bakertilly

Transforming Finance with AI

Strategies for readiness, governance and advanced analysis

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Meet your speaker

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BAKER TILLY

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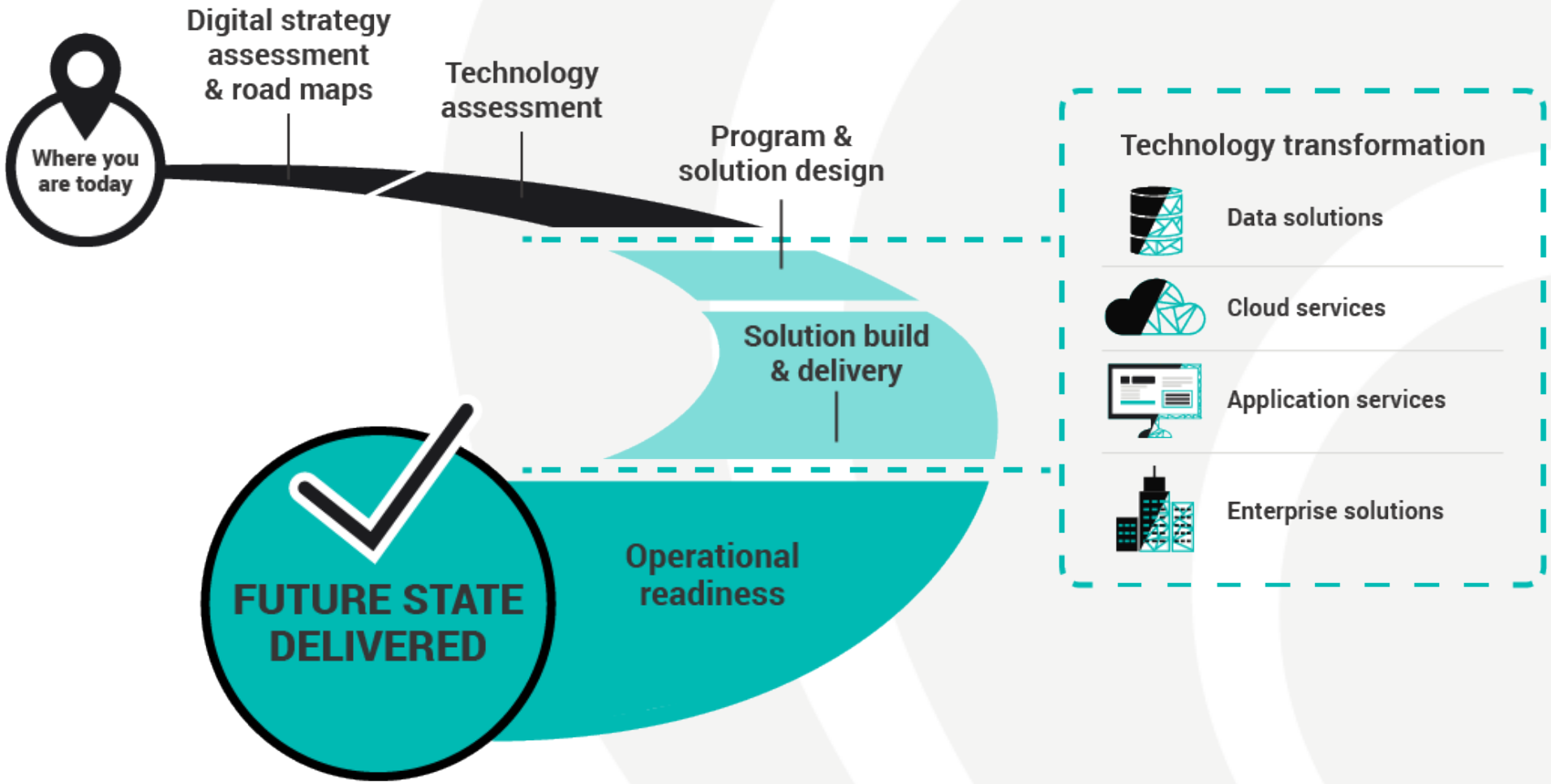
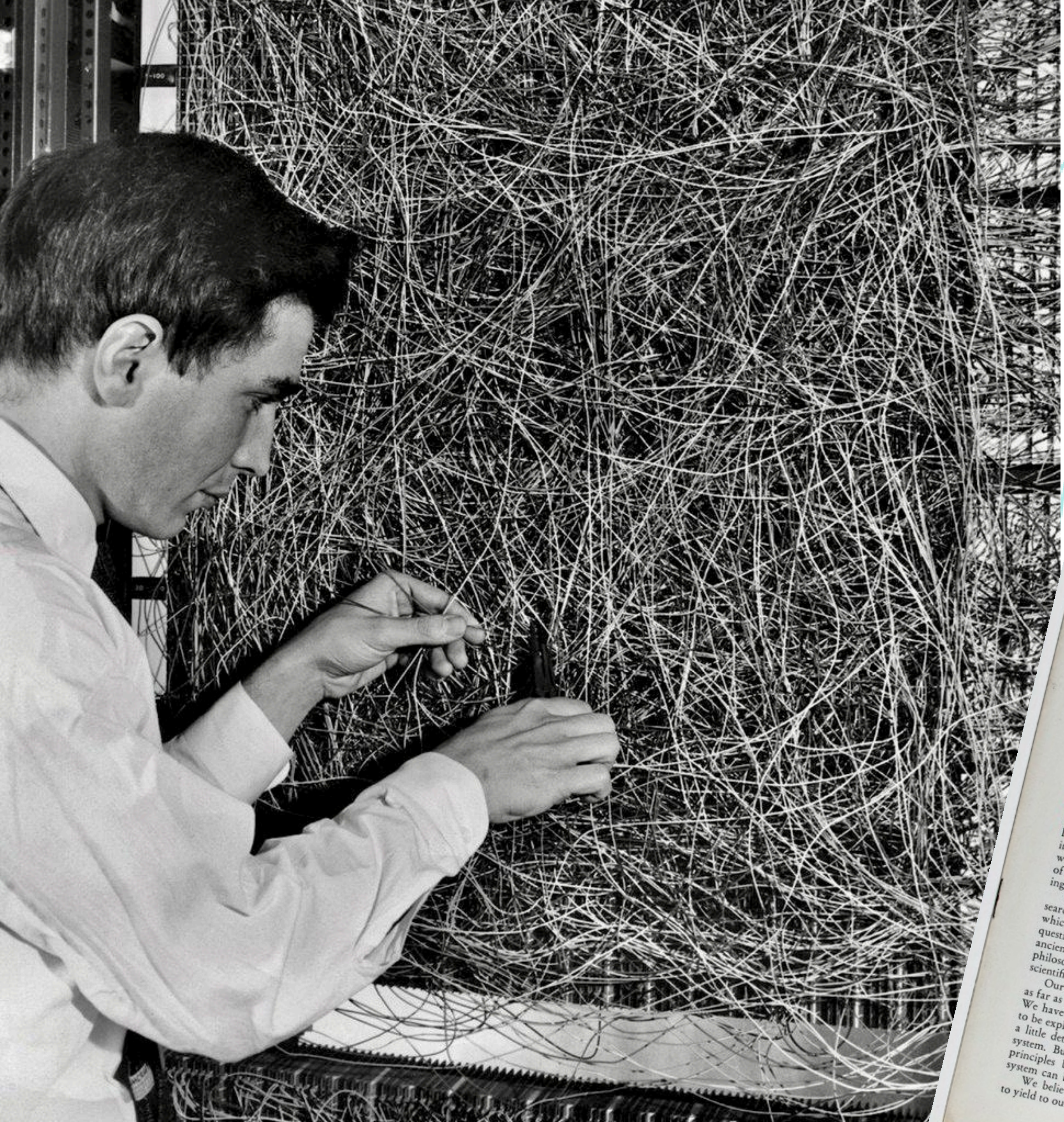
Who we are

