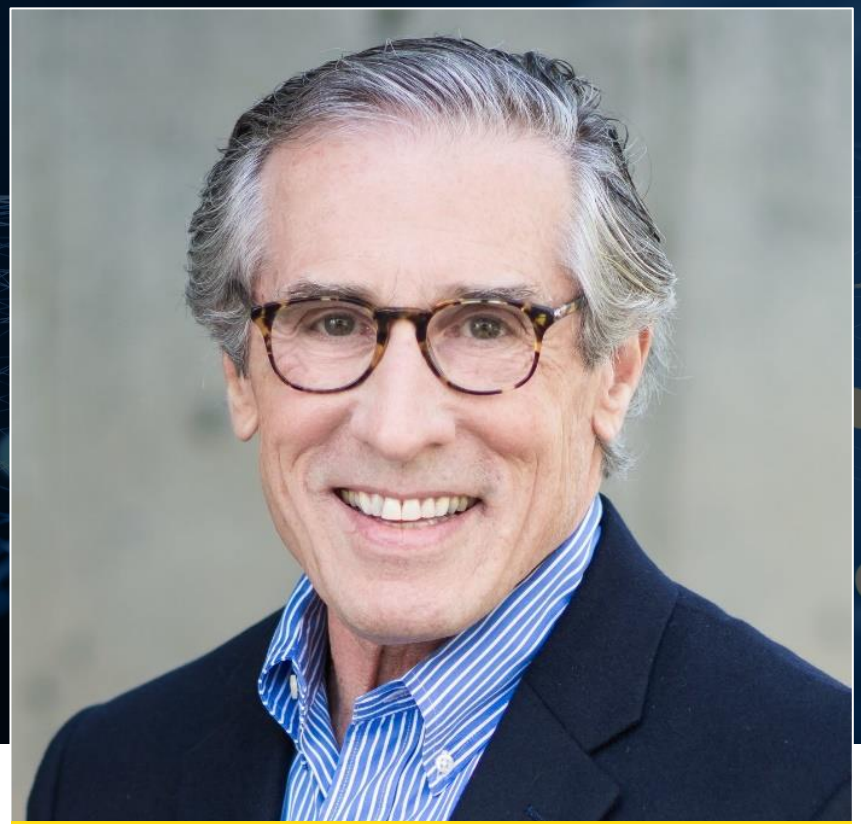
Utilities

Tactical AI vs. Strategic AI: Revolutionizing Municipal Electric Utilities

FMEA Annual Conference, August 1, Palm Beach

Emerging Technologies Strategist



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“Making predictions is very hard, especially about the future.”

Yogi Berra

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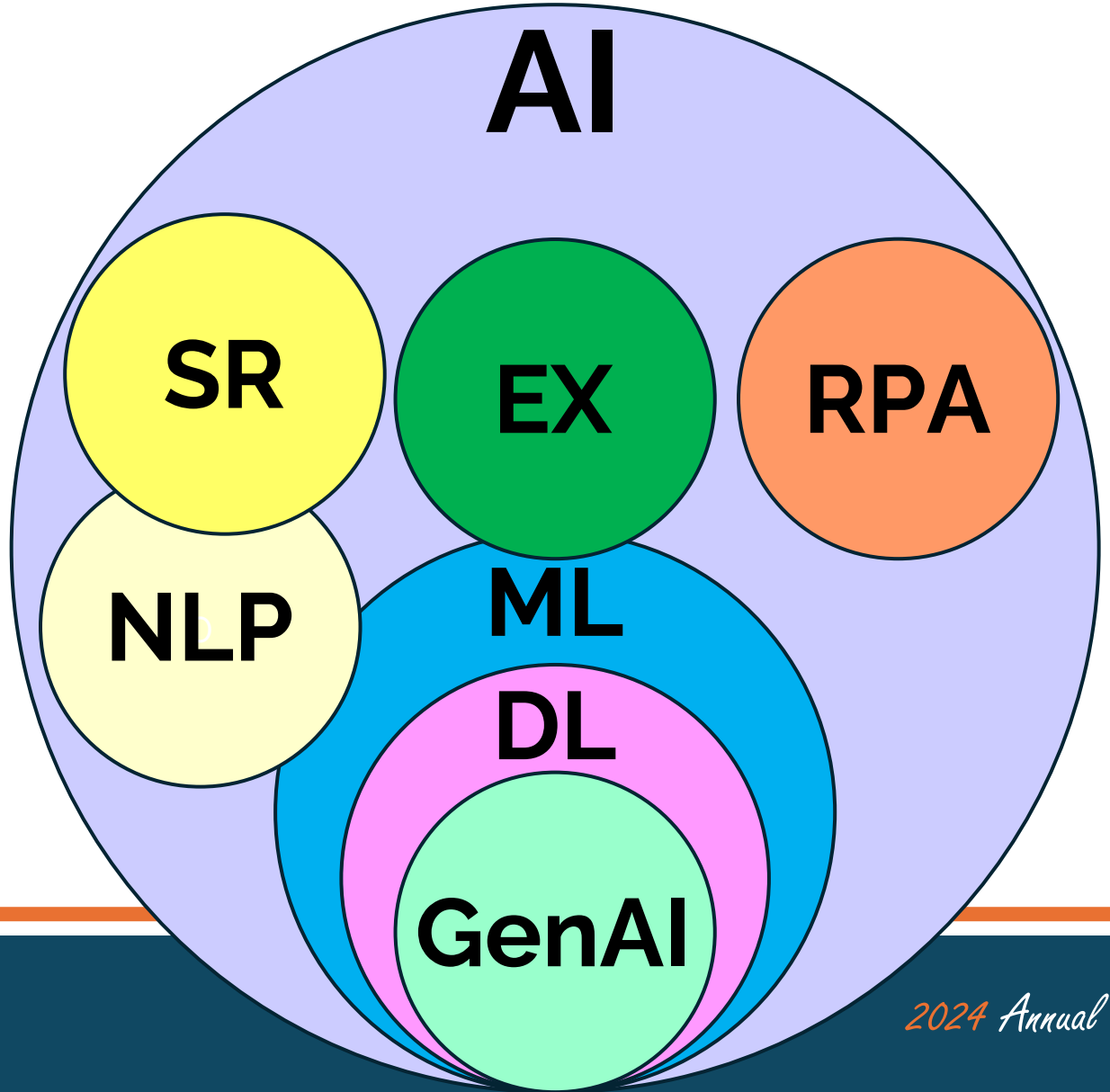
Strategic Planning in Times of Disruption

