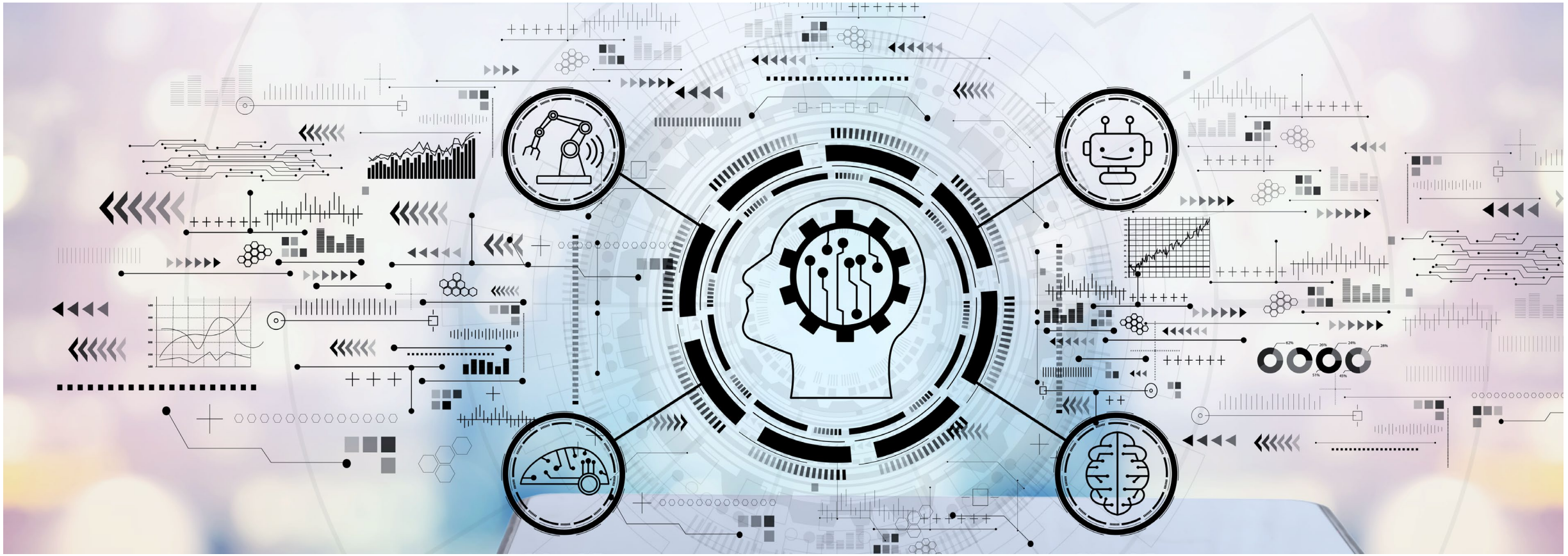

AI in Healthcare: Transformative Potential, Strategic Risks & Future Challenges

August 4, 2025

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Learning Objectives

1 **Educate**

- Recognize the evolution of generative AI across all industries

2 **Plan**

- Identify how to position your organization as an innovator of AI technology, utilizing current processes

3 **Develop**

- Describe key considerations for integrating your governance strategy into normal operations

The Journey - Who Would have Thought

1950's

Reels

1970's

VHS/Beta

1980's

Laserdisc

1990's

Blockbuster Peaked

2000's

Online Streaming

Today

What's Next?