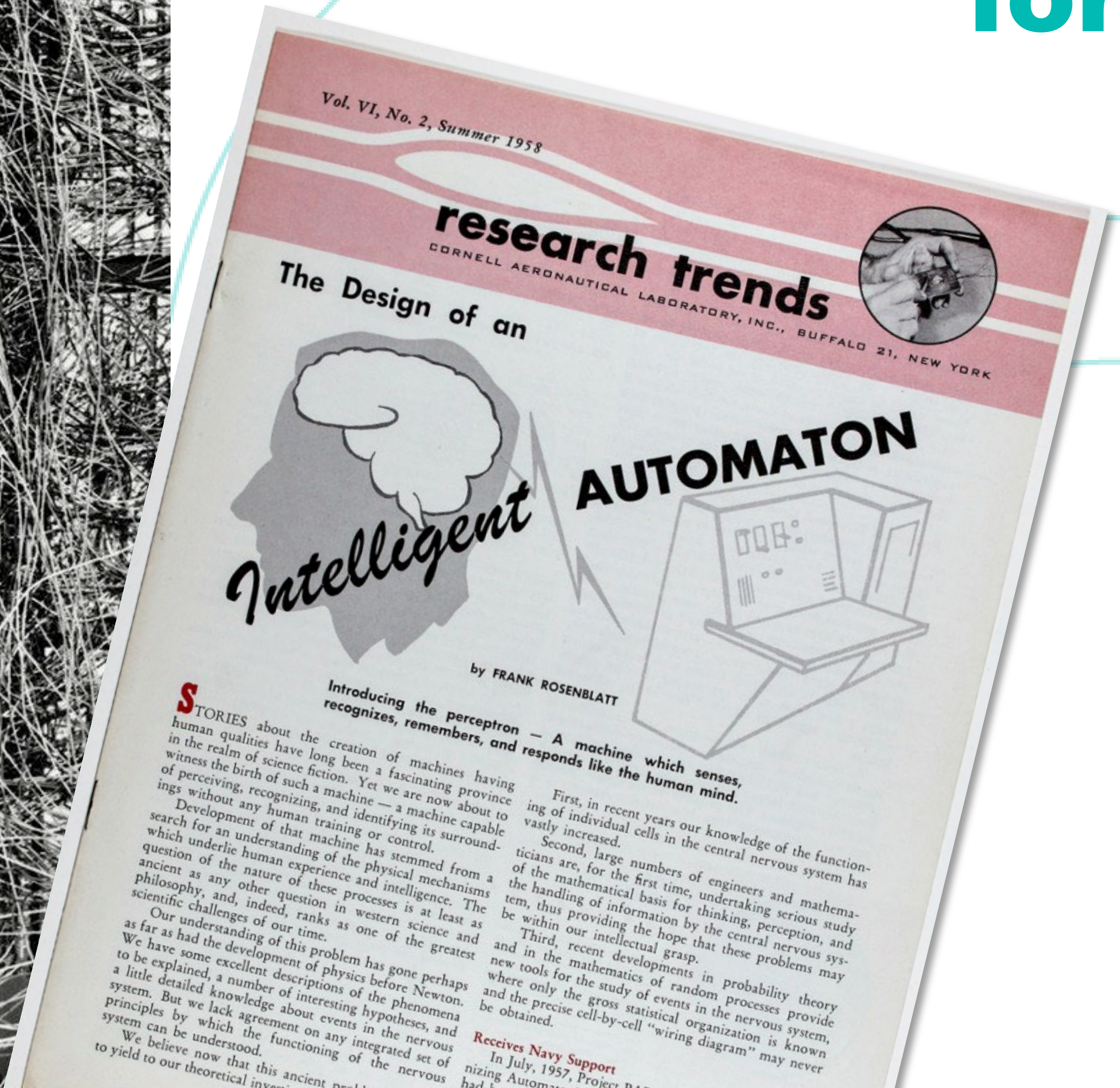


Agenda

- Setting the stage for AI
- The AI journey
- Use cases in finance
- AI readiness
- AI governance
- Discussion and Q&A



Setting the stage for AI



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research trends

CORNELL AERONAUTICAL LABORATORY, INC., BUFFALO 21, NEW YORK

The Design of an *Intelligent* AUTOMATON

by FRANK ROSENBLATT

Introducing the perceptron — A machine which senses, recognizes, remembers, and responds like the human mind.

STORIES about the creation of machines having human qualities have long been a fascinating province in the realm of science fiction. Yet we are now about to witness the birth of such a machine — a machine capable of perceiving, recognizing, and identifying its surroundings without any human training or control.

Development of that machine has stemmed from a search for an understanding of the physical mechanisms which underlie human experience and intelligence. The question of the nature of these processes is at least as ancient as any other question in western science and philosophy, and, indeed, ranks as one of the greatest scientific challenges of our time.

Our understanding of this problem has gone perhaps as far as had the development of physics before Newton. We have some excellent descriptions of the phenomena to be explained, a number of interesting hypotheses, and a little detailed knowledge about events in the nervous system. But we lack agreement on any integrated set of principles by which the functioning of the nervous system can be understood.

We believe now that this ancient ... to yield to our theoretical ...

First, in recent years our knowledge of the functioning of individual cells in the central nervous system has vastly increased.

Second, large numbers of engineers and mathematicians are, for the first time, undertaking serious study of the mathematical basis for thinking, perception, and the handling of information by the central nervous system, thus providing the hope that these problems may be within our intellectual grasp.