- Strategic Planning in 2020
- Who has a written strategic plan for 2024?
- Who has a written 2024 strategic plan that explicitly addresses AI?

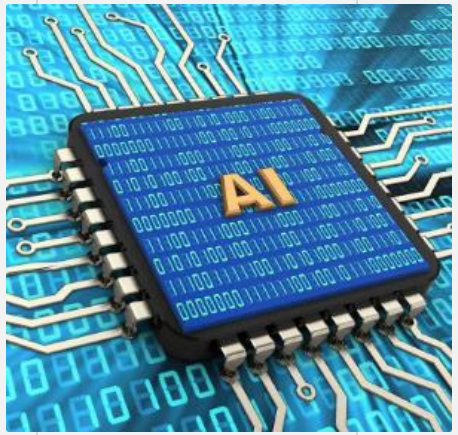
Many Kinds of AI!



AI

The AI Revolution in Utilities

Leveraging Tactical and Strategic AI for Municipal Electric Utilities



AI Reshaping Energy Landscape

AI technologies are transforming the energy sector by optimizing operations, predicting demand, and integrating renewable energy sources efficiently.

Enhancing Efficiency and Reliability

Implementation of AI leads to improved operational efficiency, enhanced grid reliability, and reduced downtime through predictive maintenance.

Empowering Customer Service

AI enables personalized customer interactions, real-time issue resolution, and tailored energy solutions, enhancing overall customer satisfaction.

Addressing Municipal Utility Challenges

Strategic AI applications tackle challenges like aging infrastructure management, demand-response optimization, and cybersecurity threats in municipal electric utilities.

Building a Strong Data Foundation for AI

- Centralized, accessible, validated data
- Significant effort to centralize and model data
- Drive value from unified systems
- Essential for maximizing AI potential

Tactical AI Applications

What is Tactical AI?

Exploring the Practical Applications of Tactical AI in Utilities

Automates specific tasks

Boosts individual productivity

Narrow focus, quick wins

Examples: Chatbots, drafting documents

AI Impact in Electric Utilities

What is Strategic AI?

Unleashing the Power of AI in Municipal Electric Utilities

Comprehensive AI Integration

Seamless incorporation of AI technologies into all operational aspects for heightened efficiency.

Digital Transformation Driver

Catalyzes the shift towards modernization by leveraging AI capabilities in utility operations.

Broad Business Impact

Extends AI's influence across various business functions, optimizing processes and strategies.

Utility AI Contrasts

Tactical vs. Strategic AI: A Comparison

Key Contrasts in AI Applications for Municipal Electric Utilities

Tactical: Narrow focus, immediate impact

Strategic: Broad focus, long-term transformation

Tactical: Boosts productivity, cost savings

Strategic: Enables new capabilities, business models

AI Technologies in Utilities

Technologies Powering AI in Utilities

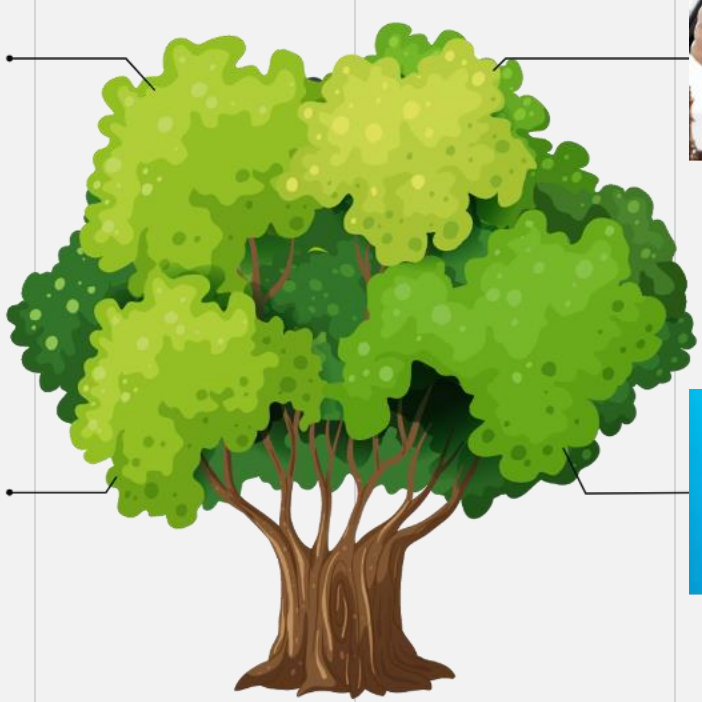
Enhancing Efficiency and Security with Advanced AI Solutions

Tactical Applications

Utilize Machine Learning (ML), Natural Language Processing (NLP), and Robotic Process Automation (RPA) for real-time operational insights and process automation.