Source: Video Media Timeline | Museum of Obsolete Media

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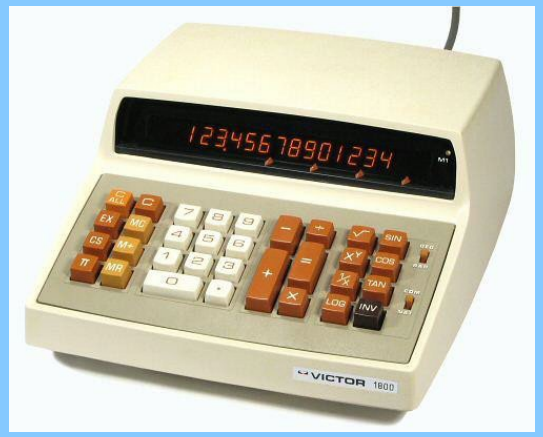
“This invention has sparked a heated debate among educators, economists and lawmakers”



The invention of the modern calculator |Mid-1970s

for good purposes, not for evil ones. We need to safeguard our education system, our economy and our society from the dangers of this technology”

“What surprised us all is how quickly it caught fire in the consumer market”

Source: Microsoft Corporation

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If I eat here long enough
I'll be able to buy a
pickup truck.

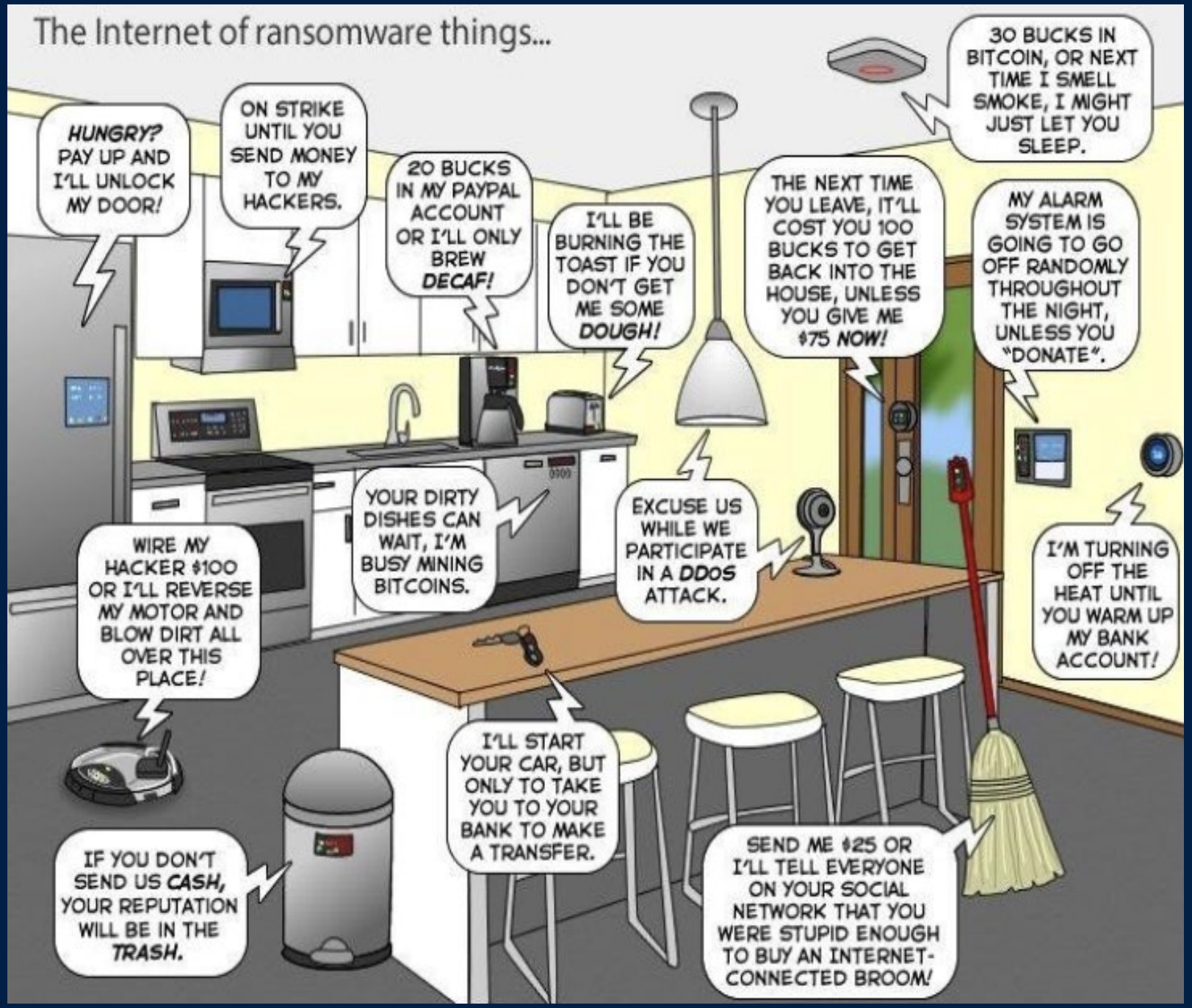
What the Next TEN Years May Hold!!!