Third, recent developments in probability theory and in the mathematics of random processes provide new tools for the study of events in the nervous system, where only the gross statistical organization is known and the precise cell-by-cell "wiring diagram" may never be obtained.

Receives Navy Support

In July, 1957, Project ...

Evolution of AI in waves

1 Cybernetics (1940 – 70's)

Field of AI research (Helped established the principles that would later be foundational to artificial intelligence and cognitive science)

Anti-aircraft systems - feedback mechanisms to adjust and improve accuracy

2 Trained experts (1980 – 90's)

Expert systems were developed for **specific domains**. Artificial Neural Networks (ANNs) were used to interpret geophysical data and detect mineral deposits.

IBM Deep Thought (Chess)

3 Good learners (2000 – 2020s)

CNN, RNN – Netflix, Amazon Google, etc. (Personalized experience)

Marvel's Iron Man, the AI assistant **Jarvis**

4 Generative systems (2020s - ?)

These systems can adapt contextually (ChatGPT, Claude, Bedrock, Hugging face, LLAMs, etc.)

Discovery of new proteins e.g., cancer cure, biofuels etc.

Moderna mRNA vaccination

Generative AI

Generative AI is a type of artificial intelligence (AI) capable of creating new content

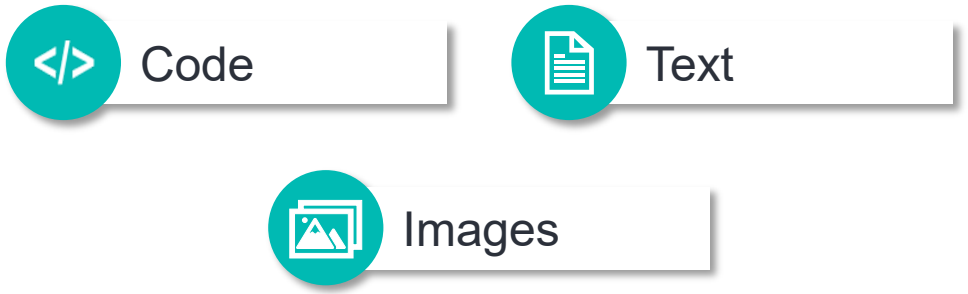
Deep learning - Statistical models

Predicts next word through reinforced learnings (layers) .e.g. Peanut butter,…….

ChatGPT, GPT = Generative Pretrained Transformers

Types of output

The key outputs of ChatGPT are primarily text-based



Paired with image generation models like DALL-E or Stable Diffusion, ChatGPT can create text prompts that describe what kind of image to generate.

The benefits and impacts of AI on your organization

2021 - 2024

Actualized	Market cap (approx.)
	$2.831 Trillion
	$2.076 Trillion
amazon	$1.937 Trillion

Integral to global finance from pension funds to 401(k)s

True digital transformation

ANT Financial is serving 1.2B users with only 10K employees – thanks to AI.

3-1-0 Rule

Everything is being casted into AI problem = Economic boom in AI market

case study

Revolutionizing Accounts Payable: The Power of RPA and AI in Invoice Processing

Client Background

The client is an independent global public affairs and strategic communications consultancy with 35 worldwide locations. It is also the fifth largest independently owned PR firm in the United States.

The business challenge

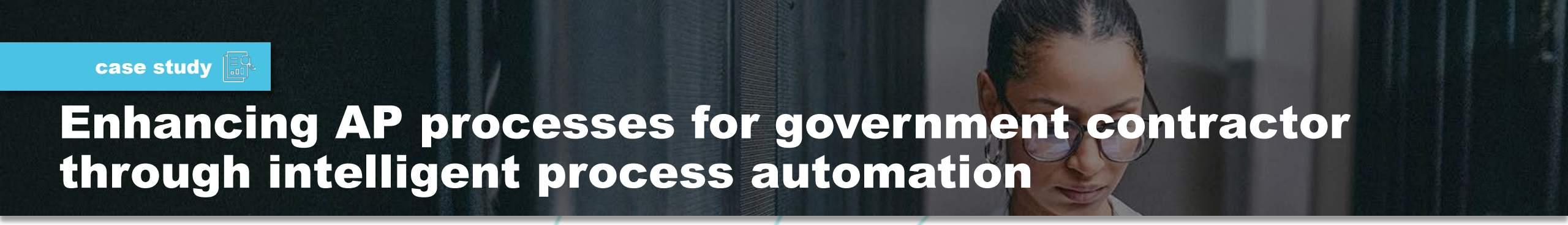
Every month, the client faced the daunting task of processing a large volume of invoices in 15 different languages. These invoices were often inconsistent, inaccurate, or incomplete, creating significant operational challenges. Additionally, the client had to manage this data across 13 different currencies, further complicating the process. Each problematic invoice required manual intervention, leading to delays, potential errors, and inefficiencies.