Data Quality Importance

Emphasize the significance of clean and structured data to enhance the accuracy and reliability of AI-driven decision-making processes.



Strategic Implementations

Leverage Deep Learning and Reinforcement Learning techniques to optimize resource allocation, predictive maintenance, and long-term planning.

Cybersecurity Measures

Implement robust cybersecurity protocols to safeguard critical infrastructure and prevent potential cyber threats in the utility sector.

The Future of AI in Utilities

Empowering Municipal Electric Utilities through AI Transformation

Blend Tactical and Strategic Approaches

Integrate short-term operational enhancements with long-term strategic AI implementations to maximize efficiency and effectiveness.

Quick Wins to Transformation

Initiate with immediate AI solutions for quick wins, paving the way for gradual transformational changes across utility operations.

Collaborate with Tech Partners and Academia

Engage in strategic partnerships with technology firms and academic institutions to leverage cutting-edge AI innovations tailored to the utility sector.

Invest in Data Infrastructure and Talent

Allocate resources to strengthen data infrastructure and upskill talent for optimal utilization of AI technologies in municipal electric utilities.

Preparing for an AI-Driven Future

Anticipate and adapt to an energy future dominated by AI technologies, ensuring readiness for the evolving landscape of municipal electric utilities.

Enhancing Utility Inspections with AI and Autonomous Drones

- Critical role of computer vision
- Managing digital content overload
- Identifying anomalies in images
- Enhanced inspections with drones

Generative AI Principles

How Generative AI Works - The Basics

Exploring the Fundamentals of Generative AI

Real-World Applications

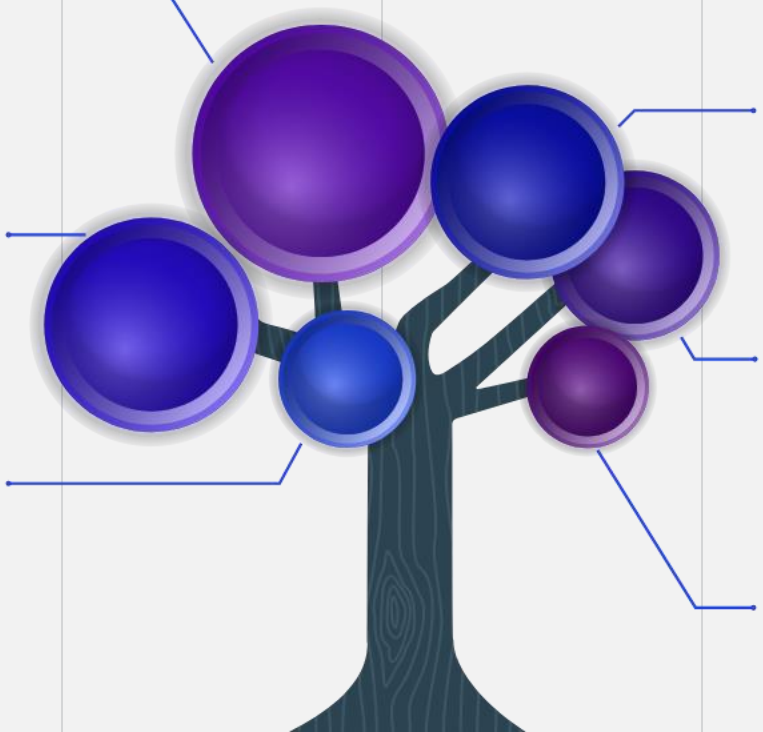
Generative AI finds practical use in various fields such as art generation,

From Input to Creativity

It transforms input data into creative outputs, mimicking human-like

Learning from Data

Generative AI learns patterns and insights from vast amounts of data



Enhancing Efficiency

By automating creative tasks, Generative AI enhances operational efficiency and accelerates innovation.

Personalized Content Generation

It enables the creation of tailored content to meet specific user

Ethical Considerations

Addressing ethical concerns around AI-generated content and ensuring

AI Solution Providers

Public or Private Sector AI

Requires the Support of AI Technology Solution Partners.

