TRACE3
DATA & ANALYTICS

DATA & ANALYTICS SOLUTION

AI Assessment & Strategy

In an era where technological advancement is not just rapid but exponential, understanding and integrating artificial intelligence (AI) into your business strategy is no longer a luxury—it's a necessity.

Our AI Assessment and Strategy offering is tailored to empower your enterprise to navigate and excel in this AI-driven landscape. It's about staying ahead in a world where data is king, and AI is the key to unlocking its true potential. This offering is more than a service; it's your gateway to transforming data into actionable insights, optimizing operations, and driving innovative solutions that keep you at the forefront of your industry. Embrace this opportunity to not just adapt to the digital age, but to lead it, with a clear, strategic, and informed approach towards AI integration.

AI ASSESSMENT & STRATEGY

AI Assessment: Key Value Propositions

Strategic Alignment
Integrates AI initiatives with business goals, fostering cross-departmental collaboration and setting a long-term vision that aligns AI projects with strategic objectives.

Readiness Evaluation
Analyzes IT infrastructure and data ecosystems for AI readiness, assesses workforce skills, and evaluates organizational culture, preparing the ground for effective AI adoption.

Risk Mitigation
Proactively identifies and addresses potential risks, ensures regulatory compliance, and develops contingency plans to prepare for unforeseen AI project challenges.

Market and Competitive Analysis
Provides insights into industry AI trends and competitors, uncovers new opportunities for innovation, and benchmarks the company's AI maturity against market standards.

Data Strategy and Governance
Develops a comprehensive data management strategy, establishes governance frameworks for responsible AI and data usage, and focuses on enhancing data quality for AI success.

AI Use Case Reference Framework
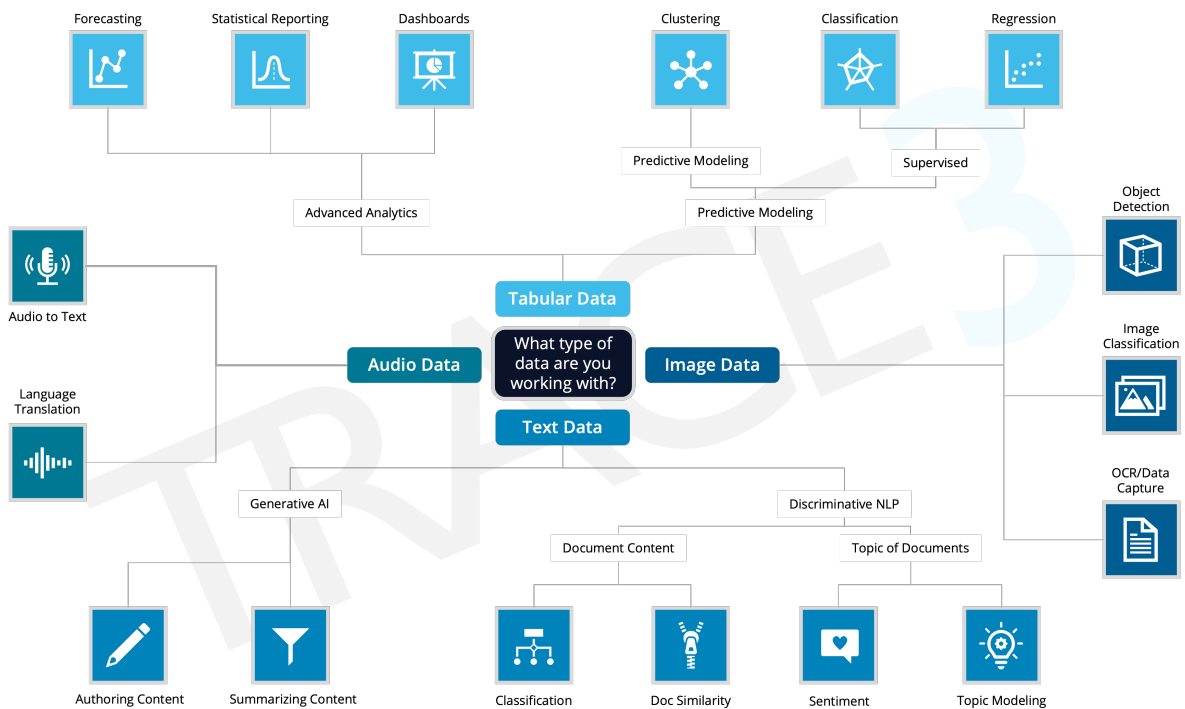
AI Assessment & Strategy Offerings

EXECUTIVE BRIEFING
- Deliverables:
  - Customized AI Industry Report, Interactive AI Demonstrations
- Overview:
  - Tailored presentations to educate C-level executives on AI basics, industry-specific applications, and the competitive landscape.
  - Case studies showcasing successful AI implementations and their ROI.
  - Live demonstrations of AI technologies to provide a tangible understanding of AI capabilities.