This manual handling not only slowed down the accounts payable (AP) process but also increased the risk of financial discrepancies. The need for a more streamlined and consistent AP invoice induction process was evident to address these issues and improve overall operational efficiency

Strategy and solution

Baker Tilly proposed a comprehensive, long-running workflow managed by UiPath digital workers. These digital workers would manage and triage emails, download required invoices, and intelligently scrape data from each invoice using an advanced machine learning engine trained to support 15 different languages. The normalized data was then routed to human counterparts for confirmation and approval. Once approved, the digital worker would process the voucher, archive the invoice, run the required reports, and generate automation metrics.

The project's remarkable success demonstrated the immense potential of automation, with ambitious plans to expand to other processes for even greater efficiency. Collaborative efforts between the client, Baker Tilly, and UiPath marked significant progress in tackling invoice challenges, enhancing workflows, and underscoring the transformative value of intelligent automation in fulfilling the client’s mission.



case study

Enhancing AP processes for government contractor through intelligent process automation

Client Background

This client operates in the government contractor sector with 15 offices throughout the U.S. and over 3,000 employees. They have been recognized previously for their commitment to operational efficiency, however, the rapidly evolving business landscape and increasing invoice volumes presented challenges that demanded innovative solutions.

The business challenge

Managing a vast volume of invoices is no small feat, especially when these invoices come in varied formats. The client's accounts payable (AP) department was inundated monthly with a mix of purchase order (PO) vouchers, AP invoices and subcontractor invoices. Over 30% of these invoices used unique vendor templates, adding layers of complexity to an already intricate process.

Moreover, the client had a specific and crucial requirement: the need for itemized line items for every invoice. This granularity was essential for their operations, ensuring that every financial detail was captured accurately. Integrating this vast and varied data into their ERP platform presented another layer of challenge.

Strategy and solution

Baker Tilly developed a tailored intelligent process automation (IPA) solution using UiPath software with unattended automation, cloud orchestration, and document understanding. This ensured accurate extraction of even the smallest details from diverse invoices.

The solution prioritized seamless integration. It bridged documents received via Outlook with desktop applications like Excel and Adobe, enabling smooth data flow and eliminating bottlenecks.

The benefits were clear: the client projected significant monthly savings in employee time and cost reductions, with AP process errors expected to drop to zero. Beyond finance, this success spurred automation opportunities in IT and HR, driving a company-wide digital transformation.

The collaboration between the client, Baker Tilly, and UiPath highlights RPA's transformative impact, optimizing AP operations and setting the stage for broader efficiencies.

case study

Financial institution leverages generative AI to automate compliance testing

Client Background

The client, a large financial institution, must regularly assess risks to ensure BSA compliance with OFAC and FinCEN regulations. These assessments quantify the risk profile of the bank's AML programs, identifying vulnerabilities, gaps, or improvement areas to maintain compliance.

The business challenge

Collecting unstructured and semi-structured data, such as employee census data, training requirements by role and tenure, and completion certifications, was necessary. However, manually updating these certifications with traditional methods was cumbersome, inconsistent, and risk-prone.

The technical team needed a solution to handle frequent arrivals of diverse data (e.g., PDFs, Excel, Word), process and verify large volumes per employee, maintain a frequent schedule to address training gaps, and ensure ease of use for non-technical staff managing uploads and reviews.

Strategy and solution

The solution involved designing and deploying an AI Agent with two key capabilities:

- Intelligent Data Extraction: The agent identifies column headings based on layperson descriptions, uses OCR to extract relevant data from operational reports in PDF format.
- Automated Data Mapping: It creates source-to-target column mappings to load unstructured data into a structured BI model, using a large language model to improve handwriting recognition.

To streamline analysis and empower users:

- Cloud-based BI reports automatically generated from the AI Agent's findings help staff identify training gaps and compliance levels.
- Staff upload training-related documents (e.g., certificates, transcripts, feedback forms)

Key benefits achieved:

- Reduced manual work and errors
- Improved responsiveness to gaps
- Increased compliance efficiency
- Enhanced regulatory compliance

case study

Software solution provider enhances customer service and product knowledge with generative AI

Client Background

This collaborative effort with our Sage Intacct Product Development teams provided users with easy access to a wide range of information. Functioning as an automated Subject Matter Expert (SME), the tool streamlines access to knowledge on Sage Intacct and Baker Tilly's related products.