AI Solution Providers

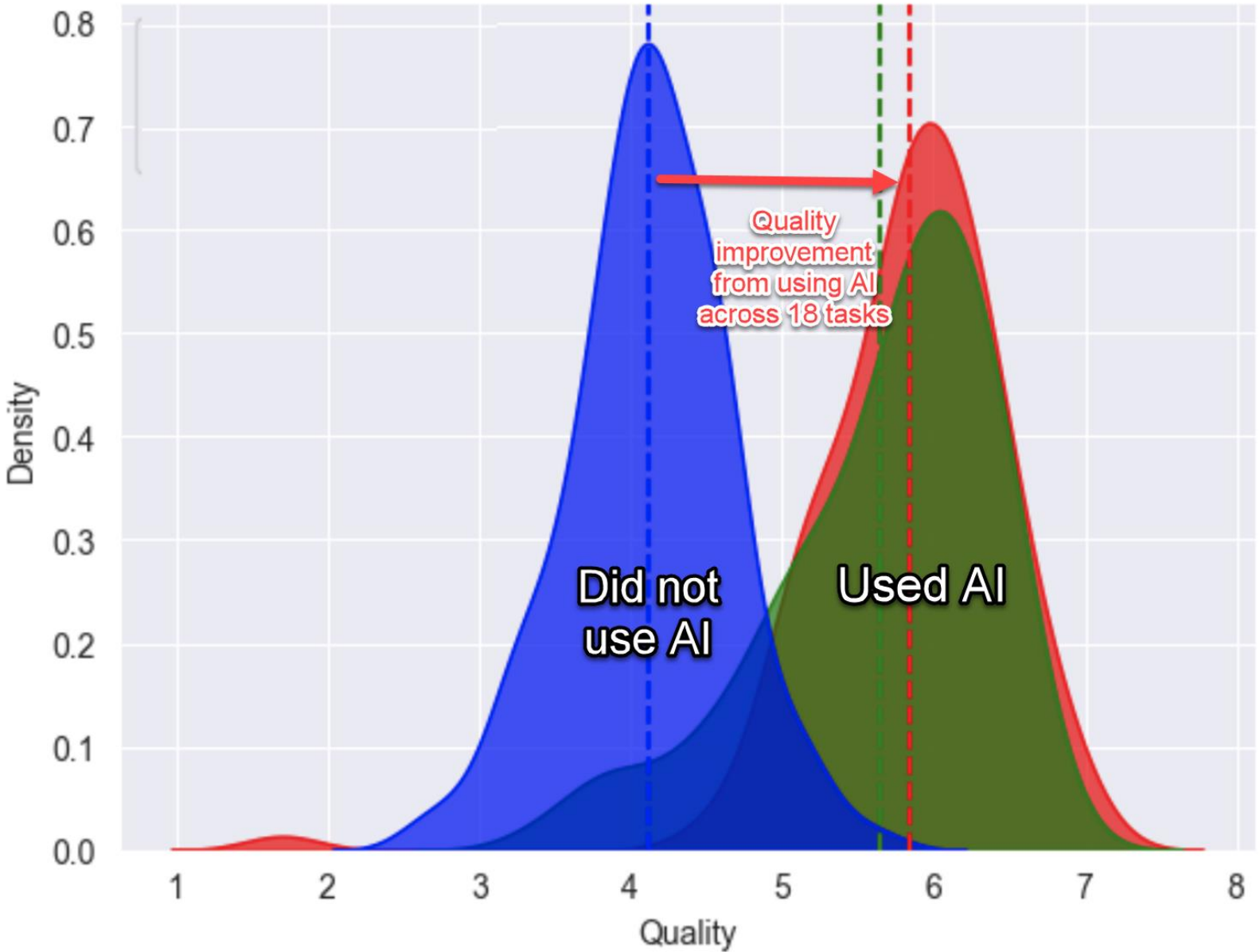
Consumer Generative AI

- Google Bard/Gemini
- OpenAI ChatGPT (Microsoft)
- Anthropic Claude (AWS)
- Others

Enterprise AI

- AWS Bedrock
- Google AI
- IBM watsonx
- Microsoft Azure OpenAI
- Oracle / Cohere

AI can improve performance



Boston Consulting Group:

Consultants using AI:

