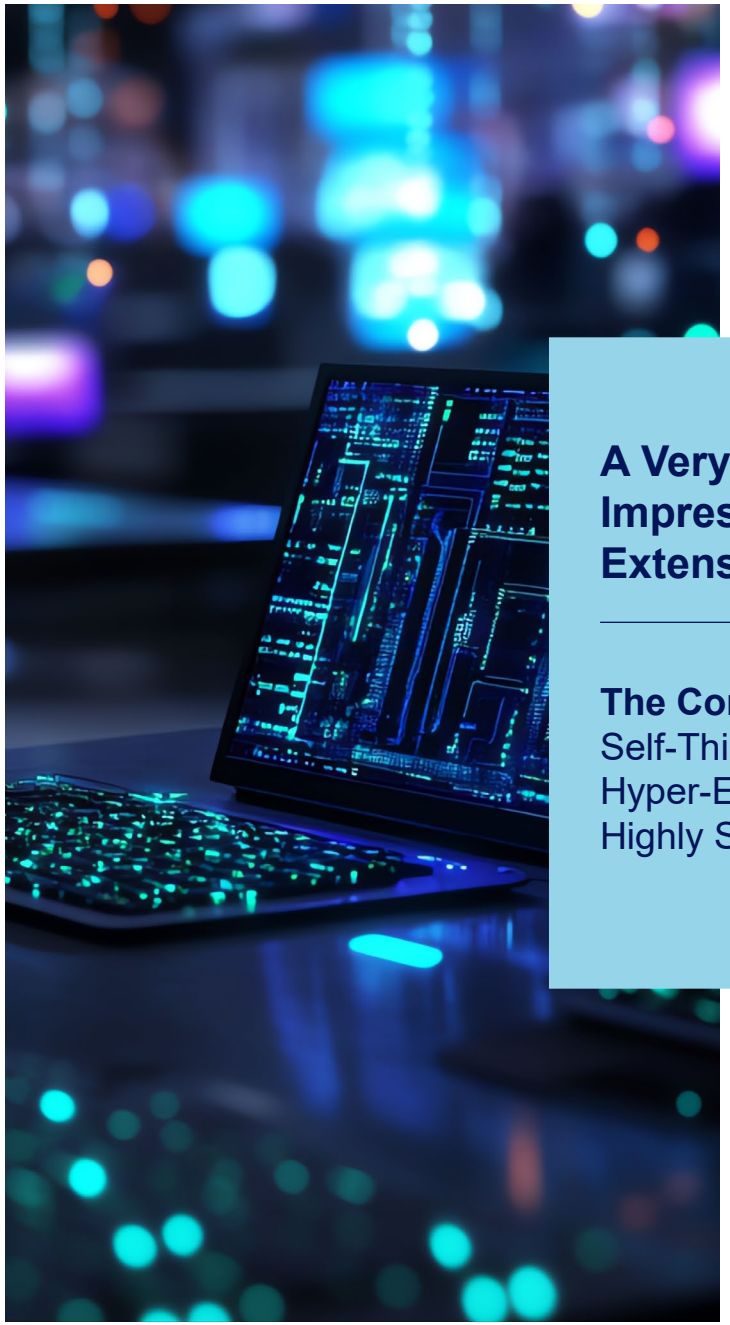
The good & The bad

Good News

- More AI agents/Agentic AI can help strengthen cybersecurity
- **Much faster, more frequent, in high volume, accurate, and economical detection & prevention of cyberattacks – Huge benefits**
- We can measure productivity gains by comparing AI agents or agentic AI to work done/hours expended by employees, while also recognizing that AI agents are not humans

Bad News

- Increase in AI agents/agentic AI can weaken cybersecurity
- Rogue Actions & Sensitive Data exposure
- **Much faster, more frequent, voluminous, accurate, and economical cyberattacks – Huge concerns**
- Productivity gains for bad actors as well.



