Artificial Intelligence in Strategic Consulting for Non-Profits

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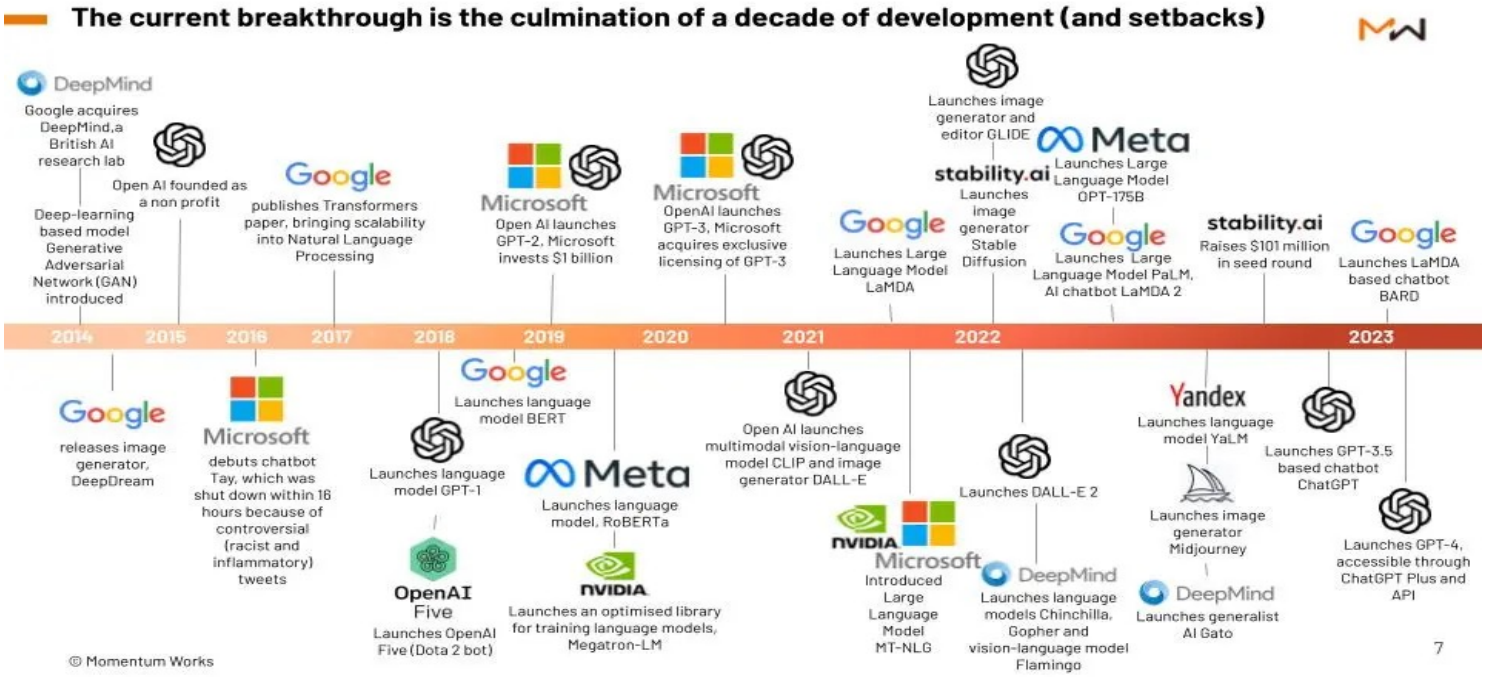
Overview

- What is Artificial Intelligence?
  - Unpacking the buzzword to reveal the underlying mechanisms.
- Importance of AI in Strategic Consulting
  - Why modern consulting thrives on AI.
- Application in the Non-Profit Sector
  - Specific areas where non-profits can leverage AI.
- Creating AI Prompts & Examples
  - Hands-on learning to harness the power of AI.