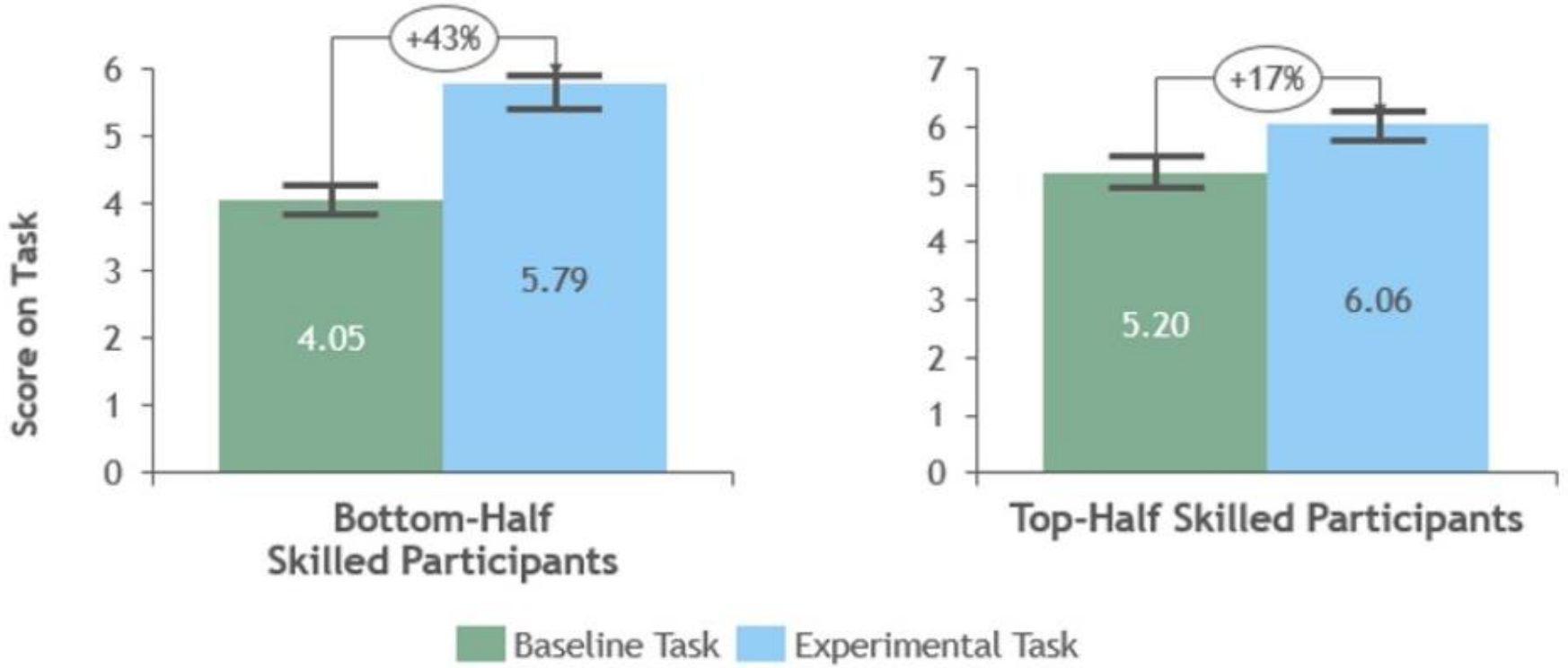
finished 12.2% more tasks on average,

completed tasks 25.1% more quickly, and

produced **40% higher quality results** than those without.

AI can improve performance

Figure 5: **Bottom-Half Skills and Top-Half Skills - Inside the Frontier**



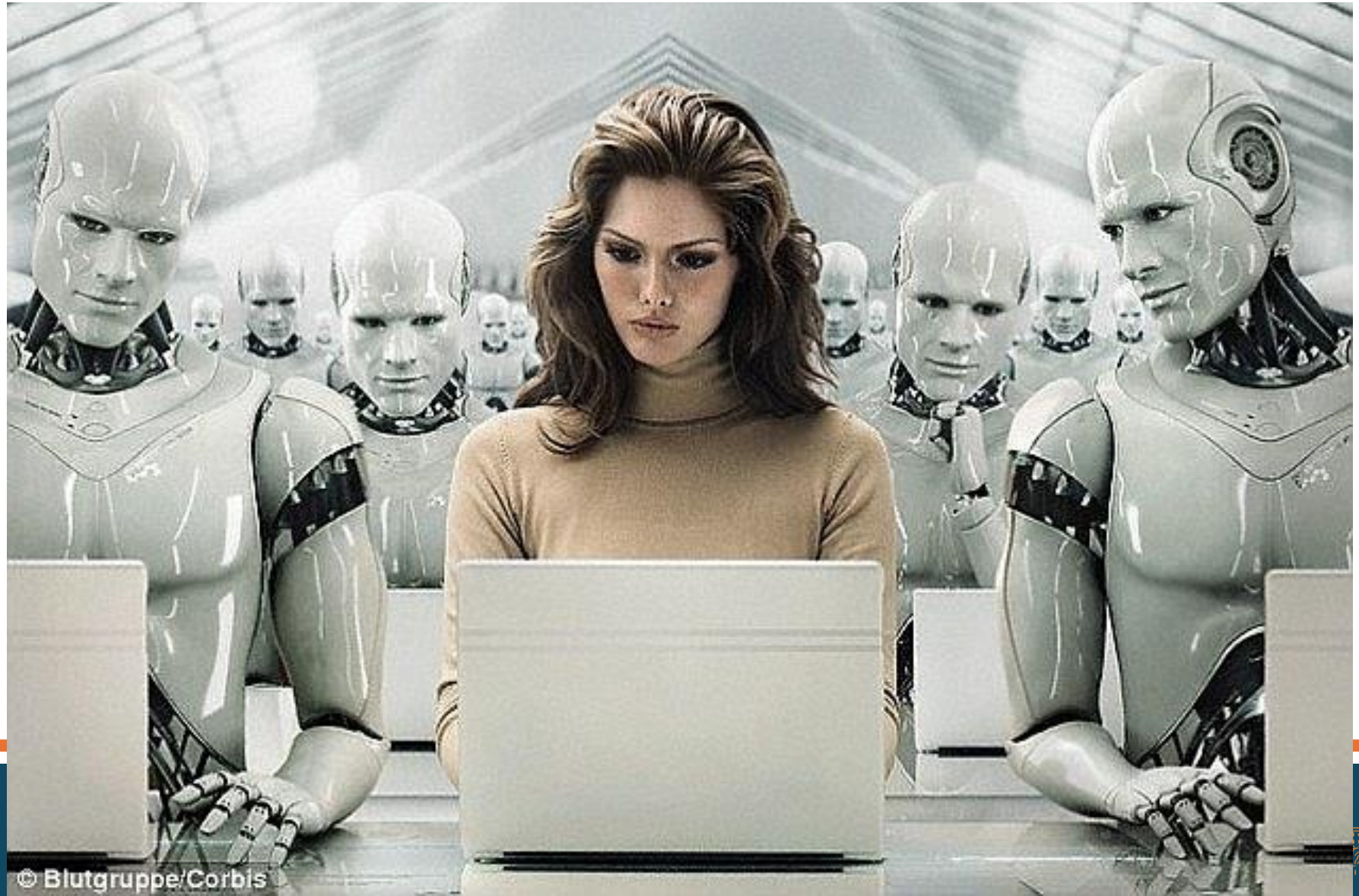
Share Of Job Tasks Potentially Aided By GenAI

For jobs that often require ...