The average hospital room contains from **fifteen to twenty connected medical devices**

Source: HIT Infrastructure

The number of Internet devices worldwide is forecast to almost triple from **9.7 billion in 2020** to more than **29 billion in 2030**.

Source: Statista.com



Source: https://iotnewsletter.org/fintech-internet-of-things-the-internet-of-ransomware-things-iot

Artificial Intelligence (AI) Solutions

Institutions of all sizes are looking to harness the power of AI to help increase efficiency, enhance processes, & empower their teams. At Forvis Mazars, we help organizations revolutionize their business by developing tailored AI frameworks, infrastructure, & solutions in a structured & controlled manner for sustainable growth.

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Implement

- RAG Implementation
- Machine Learning Model Development
- Agentic AI Tooling
- GenAI Application Integration

Develop & Pilot

- Program Management
- Security & Access Control
- Use Case Evaluation
- Data Set Ingestion
- Continuous Monitoring

Process & Governance

- Regulatory Matrix & Compliance
- Control Identification
- ROI Measurement & Tracking
- Bias & Fairness Screening
- Governance Development & Integration
- Regulatory Matrix & Compliance
- Model Risk Management

Data & Technology

- Infrastructure Readiness
- Data & IT Architecture
- Data Lineage
- Data Engineering
- AI Data & Technology Assessment
- Unstructured & Structured Data Preparation

Enterprise Preparation

- Training & Awareness
- Executive Buy-In Support
- Bias & Fairness Screening
- Implementing Governance
- Acceptable User

Defining Your AI Strategy

- Current State
- Evaluation & Readiness
- AI Identification & Design
- Analysis for Operational Efficiencies
- Strategic Roadmap
- Specific Use Cases

Audit

- Data Privacy
- Cyber Risk & Testing
- Third Party Risk (TPRM)
- AI Model Risk

Evaluate

- AI Risk Assessment
- Regulatory Matrix & Compliance
- AI Inventory & Reporting
- Control Identification & Testing

DEFINING YOUR AI STRATEGY

Defining an AI strategy is a critical step for organization looking to adopt artificial intelligence in a way that aligns with their current business goals. This is an essential process for turning AI from a buzzword into a practical, value-driving capability.

Align With Business Goals

Start with a clear objective “WHY” —revenue growth, cost reduction, innovation, etc..

Start Small & Scale

Use pilot projects to test value before expanding AI initiatives. Quick wins build momentum and value.

Data Readiness

AI Runs on Data. Ensure access to high-quality, accessible, clean data, and well governed.

Build or Buy

Decide whether to develop in-house capabilities or partner with vendors.

Governance & Ethics

Define responsible AI principles early in the strategy.

Upskill Teams

Invest in AI literacy across technical and non-technical teams blending business acumen with technical skills.

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AI Development Lifecycle & Stakeholders

Developing an AI use case is an iterative process that involves defining objectives, collecting data, building & training models, testing & evaluating results, & refining these approaches based on business feedback. Internal audit should consider the full AI lifecycle to comprehensively capture the risk involved.

1. Use Case Definition

- Identification of business needs & ROI
- Definition of objectives, KPIs
- Cartography of project resources, constraints & risks (budget, IT, compliance, risk appetite, etc.)
- Identification of data available & their constraints (e.g., frequency, privacy, etc.)