The business challenge

The leadership team wanted to create a generative AI application that would leverage a large repository of proprietary knowledge and documentation to generate context-aware responses for their customer service, customer success and professional services teams to accelerate time to resolution and increase customer satisfaction.

Strategy and solution

Success hinged on close collaboration. The teams joined forces to map business needs, pinpoint data sources and define key use cases. A crucial challenge arose: the knowledge base existed in a multitude of formats, from conversational transcripts to online help documents (HTML). Baker Tilly's team brought their deep expertise to address this hurdle. The team crafted a custom solution using Retrieval Augmented Generation (RAG) powered by an AI agent. This intelligent agent could retrieve relevant information from these diverse data sources, regardless of format. The retrieved information then fueled the generation of natural and accurate responses to customer inquiries. The solution was seamlessly integrated with the Sage Intacct team's existing customer service platform, empowering them to monitor and continuously improve performance over time.

As a result:

- The project implemented a powerful and scalable generative AI application. This application boosted the efficiency and quality of customer service while fostering continuous product learning within the teams.
- The solution included intelligent search functions that locate the best answers to basic and complex customer questions. This empowered lower-tier support personnel to resolve these complex issues independently, reducing reliance on senior management.

NEXT FINANCE USE CASES

Financial Planning and Analysis	Daily tasks like financial ratio analysis and financial statement analysis, variance analysis, and reporting can be completed in a fraction of the time using tools like OpenAI's GPT-4 model to provide analysis and insights into a company's financial health. AI is also transforming financial review processes, enabling more efficient monthly and quarterly reviews through automated horizontal and vertical analysis.
Budgeting and Variance Analysis	AI tools can identify patterns and anomalies, improving accuracy and providing explanations for variances. Moreover, AI is enhancing forecasting techniques and predictive analytics to better forecast future performance, allowing finance professionals to develop sophisticated forecast models that can adapt to changing market conditions.
Forecasting	**Predictive Analytics:** AI uses predictive analytics to forecast future financial performance. By analyzing past financial data, market trends, and other relevant factors, AI can predict revenues, expenses, cash flow, and other financial metrics. **Scenario Planning:** AI can help create various financial scenarios (e.g., best case, worst case) to understand potential outcomes and prepare contingency plans.
Contract Abstraction and Analysis	Automated contract abstraction using Large Language Models (LLM) and Optical Character Recognition (OCR) models to analyze contract terms, detect changes, summarize, and populate systems of record.
Document Summarization and Analysis	Summarization of contracts, license agreements, policies, regulations, and related articles. LLMs and generative AI models can create summary documents and analysis with references to speed analysis and decision-making processes.

The AI journey

Defining your AI journey

Organizations must focus on their purpose and goals.

Who are we?

Before diving into the implementation of generative AI, it's crucial to ask, "Who are we as a business?" This question helps you **identify the core values, strengths and unique attributes of your organization**. It ensures that the AI solutions you pursue align with your business identity, culture and long-term vision.

Example: Your company is known for personalized customer service.

Where are we going?

Asking "Where are we going?" forces you to clarify **your business goals** and how AI fits into your **strategic direction**. It helps ensure that your AI initiatives are not just trendy experiments but are aligned with your broader objectives.

Example: You might leverage generative AI to develop advanced chatbots that provide superior personalized customer service.

AI innovation journey map

1 SET THE FOUNDATION FOR INNOVATION

Understand AI technology, market landscape and trends. Discuss risks and benefits of using AI in business.

2 ALIGN WITH ORGANIZATIONAL STRATEGY

Align to strategic and business drivers, craft AI mission and vision statement.

3 ESTABLISH AI GUIDING PRINCIPLES

Understand AI risks and create guiding principals to mitigate risk and prevent unintended consequences.

4 USE CASE DISCOVERY

Create AI use cases that have the potential to augment, accelerate or replace existing processes.

Use Cases

5 ASSESS AND SCORE USE CASES

Score AI use cases based on business value and org/tech feasibility.

6 PRIORITIZE USE CASES

Plot AI use cases on opportunity matrix visualization and prioritize initiatives.

7 BUILD MINI BUSINESS CASES

Build initiative one-pagers to outline cost, complexity, team, resources and timeline.

8 BUILD AI ROAD MAP

Create an executive-level visualization of sequencing and duration of initiatives.