High school diploma or less Jobs like: sewing machine operators, dry cleaners, fast-food workers	6%
High school diploma Manicurists and pedicurists, actors, security guards	17%
Vocational or 2-yr. degree Electricians, paramedics, facilities managers	38%
Four-year degree Nurses, nuclear engineers, human resources specialists	75%
Graduate school Pharmacists, psychiatrists, lawyers	64%

Cornell University: An Early Look at the Labor Market Impact Potential of Large Language Models

Internal Buy-in: Fear of Being Replaced by AI



The Good News:

AI Will NOT Replace People!

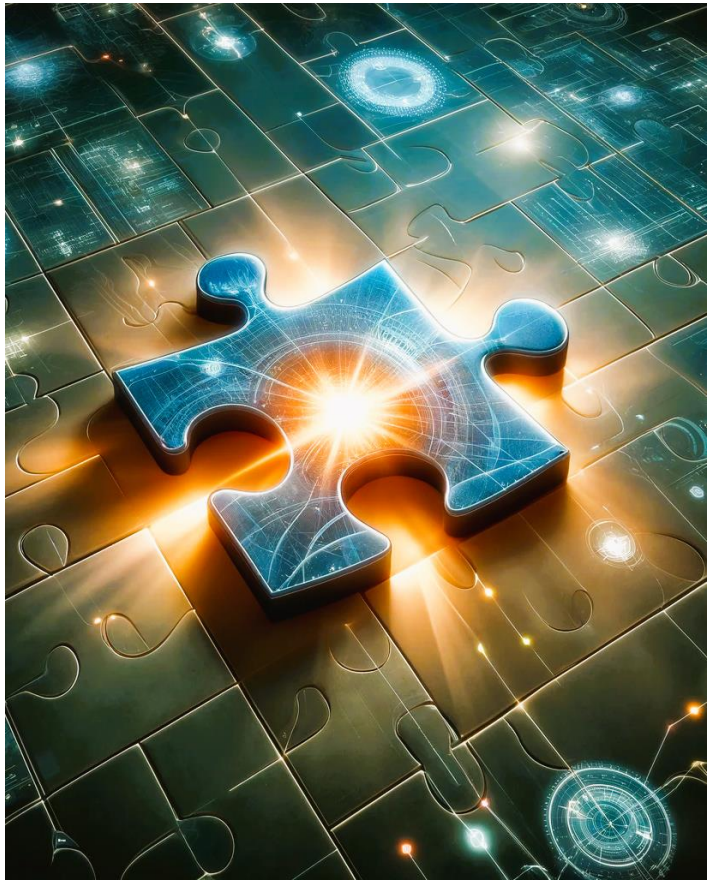
The Bad News:
(for some of you)

People Who Understand How to Use AI-Enabled Tools And Technology Will Replace Those Who Don't

Preparing for Generative AI Implementation

- Employees already using GenAI
- Enhancing capabilities with AI tools
- Safe, regulated, and legal environment
- Enable creativity with proper guardrail

Implementing Generative AI Systems



- **Start small, think big**
- **Collaboration is key**
- **Learning from mistakes**

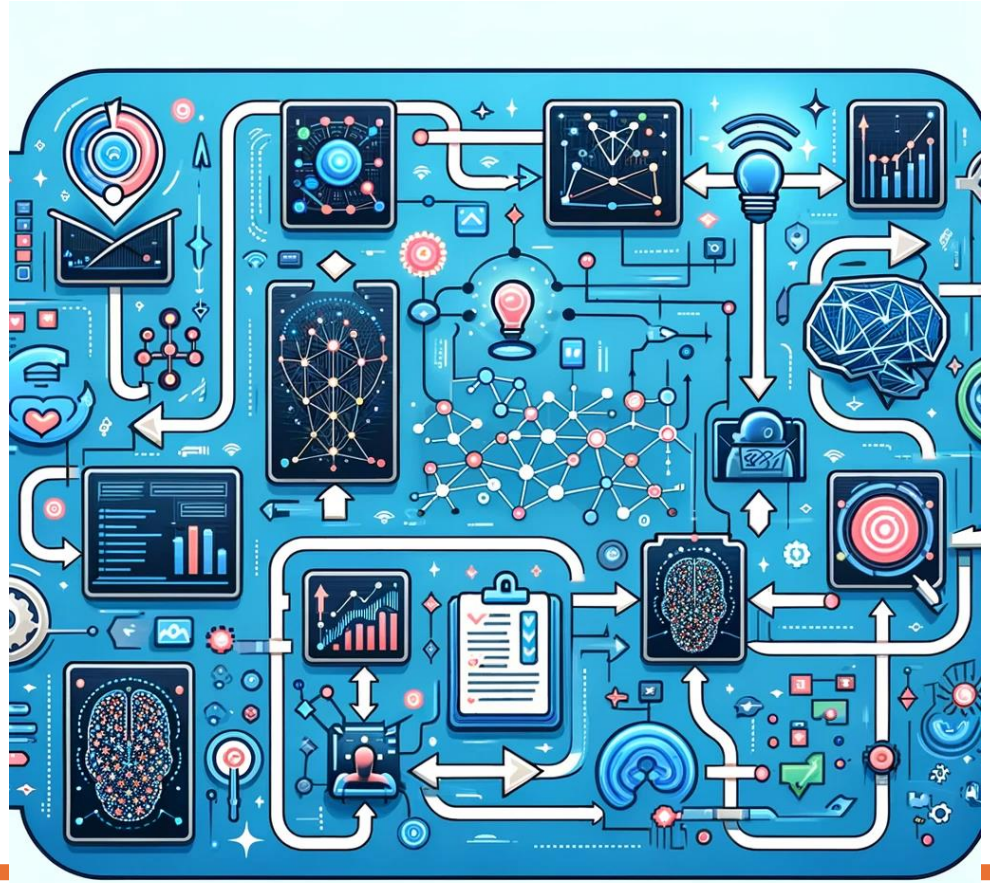
Scaling Generative AI: Transforming Organizations