2. Data Analytics

- Data collection
- Data architecture setup
- Data quality review (missing values, outliers, biases, etc.)
- Data exploration: analyze distributions, dependencies with target, correlations, etc.
- Feature Engineering: create, transform & select variables

3. Modeling & Learning

- Model development: build models, define hyperparameters, setup modelling pipeline for experimenting
- Model calibration & evaluation: define training & validation process, *e.g.,* cross-validation, define performance metrics
- Model selection based on performance, complexity, interpretability, computational efficiency, etc.

4. IT Deployment

- Set up IT environments for training models, testing, & production
- Define DevOps processes to automate the deployment of code & testing
- Manage databases, computing resources, etc.
- Set up user interface to access model outputs
- Develop release plan, *e.g.*, stage implementation
- Define maintenance process

5. Transfer to Business

- Conduct beta testing
- Transfer model ownership to business unit
- Train users: educate about limitations, confidence of results, model requirements, etc.
- Develop monitoring process: define KPIs, thresholds to retrain the model or escalate issues

Performing comprehensive review with controls identified throughout full AI lifecycle

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ENTERPRISE PREPARATION

Preparing your enterprise for AI involves more than adopting new tools—it requires aligning people, processes, technology, and data with your business goals.

Education

- Offer training to both technical and non-technical staff.
- Educate leaders on AI capabilities and limitations.
- Encourage a culture of experimentation and learning.

Technology

- Cloud computing for scalability and speed.
- AI/ML platforms for model development and deployment
- Data warehouses /lakes to centralize data access.

Measure

- Define KPIs for each initiative.
- Use feedback loops to improve models and processes.
- Scale successful pilots across teams or departments.

Change Management

- Involve business process owners early.
- Redesign workflows where needed to incorporate AI output.
- Communicate changes clearly and manage cultural resistance

Stakeholders

- Involve C-suite in AI strategy development.
- Show ROI and risk mitigation plans.
- Celebrate and share wins internally.

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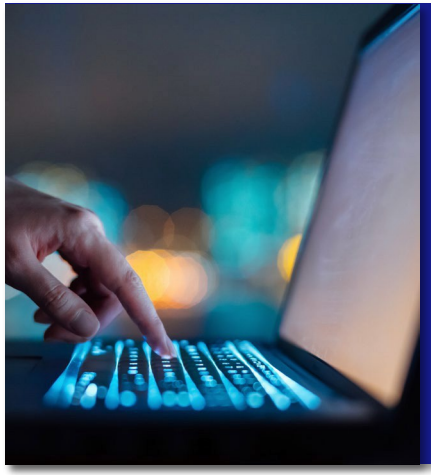
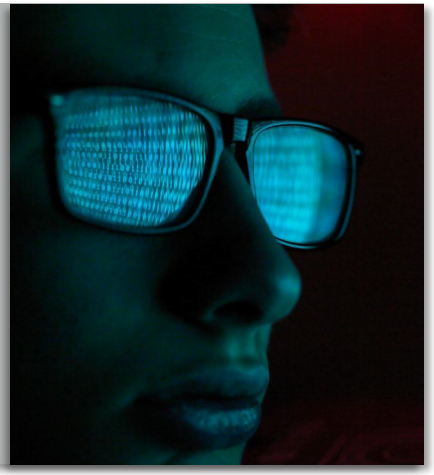
Hidden AI

The use of AI presents additional third-party, legal, compliance, & reputational risks when being used or relied upon unknowingly.