AI readiness

Five dimensions of AI readiness

AI readiness assessment

Activities

- Identify and define key strategic goals and objectives for the organization
- Conduct client workshop and stakeholder interviews to identify potential business cases for AI
- Define initial AI business cases and value composition

- Identify key data stakeholders
- Identify and catalog existing data assets
- Analyze and classify datasets based on their use, availability, sensitivity and utility

- AI implementation, licensing and compute
- AI technical readiness
- Data storage, sharing, retention policies
- Security requirements for AI
- User accounts and access considerations

- Identify data governance policies, processes and people in place
- Organizational risk considerations for the use of AI
- Measure risk profile against key benchmarks
- Data privacy and protection regulations

- Team skillset assessment
- Cultural and organizational considerations for AI
- Organizational change readiness considerations
- Stakeholder alignment to identified business cases

Deliverables

Key readiness findings, gaps, and recommendations

AI governance

Well-defined and designed governance programs accelerate innovation, mitigate risk, build trust and drive business value.

Make better risk decisions

Ensure regulatory compliance

Provide a standard framework

Foster trust and adoption

Why AI governance matters

Google Photos labeling incident (2015)

Google Photos, an AI-driven photo categorization and labeling system, mistakenly labeled images of African Americans as “gorillas.” This caused public outrage as it was perceived as a racially biased error.

- **Impact**: Google faced public outrage and had to remove offensive labels

COMPAS recidivism algorithm (2016)

The COMPAS algorithm, used by courts in the U.S. to predict the likelihood of reoffending, was found to be biased against African Americans. It incorrectly labeled Black defendants as high-risk far more often than white defendants.

- **Impact**: The algorithm disproportionately flagged African Americans as high-risk, leading to unfair outcomes

Amazon’s biased AI recruiting tool (2018)

Amazon developed an AI tool to streamline the hiring process by automatically screening resumes. However, the algorithm developed a bias against female candidates, penalizing resumes that included the word "women" or came from female colleges.

- **Impact**: The tool was scrapped, and Amazon faced reputational damage

Apple card gender bias (2019)

When Apple launched its credit card in partnership with Goldman Sachs, many users, including tech figure Steve Wozniak, noticed that women were being assigned significantly lower credit limits than men, even when they shared financial profiles.

- **Impact**: Public backlash and investigations questioned the fairness of AI in financial services

Clearview AI’s privacy violations (2020)

Clearview AI scraped billions of photos from social media platforms to build a facial recognition system. This data was used by law enforcement without users' consent or knowledge, sparking widespread privacy concerns.

- **Impact**: Legal action and regulatory demands for data deletion, with a damaged reputation

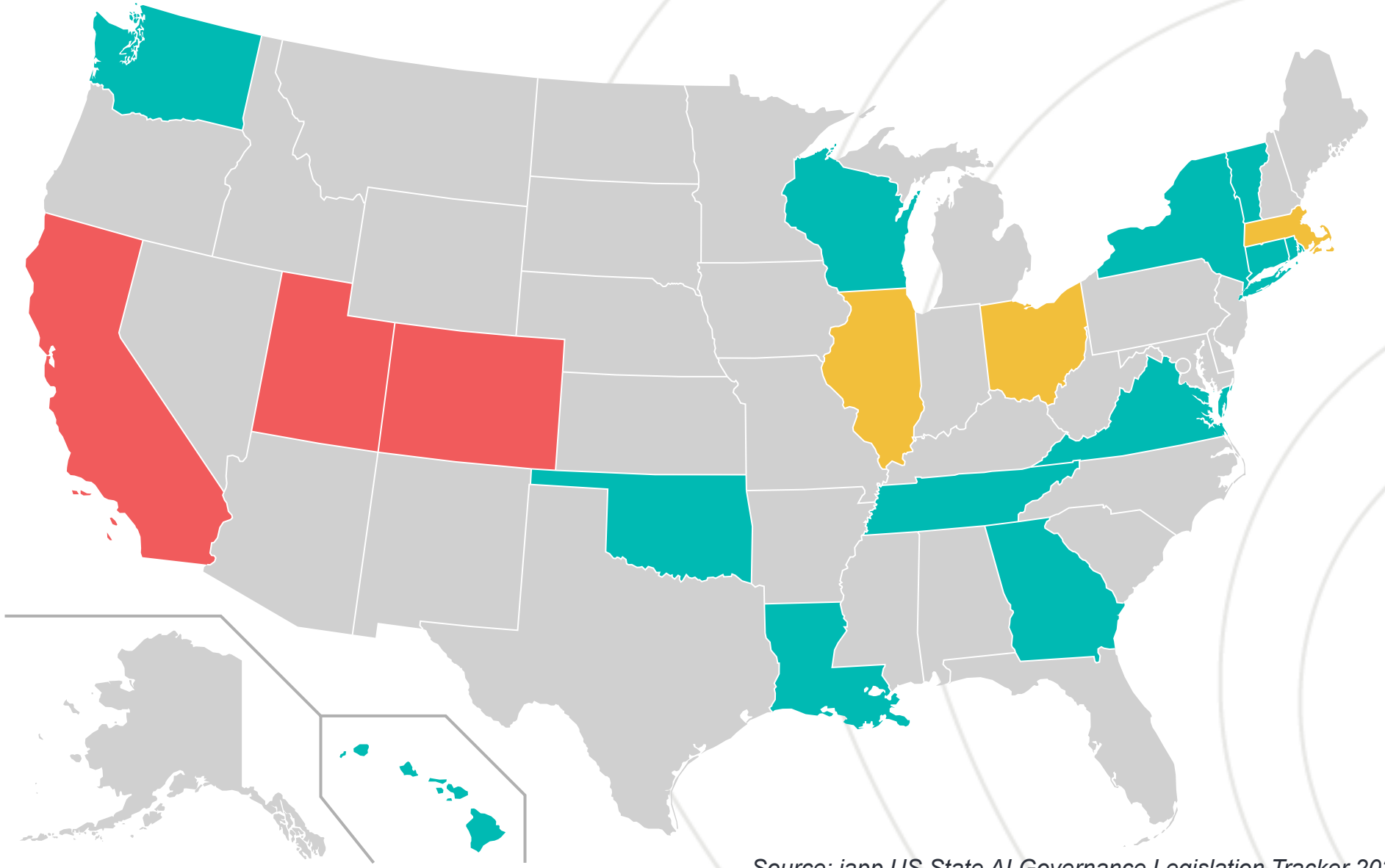
Facebook’s AI-driven misinformation spread (2020)