- **Outdated paradigms hinder GenAI scaling**
- **GenAI: Personal transformation tool**
- **Framework: Train, Chain, Codify, Scale**

Step 1: Train –
The Foundation of Scaling GenAI

- **Shift from super users to structured training**
- **Emphasize creative, innovative training methods**
- **Foster a culture of curiosity and exploration**

Step 2: Chain – Creating an AI-powered Workflow



- **Proficiency leads to consistent use**
- **Overcome 'Google brain' with task chaining**
- **Envision an AI-powered workday**

Step 3: Codify – Systematizing Team GenAI Use

- **Team-based GenAI system development**
- **Establish rules, guardrails for use**
- **Accountability within team crucial**

Step 4: Scale – Uniting Teams for GenAI Excellence

- AI Task Forces centralize learning
- Share best practices and policies
- Reimagine workdays and collective goals

Transforming Work with GenAI: A New Paradigm

- Paradigm shift from individual to collective
- GenAI redefines productivity and collaboration
- Framework: Blueprint for success

Digital Transformation Means You Need

To discern not only …

… is the technology ready for you …

… but is your organization ready for the technology?

Digital Transformation

Don’t force fit new technologies

Don’t “pave the cow paths”

Don’t make marginal improvements

Rethink business model & ecosystem

Apply new technologies as needed

Strategic Disruptions

- Pandemics
- Weather Related Disruptions
- Political Disruptions
- Emerging Technologies

Dynamic Transformational Planning – Goals

Identify high-level strategic Goals needed to execute your overall Plan

- Core Competencies
- Resources
- Capabilities
- Changing Stakeholder Needs
- Address Current and Potential Strategic Threats and Disruptions

Dynamic Transformational Planning – Plans

- To accomplish a Goal, you must have a Plan.
- You can have more than one Plan for a Goal.

Example:

Goal	Drive Home from Work
Plan A	Take the Expressway
Plan B	Take Surface Streets

- **Each plan has advantages and disadvantages**
- **You may choose to switch plans.**
- **Example: If there's an accident on the Expressway, you could switch to Take Surface Streets**

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Monitoring the Situation

To select best plan, important to continuously monitor circumstances.

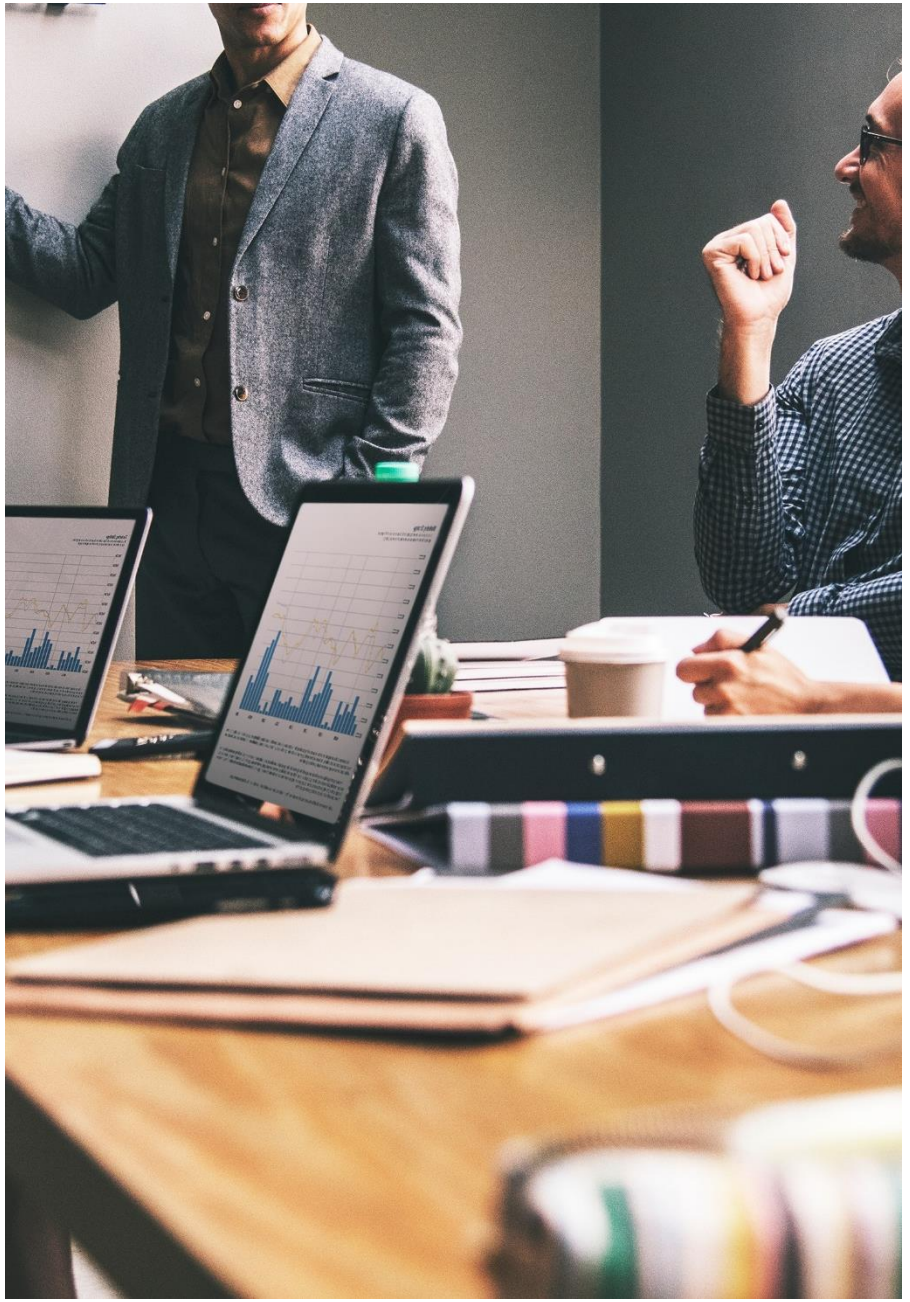
Why people use tools like Waze to monitor traffic situation/alternatives.