List of Potential Agentic AI Capabilities

A Very Impressive and Extensive List

The Concept
Self-Thinking, Hyper-Efficient, Highly Skilled

01 **Reason** and plan

02 **Break tasks into sub-tasks**

03 **Self-correct based on new information**

04 **Autonomously ponder problems and solve them through a coherent series of logical deductions**

05 **Focus on longer term and more broad goals and make decisions**

06 Complete entire workflows

07 Perform research

08 Think at every step

09 Recognize patterns

10 Make inferences

11 Complete entire workflows

12 Write new software code

How Agentic AI & AI Agents Strengthen Cybersecurity

- Provide a framework for **risk reduction** and **efficiency** within cybersecurity
- More **autonomous, continuous, and faster** strengthening of cybersecurity controls, incident investigations
- Analysis of patterns to predict potential future attacks
- Intelligent Security Operations

How Insecure deployment of Agentic AI & AI Agents Weaken Cybersecurity

The Overall Problem – **Agentic AI opens more "doors"** for cyberattacks to enter – faster, easier, and more deceptively

01 **Rogue Actions**

02 **Data Exfiltration**

03 **Agentic AI & AI agents is not always accurate**

Part Three: Cybersecurity Agentic AI Opportunities TIAA is Exploring

Cybersecurity Agentic AI Use Case Opportunities

01 Continuous Network Monitoring & Automated Incident Response

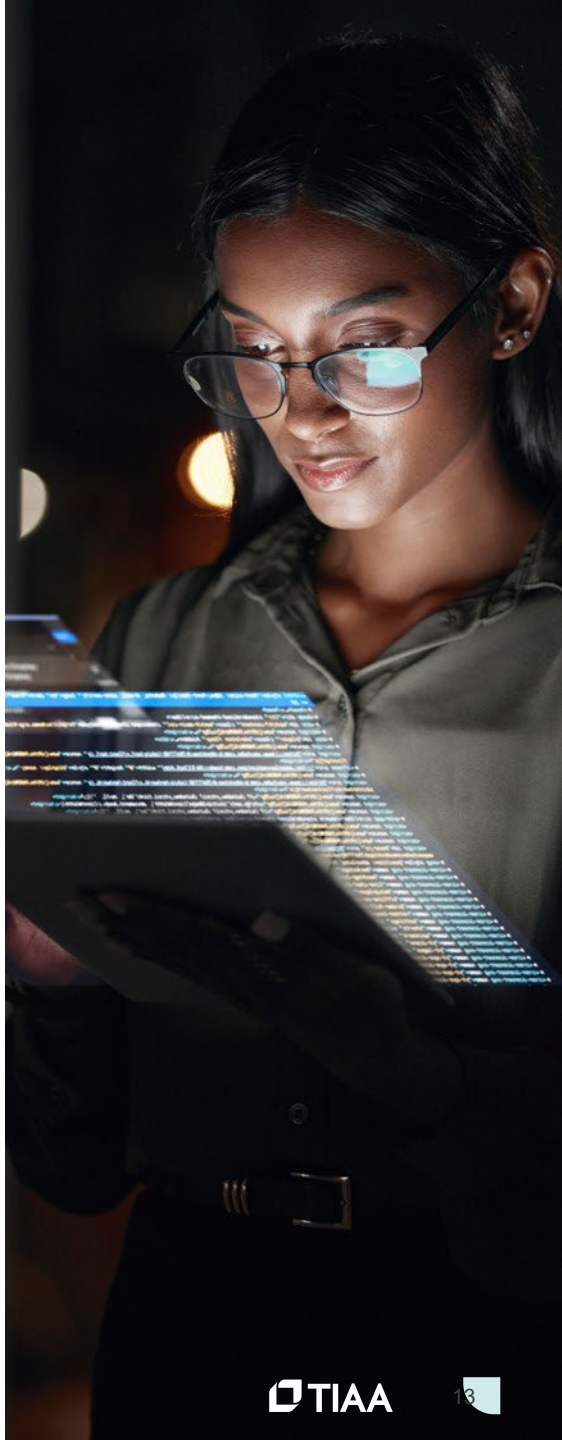
- Analyzes vast amounts of network traffic & system activity to **detect malicious behavior**
- **Identifies anomalies** based on historical data and behavioral baselines.
- **Inspects lateral movements** of cyberattackers if they penetrate inside a company's network
- **Disable/Isolate** host or traffic.