USE CASE ITERATION AND DESIGN SESSIONS
- Deliverables:
  - Workshop Summary Report, Identified AI Use Cases List
- Overview:
  - Interactive workshops involving cross-functional technology and business teams to brainstorm and identify potential AI use cases.
  - Assessment of the technical feasibility and business impact of each use case.

DATA ASSESSMENT
- Deliverables:
  - Data Infrastructure Analysis Report, Data Quality and Readiness Assessment, Industry Benchmarking Analysis
- Overview:
  - Comprehensive review of existing data infrastructure, quality, and governance practices.
  - Identification of data gaps and recommendations for improvement.
  - Benchmarking against industry standards to assess the organization's data maturity level.

TOOL EVALUATION AND BUILD VS. BUY ANALYSIS
- Deliverables:
  - AI Tools and Platforms Comparative Analysis, Build vs. Buy Cost-Benefit Analysis Report, Vendor Partnership Recommendations
- Overview:
  - Evaluation of available AI tools and technologies against the enterprise's specific requirements.
  - Analysis of the cost, benefits, and risks of building custom AI solutions versus purchasing off-the-shelf products.
  - Recommendations on potential vendor partnerships and integrations.

AI Assessment & Strategy Offerings

PRIORITIZATION AND ROADMAP DEVELOPMENT

- Deliverables:
    - AI Implementation Prioritization Framework, Custom AI Implementation Roadmap, Scenario Planning Document
- Overview:
    - Development of a framework for prioritizing AI initiatives based on their strategic importance, feasibility, and potential impact.
    - Creation of a detailed roadmap outlining the phased implementation of AI projects, including timelines, milestones, and resource allocation.
    - Scenario planning to prepare for various business conditions and market developments.

IMPLEMENTATION PLAN

- Deliverables:
    - Detailed AI Implementation Blueprint, Training and Skill Development Plan, Post-Implementation Support Plan
- Overview:
    - A comprehensive plan detailing the technical requirements, architecture, and integration strategies for AI deployment.
    - A training program for upskilling employees and ensuring effective usage of new AI tools.
    - A support and maintenance plan outlining post-implementation reviews, updates, and ongoing AI model improvements.

ETHICAL AI FRAMEWORK

- Deliverables:
    - Ethical AI Guidelines and Principles Document, AI Impact Assessment Report
- Overview:
    - Development of guidelines and best practices for ethical AI use, addressing issues like bias, transparency, and accountability.
    - Assessment of the potential social and ethical impacts of AI deployments, with recommendations for responsible AI practices.

AI GOVERNANCE AND COMPLIANCE

- Deliverables:
    - AI Governance Structure Framework, AI Compliance Checklist and Report
- Overview:
    - Establishment of a governance framework to manage AI decision-making, risk management, and compliance with laws and regulations.
    - Comprehensive compliance checklist and reporting mechanisms to ensure adherence to data privacy and ethical standards.

CUSTOMER USE CASES

COMPUTER VISION

Computer vision algorithms allow a computer to capture data from images through neural networks. This can include identifying whether something exists in image, locating a specific item within an image, or classifying an image.

Python • Tensorflow • Keras • DeepZoom

FINANCIAL SERVICES

CHALLENGE	DATA	SOLUTION
Identifying details of damaged materials for insurance processing	Field-captured images of damaged surfaces: • 17,000 images of wood flooring for each angle. • 8,000 images of carpet of each angle.	Computer vision models estimated the cost of damaged goods. These identified and assessed the characteristics of the wood (thickness, number of layers, species, etc.) or carpet (style of carpet, length, etc.).

TRANSPORTATION

CHALLENGE	DATA	SOLUTION
Identifying Engaged Brake Pistons from Captured Images of Trains in Motion	Reconstructed line images of trains going ~70mph sliced into individual cars. 800 total images 5% positive (engaged) Annotations for brake system and labels for engaged/not.	A computer vision model was built by fine-tuning and existing image classification and segmentation models to identify both the location of the brake apparatus and the status of the brake piston.

CUSTOMER USE CASES

NATURAL LANGAUGE PROCESSING

Natural Language Processing involves models that can understand or create written content. Discriminative models include the ability to classify text, identify similar texts, and identify topics or sentiments within a text. Generative models can create new content that mimics human writing.

Python • NLTK • spaCy • Hugging Face • John Snow Labs

STAFFING

CHALLENGE	DATA	SOLUTION
Classification of Job Titles for Resumes and Job Descriptions	7 million Candidate Resumes 1.1 million Distinct "Job Titles" 679 Distinct "Occupations"	A "vector embedding" was created for each resume and then titles were grouped. Similar titles (eg: javascript developer and node developer) were combined. An average "anchor vector" was used to represent the title and new records are classified by their representative anchor.