Proactively monitor for

- Potential strategic disruptions
- Evolving tech. / bus. opportunities

– even if not currently happening

NOT passively observing. Proactively Monitoring – defining and actively seeking trigger / inflection points



Dynamic Transformational Planning Summary

Organizations can think long-term, setting strategic goals.

Provides flexibility to shift dynamically in short & medium-term.

Address anticipated & unanticipated strategic contingencies:

- **Opportunities**
- **Threats**
- **Disruptions**

Change & Progress

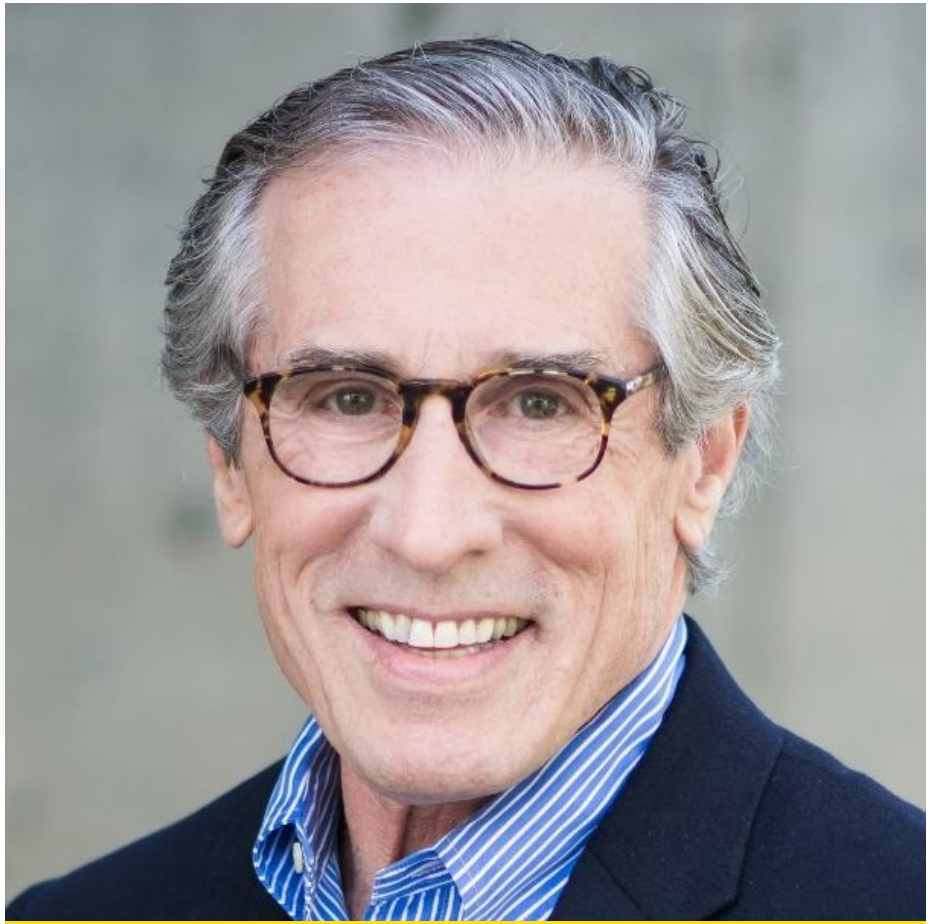
“Change does not necessarily assure progress,

but progress implacably requires change.”

Historian Henry Steele Commager

Questions? Follow Up

Innovation & Emerging Technology Strategist



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