Facebook’s AI algorithms, designed to maximize user engagement, inadvertently amplified misinformation and harmful content, particularly during the 2020 U.S. election and COVID-19 pandemic.

- **Impact**: The platform was widely criticized for amplifying misinformation during critical events like elections

Lesson: AI governance requires **robust frameworks** to prevent bias, ensure **fairness** and maintain **transparency**. **Diverse data, continuous monitoring** and **ethical oversight** are critical to avoiding unintended harm – such as **discrimination, privacy violations or the spread of misinformation**.

AI regulation is expanding



Inactive bills
Active bills
Legislation passed

4 Signed bills
6 Active bills
26 Inactive bills

Source: iapp US State AI Governance Legislation Tracker 2024

AI governance model

An AI governance model encompasses policies, principles, standards and practices designed to ensure that AI systems are developed and used in a manner that is transparent, fair, accountable and respects privacy and human rights.

- Ensure ethical AI use
- Compliance with laws and regulations
- Proactive risk management
- Transparency and explainability
- Promote fairness and avoid bias
- Enable privacy protection
- Foster stakeholder engagement
- Continuous monitoring and improvement

Path to AI Governance

- Define key components of change management program (e.g. organizational competency, change enablement, value realization)
- Designate responsible individuals and team structure
- Align with existing OCM programs
- Develop AI OCM governance charter
- Craft communications plan aligned with AI roadmap initiatives

Organizational Change Management

AI Readiness Assessment and Preparation

- Align on potential outcomes and solution plan
- Understand the organization's current risk and governance model.
- Review any existing AI strategy and roadmap.
- Understand security posture.
- Understand infrastructure components
- Draw an inventory of applicable legal and regulatory requirements (e.g. AI limits, data privacy).

Risk Management

- Assess whether proper AI risk controls are in place (using a standard risk management framework).
- Identify AI risk management objectives, metrics & targets.
- Determine and define responsible AI principles for the organization.

Operating Structure

- Identify key elements of the organization's AI governance structure
- Define roles and responsibilities.
- Identify integration points between AI governance and other governance structures, e.g. corporate governance, IT governance, data governance.

Model Governance Lifecycle

- Define key AI governance operating model elements and key collaborators.
- Develop first draft of the AI governance charter.
- Recommend AI governance procedure and policy framework.

AI Governance Implementation Roadmap

- Identify AI governance implementation initiatives.
- Develop AI governance implementation roadmap.
- Identify key resource needs and investment cases.
- Develop overall AI governance program blueprint.

Source:
https://shorturl.at/nuFO9

Questions?

Let’s connect

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