STAFFING

CHALLENGE	DATA	SOLUTION
Document Similarity	7 million Candidate Resumes 1.1 million Distinct "Job Titles" • Code Ninja is way too specific to be a great job title 679 Distinct "Occupations" • Software Development is way to generic to be a great job title	A "vector embedding" was created for each resume and then titles were grouped. Similar titles (eg: javascript developer and node developer) were combined. An average "anchor vector" was used to represent the title and new records are classified by their representative anchor.

CUSTOMER USE CASES

ADVANCED ANALYTICS

Advanced analytics involves sophisticated implementations of statistical models and reporting dashboards. These models include forecasting models, expected life/time to failure models, and anomaly detection.

Python • R • Tableau • PowerBi

AVIATION

CHALLENGE	DATA	SOLUTION
Predictive Maintenance on F-35 Joint Strike Fight Jets	3 years of flightline maintenance data for F-35s Weather data by day for each station location Part supply data for each part Aircraft mileage by day	Exponential Model to predict the remaining life of a product. Probability of resolution for an issue based on each potential solution. Analytics dashboard to present and review the final results.

CONSUMER SERVICES

CHALLENGE	DATA	SOLUTION
Tracking Emerging Trends in Poison Control Center Data	10 years of poison control center data including: Exposure Date Substance Category	Twitter's Anomaly Detection and Breakout Models were combined with custom statistical modeling to create an estimate of substances that are "trending" over 3 months, 1 year, and 3 years.

CUSTOMER USE CASES

PREDICTIVE MODELING

Predictive models use historical data to predict future outcomes. This can include unsupervised techniques like clustering (in which data are similar) and supervised techniques. Supervised models can predict a categorical outcome (classification) or numerical outcome (regression).

Python • R • Tableau • SciKit Learn • CART • PowerBi

MANAGED SERVICES

CHALLENGE	DATA	SOLUTION
Clustering Customers based on Behaviors	A database export from a remote monitoring and management tool provided information about customers and tickets submitted. • Completion time • Analyst involvement • Submission time • Notes from the Client • Notes from the analysts	K-means clustering created a set of personas based on factors around their interactions with the MSP as a whole and in individual tickets. Churn rate and trending behaviors were reviewed for each of the clients every month to provide actionable insights for relationship managers.

FINANCIAL SERVICES

CHALLENGE	DATA	SOLUTION
Predict the likelihood of Debt Repayment	Data about individual consumer debts including balance, time since last payment, time since delinquency, debt type, etc. US Census Bureau's American Community Survey for income, unemployment, etc. NPS Data for Physician Information	A set of Random Forest models predict the likelihood of the following: • Probability of payment based on a phone call. • Probability of payment based on a letter. • Probability of a contact based on the time of day for a phone call.

CUSTOMER USE CASES

ROBOTIC PROCESS AUTOMATION

Robotic Process Automation involves using "bots" to automate repetitive tasks usually requiring human intervention. The bots can look on screens for familiar buttons, find content within screens, and capture data.

Python • Selenium • UI Path

HEALTHCARE

CHALLENGE	DATA	SOLUTION
Automation of the Retrieval of Medical Charts	A business process outsourcing company coding medical charts for oasis and ICD-10 charts needed a solution to improve this process. Medical record documents were pulled from multiple Electronic Health Records.	75 custom-built RPA bots access medical records by logging in through Citrix anyconnect, entering the EMR system, and extracting necessary information. OCR provides a searchable document within a custom user interface.

CONSTRUCTION

CHALLENGE	DATA	SOLUTION
Automation of a Weekly Driver Identification Review	A company in the construction management space wanted to track the completeness of their driver information records (listed below) but was unable to export from existing software. • License Information • Expiration Dates • Test Results	Using Selenium, weekly reports were created through an application that accessed data through web scraping. The application created a list of active drivers then parsed through each of their records and identified the status for each of the necessary fields, delivering a final report via email.

CUSTOMER USE CASES

DOCUMENT AI

Document AI involves capturing and processing data from scanned documents, including handwritten documents, completed forms, and unstructured documents. That can include identifying the type of document and capturing information from within the document.

Python • AWS Textract • Azure Read • Tesseract

HEALTHCARE

CHALLENGE	DATA	SOLUTION
Form Recognition for Medical Bills	Years of historical HCFA and UB forms were provided. These included well-scanned documents with little to no flaws, documents with blurred backgrounds, documents with handwriting, and other complicating conditions.	An Azure-based form recognizer, layered with OCR and custom logic allowed for the identification of form type (HCFA or UB) and the subsequent extraction of data from the form into a database structure.

FINANCIAL SERVICES

CHALLENGE	DATA	SOLUTION
Classifying Mortgage Documents without Structure	2 years worth of mortgage data. This included digital and scanned documents such as: • W-2s • Paystubs • Bank Statements • Retirement Forms • Home inspections	Documents were run through optical character recognition (OCR) to gather the text on the page. A Naïve Bayes classifier was fit based on the historical classifications to identify, based on Term Frequency and Inverse Document Frequency, the expected classification of a document with a precision of over 80%.