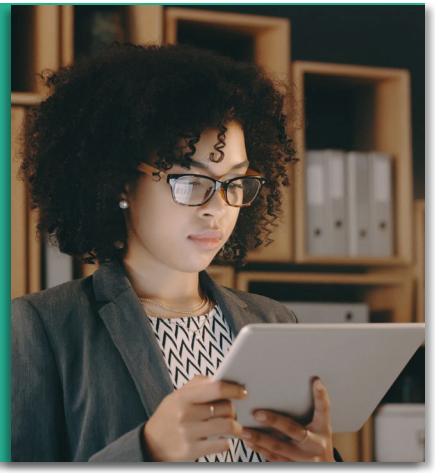
Shadow AI: The unauthorized use of AI tools & products that are not IT- approved

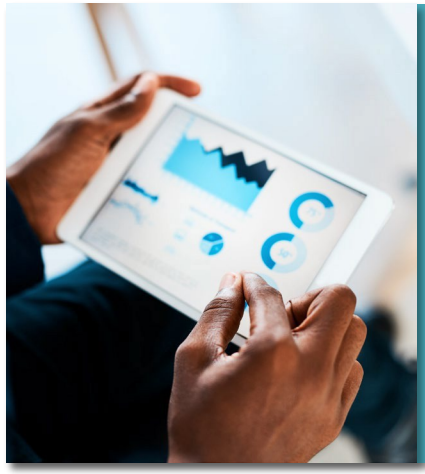
Unknown application & product updates containing AI features



Use of AI-driven tools unknowingly breaching a client contract

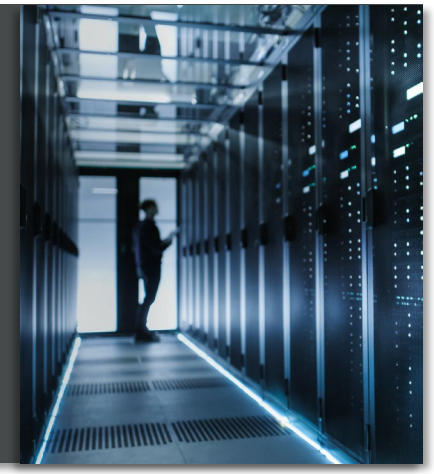
Potentially harmful chatbot hallucinations





AI-driven tools being used in other parts of the business (marketing, customer experience, etc.) but not being considered for model definition

Unknown data collection & storage by a third party



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DATA & TECHNOLOGY

Understanding **the data and technology requirements** for AI versus **normal (traditional) operations** is essential to preparing your organization for a successful transformation.

Aspect	Normal Operations	AI-Driven Operations
Data Usage	Historical data used mostly for reporting (descriptive).	Real-time and historical data used for prediction, automation, and decision-making.
Data Volume	Smaller datasets, often in silos.	Massive, high-velocity datasets from diverse sources (structured, unstructured).
Data Infrastructure	Relational databases.	Data lakes, warehouses, streaming platforms
Processing Power	Standard servers or cloud for ERP/CRM systems.	High-performance computing, GPUs, cloud AI platforms.
Tooling	BI tools (Excel, Tableau), ERPs, CRMs.	ML frameworks, MLOps pipelines, model monitoring tools.
Integration	Tight coupling with internal systems.	Requires APIs, data pipelines, and integration with AI/ML platforms.
Technology Team	Traditional IT: system admins, developers, DBAs.	Cross-functional AI teams: data engineers, scientists, ML engineers, DevOps.

PROCESS & GOVERNANCE

Implementing AI successfully in an enterprise setting requires a structured AI process and a solid AI governance framework to ensure the technology is trustworthy, aligned with business goals, and compliant with ethical and legal standards. AI governance ensures AI is used responsibly, ethically, and compliantly, with clear oversight and control.

