**TCG**
**POSITIVELY DISTINCT** ®

# Artificial Intelligence

## *Custom Solutions that Deliver Real Value*

We develop AI solutions that simplify the complex, accelerate the slow, and eliminate the high costs of manual processes.

## OUR SERVICES

### AI STRATEGY & GOVERNANCE

Assess the risks and limitations of AI, AI readiness, and how the technology can be implemented in alignment with your agency's mission and culture. Develop the rules and policies that will ensure trustworthy, dependable deployment.

### AI USE CASE DESIGN

We help agencies assess how and where LLMs and other solutions can and should be used to accelerate business processes to save time and money.

### AI PROTOTYPE DEVELOPMENT

TCG has developed an LLM and platform-independent AI prototyping framework to help federal agencies rapidly learn, test, and apply Generative AI to critical workflows. We can deliver prototypes in a matter of weeks.

### SECURE AI DEPLOYMENT

Our AI services are designed for speed and cost efficiency, ensuring agencies can quickly and securely move from prototyping and testing to implementation.

## CORE AI FUNCTIONS

### WORKFLOW AUTOMATION
AI-powered automation can reduce repetitive workloads, allowing government employees to focus on high-value tasks.

### DATA RETRIEVAL, ANALYSIS, & VISUALIZATION
Assist in searching, summarizing, and making sense of vast amounts of structured and unstructured data.

### AI-ASSISTED HUMAN DECISION MAKING
Enhance human decision-making by analyzing multiple data sources, identifying trends, and summarizing complex reports.

## OUR APPROACH

We meet our clients at their current stage of AI adoption, enhancing their productivity and expanding their competence throughout their AI journeys. Our approach includes an AI readiness assessment and targeted consulting to address specific needs. For major federal AI initiatives and other large-scale programs, we provide extensive support encompassing:

### MULTI-AGENT AI ARCHITECTURE

Develop custom LLM Multi-Agent workflows to directly integrate with and speed up agency mission-critical workflows.

### DATA ANALYSIS

Apply Machine Learning (ML) and statistical approaches to quickly analyze and report data to inform decision-making.

### AI POLICY AND EXPERIENCE

TCG is a proud member of the Department of Commerce's National Institute of Standards and Technology AI Safety Consortium. The Consortium is dedicated to supporting the development and deployment of trustworthy and safe AI.

**NIST**
AI Safety Consortium
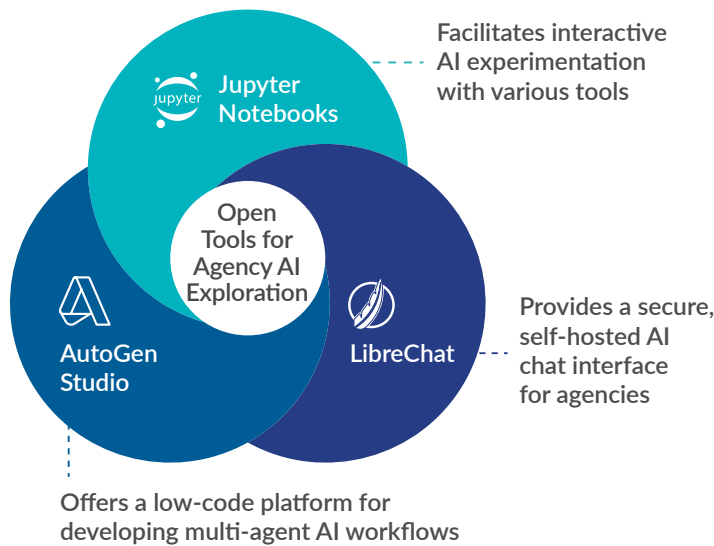
**TCG** POSITIVELY DISTINCT®

# Artificial Intelligence
## Custom AI for Real Mission Value.

## STARTBUTTON
## TCG'S AI PROTOTYPING PLATFORM

By leveraging open-source technologies, agencies can work hand in hand with our experienced AI technologists to experiment with AI securely, without vendor lock-in, while building expertise in AIpowered automation, data retrieval, and decision-making.

**Jupyter Notebooks** — Facilitates interactive AI experimentation with various tools

**Open Tools for Agency AI Exploration**

**AutoGen Studio**

**LibreChat** — Provides a secure, self-hosted AI chat interface for agencies

Offers a low-code platform for developing multi-agent AI workflows

## EXAMPLES AND PROTOTYPES

**GSA SRT**

Identifying 508 standards in solicitations

**OMB FPI**

Classifying assistance programs for budget analysis

**TCG's ABBIE**

Sandbox for document lookup, text generation, summarization, and text-to-code figure development Sentiment analysis and draft responses to public comments

## TOOLS

**LARGE LANGUAGE MODELS**
OpenAI ChatGPT
Anthropic Claude
Meta Llama
(local models via Ollama)

**CODE GENERATION**
Copilot

**MULTIPLE AGENT FRAMEWORKS**
AutoGen
CrewAI
Vanna

**VECTOR DATABASES**
Pinecone Database
Python vectordb

**MACHINE LEARNING FRAMEWORKS**
Ludwig
Pytorch
Scikit Learn

**RPA**
Blue Prism
UIPath

**"GOVERNMENT SAFE" RETRIEVAL AUGMENTED GENERATION**
AskSage

## WHAT IS MULTI-AGENT ARCHITECTURE?

A multi-agent architecture consists of cooperative LLM sessions in which each LLM session (called an "agent") is customized to take on different roles. Working together, multiple agents can overcome inherent limitations of LLMs such as the inability to do multi-step tasks, limited memory, fabrication, and the tendency to lose details in large text.

Multi-agent set-ups:

● Enable complex LLM workflows;

● Coordinate LLM, human inputs, and tools;

● Enhance efficiency: agents are capable, reusable, customizable;

● Break down complex problems into smaller, solvable steps;

● Allow fully automated LLM activities with error correction; and

● Provide collaborative/adversarial agent interactions.