02 Automated Security Policy Enforcement

- **Analyzes sensitive elements in the unstructured data or documents**
- Detects and labels the document with sensitive information
- Monitors its movement
- Blocks unauthorized transfers

03 AI Powered Security Orchestration and Automation (SOAR)

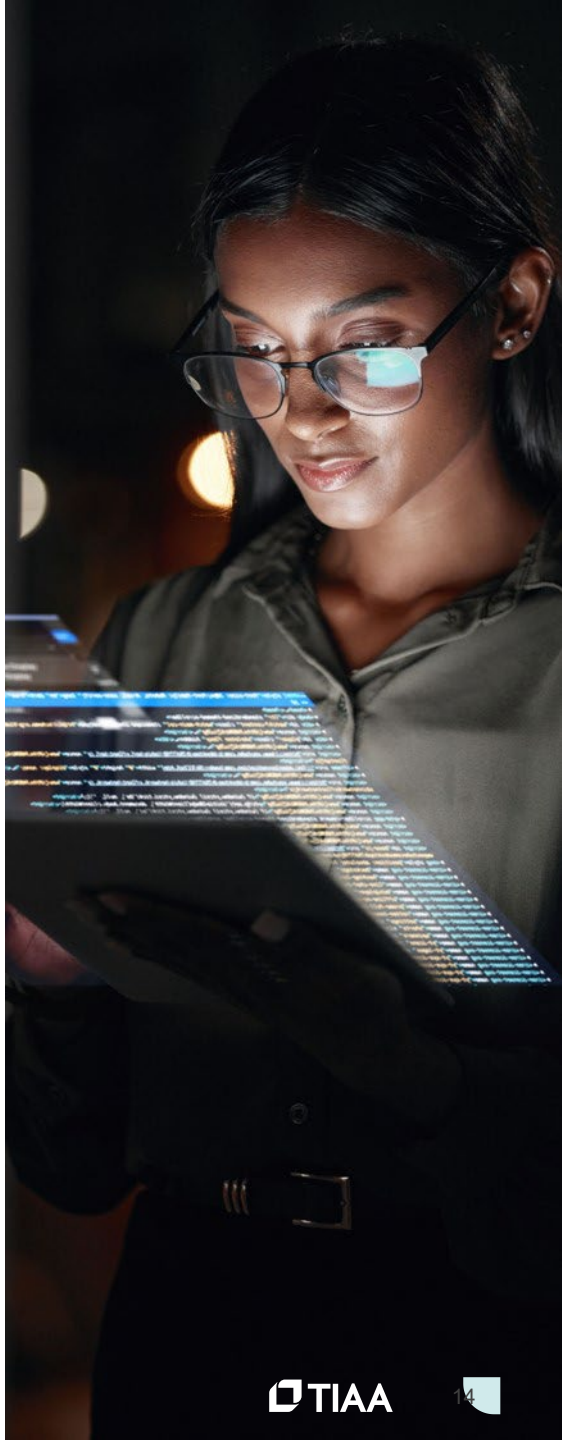
- **Automates cybersecurity playbooks** for faster threat containments and responses



Cybersecurity Agentic AI Use Case Opportunities

04 Pentesting/Bug Bounty Program

- Program depends on crowdsourcing initiatives (input from different people) that financially incentivizes **ethical hackers to find and report valid vulnerabilities in our company's software and systems** before real cyberattacks do
- **Uses autonomous security researcher technology** powered by AI agents
- **Scans our Internet-facing attack surface** to identify security vulnerabilities before bad actors do
- Leverages Gen AI to **rewrite and proofread pentesting and bug bounty reports**



7 Actionable Takeaways

01 **Train agentic AI & AI agents as if they're employees – give clear instructions and structure**

02 **Control access of agentic AI and AI agents**

03 Make sure they're consistent with business goals

04 Prepare for, and guard against, **variability in reasoning, planning, and actions agentic AI will perform**

05 **Ensure validation of source data before processing within Agentic frameworks.**

06 **Embrace a zero-trust architecture to contain agentic AI risks**. Zero trust means verify first and continuously, then trust second

07 **Focus on agentic AI and AI agent malicious activities;** keeping cyber teams updated regularly on these new threats and how to detect and prevent them

Open Q&A

Thank You