- Oversight
- Data Governance
- Risk Management & Compliance
- Ethical Guidelines & Principles
- Monitoring & Reporting

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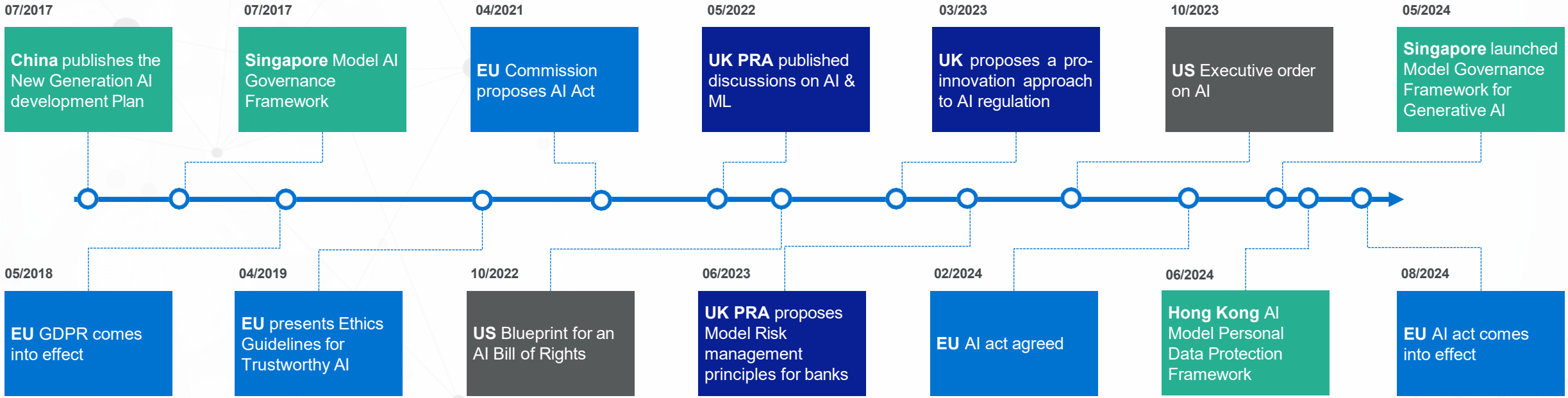
Rapidly-Evolving AI Regulatory Landscape

Given the rapid evolution of AI regulations globally, effective governance is essential, necessitating collaboration between various entities & monitoring of regulatory developments to ensure global compliance.

Timeline of AI Regulations*



Regions: Asia | EU | US | UK

*Note, the regulations shown are demonstrative & not an exhaustive list

Mitigating AI Risk

Although the use of AI can present novel & complex risks, institutions can safeguard their users, data, & reputations with a robust risk mitigation strategy. Below are some examples of ways to mitigate AI risk.

Third Party

- Review contracts with third-party vendors
- Stay informed about new features & model components of third-party models
- Ensure contracts contain clauses that protect the institution's data
- Understand third-party data sourcing, storage, & retention

Operational / IT

- Consider a thorough review & approval process for all AI-driven tools, products, & partnerships
- Consider implementing internal controls & limitations for users
- Implement a rigorous training process to inform users about information security in the age of AI
- Maintain robust documentation of data dictionaries & lineage

Governance

- Re-review all AI-driven tools & products for model definition & enhance model risk management
- Develop an agreed-upon framework with clearly defined leadership, roles, & responsibilities
- Consider second-line governance oversight to ensure first-line adherence to policies & frameworks
- Monitor all model inputs & outputs, & perform regular testing to detect potential bias or unwanted outcomes

*Note: the mitigation strategies shown are among the most important but are not an exhaustive list

DEVELOP & PILOT

Launching your AI initiative typically begins with two core phases: Develop and Pilot. These phases turn an AI idea into a validated, value-generating prototype, which together form the foundation for deploying successful AI solutions in your enterprise.

Reduce Risk, Build Trust, Prove ROI

Develop

This is where the AI solution is **designed, built, and tested**—before deployment. It's like building the engine before installing it in a car. The focus is on creating a functional, reliable prototype that solves a specific business problem.

Pilot

The pilot tests the model in a **realistic business environment** with minimal risk to evaluate its effectiveness, usability, and business impact. It proves value before scaling by obtaining user feedback and determining readiness.

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AI IMPLEMENTATION

AI Implementation is the phase where your developed and piloted AI solution is fully integrated into business operations, scaled across teams or systems, and maintained for long-term value. To deploy AI at scale, integrate it into core processes, and ensure it continuously delivers business value.

- Productionize the AI Model
- Integrate into Business Systems
- Establish Monitoring & Maintenance

Plan for Continuous Improvement

AI becomes a sustained operational asset—not a one-time project

OpenEvidence

AI health-care startup OpenEvidence raises funding from Sequoia at $1 billion valuation

KEY POINTS

- AI startup OpenEvidence is raising a fresh round of capital from Sequoia to scale its chatbot for doctors.
- OpenEvidence is an AI copilot for physicians that helps them make better decisions at the point of care. The company claims it's already being used by a quarter of doctors in the U.S.
- The new $75 million cash injection, which has not been previously reported, values OpenEvidence at $1 billion, the two companies told CNBC.

Medical technology, AI technology is utilized by doctors for diagnosing increasing the accuracy of patient treatments. Medical research and development innovation technology to improve patient health.

Peas609 | Istock | Getty Images

OpenEvidence

New Q

headache, sore throat, cough, sore chest, yellow mucus, congestion

Expanded question: **What could be** the **possible diagnosis** for **symptoms including** headache, sore throat, cough, sore chest, yellow mucus, and congestion?

Most Likely Diagnoses:

1. **Common Cold**: The symptoms of headache, sore throat, cough, sore chest, yellow mucus, and congestion are consistent with the common cold, a benign, self-limited viral illness. The American College of Physicians and the Centers for Disease Control and Prevention note that the common cold can present with these symptoms and typically resolves without the need for antibiotics.[1]

2. **Acute Bronchitis**: Acute bronchitis, characterized by an acute cough and inflammation of the trachea and lower airways, can present with cough, sore chest, and yellow mucus. The American College of Chest Physicians emphasizes that acute bronchitis is a common clinical condition and is usually self-limiting.[2]

3. **Acute Rhinosinusitis**: The presence of yellow mucus, congestion, and headache suggests acute rhinosinusitis. The American Academy of Otolaryngology-Head and Neck Surgery states that acute rhinosinusitis is diagnosed with purulent nasal drainage and nasal obstruction or facial pain.[3]

4. **Influenza**: Influenza can present with headache, sore throat, cough, and congestion. The CDC notes that influenza typically has an abrupt onset and can include these symptoms along with fever and malaise.[4]

5. **Allergic Rhinitis**: Allergic rhinitis can cause nasal congestion, rhinorrhea, and postnasal drainage, which may lead to a sore throat and cough. The American Academy of Family Physicians highlights that allergic rhinitis is associated with these symptoms and often occurs in response to allergens.[5]

Most Important Not to Miss Diagnoses:

1. **Pneumonia**: Pneumonia should be considered, especially if there is fever, productive cough, and pleuritic chest pain. The American College of Chest Physicians recommends considering pneumonia in patients with acute cough and suggests using clinical judgment and possibly chest radiographs to rule

Ask a follow-up question...

EVALUATE

- Model Performance.
- Business Impact & Value.
- User Feedback & Adoption.
- Ethics, Bias, and Fairness
- Compliance & Regulatory.

AI Evaluation comes after your AI model has been implemented (either during or after the pilot or full implementation). It focuses on measuring how well the AI is performing and whether it's generating the expected business impact.

Structured processes, checks, and tools are used to monitor, assess, and govern AI system throughout their lifecycle including identifying risks. Evaluate to ensure your AI solution remains accurate, fair, compliant, and valuable over time.

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AI AUDIT

An AI audit is a structured and systematic evaluation of an artificial intelligence system, including its data, algorithms, decision-making processes, and governance practices. The primary purpose of an AI audit is to ensure that AI systems are trustworthy and accountable.

- AI System Audit
- Algorithmic Audit
- Data Audit
- Governance & Compliance Audit

Internal Audit Approach to AI

An internal audit approach for AI from **both** a horizontal view, incorporating functions using AI into existing audits, as well as a vertical view that focuses on the highest risk use cases in depth is recommended.

Horizontal Approach

Centralized Framework

- Analyze the existing AI governance procedures & evaluate the current framework for AI governance.
- Review roles & responsibilities across AI landscape.

Data Governance

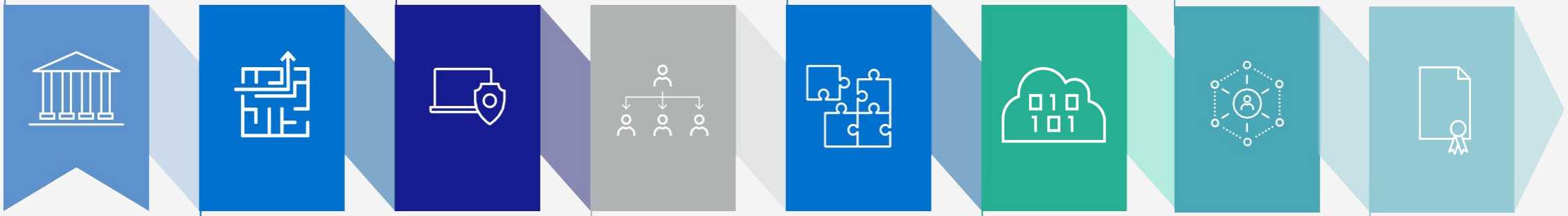
- Review the available documentation to evaluate data governance & quality, including lineage & traceability.
- Interview key stakeholders to understand the process for data collection, storage, access, monitoring, & disposal.

Operational Strategy

- Examine the structure & responsibilities of the governance or steering committee, if any.
- Evaluate AI strategic roadmap, including development of policies & socialization to the organization.

Third-Party Risk Management

- Evaluate third-party, open-source models & tools within the inventory & identify key risks.
- Assess third-party vendors for reliability & reputability.
- Review contracts with third-party vendors to identify potential data & privacy risks.



Model Risk Cartography

- Review model identification & determination criteria & identify areas to enhance model determination to apply to AI models.
- Evaluate the model &/or AI use case inventory & the risk assessment criteria.

Lines of Defense (LOD)

- Evaluate approach across over-arching AI framework to encapsulate all three LOD.
- Review AI process guides & evaluate existing process across the AI development lifecycle.

IT Risk & Compliance

- Analyze AI IT Lifecycle for soundness of controls, including technical operations, cloud governance, internal & external data base integration,, cyber-security, maintenance, etc.

Regulatory Compliance

- Assess existing AI governance process to ensure adherence to regulatory & legal requirements inclusive of reporting & monitoring AI models.

Vertical Approach

In addition to the above overarching assessment, the highest-risk AI use cases will be reviewed in detail across technology, data, people, & processes. This will serve as a representation of the current in-production landscape to help formulate gaps that may exist across the AI use case inventory.

*Note, the audit processes shown are demonstrative & not an exhaustive list

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Things to Consider and Remember

Although AI will undoubtedly change the way organizations operate, human intervention is required at every step of the AI lifecycle – from development to deployment to auditing. Identifying & mitigating risk will always be the first step in giving institutions the confidence. & security they need to use AI responsibly.

Consider

- Data, Data, Data – AI is only as good as the data
- Requires extensive testing
- Models are the driving force
- AI governance is foundational…creates guardrails

Remember

- Who is driving AI at your organization?
- Is your organization a leader, lagger, or beginner?
- Have you spent time with IT: AI strategy, technology, and governance?
- Is Legal and Compliance involved with 3rd Party AI considerations?

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THANK YOU

FOR YOUR ATTENTION & PARTICIPATION

Although AI will undoubtedly change the way organizations operate, human intervention is required at every step of the AI lifecycle. Identifying & mitigating risk will always be the first step in giving institutions the confidence & security they need to use AI responsibly.

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