Timeline


The current breakthrough is the culmination of a decade of development (and setbacks)
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
DeepMind
Google acquires DeepMind,a British AI research lab
Deep-learning based model Generative Adversarial Network (GAN) introduced
Open AI founded as a non profit
Google releases image generator, DeepDream
Google publishes Transformers paper, bringing scalability into Natural Language Processing
Microsoft debuts chatbot Tay, which was shut down within 16 hours because of controversial (racist and inflammatory) tweets
Launches language model GPT-1
OpenAI Five
Launches OpenAI Five (Dota 2 bot)
Google Launches language model BERT
Microsoft Open AI launches GPT-2, Microsoft invests $1 billion
Meta Launches language model, RoBERTa
NVIDIA Launches an optimised library for training language models, Megatron-LM
Microsoft OpenAI launches GPT-3, Microsoft acquires exclusive licensing of GPT-3
Open AI launches multimodal vision-language model CLIP and image generator DALL-E
Google Launches Large Language Model LaMDA
NVIDIA Microsoft Introduced Large Language Model MT-NLG
Launches image generator and editor GLIDE
stability.ai Launches image generator Stable Diffusion
Launches DALL-E 2
DeepMind Launches language models Chinchilla, Gopher and vision-language model Flamingo
Meta Launches Large Language Model OPT-175B
Google Launches Large Language Model PaLM, AI chatbot LaMDA 2
Yandex Launches language model YaLM
Launches image generator Midjourney
DeepMind Launches generalist AI Gato
stability.ai Raises $101 million in seed round
Google Launches LaMDA based chatbot BARD
Launches GPT-3.5 based chatbot ChatGPT
Launches GPT-4, accessible through ChatGPT Plus and API
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What is Artificial Intelligence?

- Simulated intelligence in machines
  - Unlike human intelligence, AI operates based on algorithms, learning from data, and making decisions based on this learning.
- Machine learning, deep learning, and neural networks
  - Subfields within AI, where machines improve through experience, model high-level abstractions in data, and simulate the workings of the human brain.
- Enhancing data analysis, automating tasks, and optimizing solutions
  - From analyzing vast datasets in seconds to performing tasks 24/7, AI extends capabilities beyond human limits.

What is Generative AI?

- As the name suggests, in the most basic form, Generative AI is an acronym for Generative Artificial Intelligence.
- It means it is an AI model built on a pre-trained LLM transformer, which processes input prompts across datasets, recognizing the intent of prompts to generate original and innovative outputs in the form of texts, images, voice, or videos.
- At its core, generative AI encompasses deep machine learning known as generative adversarial networks or GANs to generate new output forms.

What is Generative AI?

- An user provides a description into the LLMs-based interface
- Prompts should be anything (i.e,. words, numbers, photos)

- A neural network database or interface accepts input prompts
- It processes prompts and validates the formation of content across its large database

- Generates output similar to the descriptions it receives
- Text- to- audio
- Text- to- video
- Text- to- images
- Text- to- articles

What is the Difference Between Generative AI and AI?

- Traditional AI
  - Traditional AI models employ ML algorithms developed by researchers or in-house data engineers. These models operate based on predefined instructions and execute tasks they've been trained on, making them essential for data-driven decisions.
  - "Traditional" AI can only classify and analyse the given data to detect patterns and make conclusions. It does not generate new or original content. Ie: SIRI, Alexa, The automated voice system of your bank
- Generative AI
  - Conversely, Generative AI uses deep learning models to create new and original content from large data sets that they have been trained on. The content generated includes but is not limited to text, images, soundtracks and videos.
  - *Generative AI, generates new and original content.*

What is the difference between Generative AI and AI?

Capabilities	Traditional AI	Generative AI
Model	Company-wide datasets (structured or unstructured)	Large language models (entire internet or complex datasets)
Human intervention	Constant human supervision or teaching	Unsupervised or self-learning
Core principle	Prediction-based activity to drive data-driven decisions	Text-based machine learning to generate new content form
Outcomes	Limited supervision of senior management to drive business decisions	No supervision at all that augments creativity on the content creation side

Why is Generative AI Different?

- Beyond Rule-Based Systems
  - Traditional AI and algorithms work on defined rule sets. Generative AI, on the other hand, learns patterns from vast amounts of data and can create new, unique outputs.
- Adaptive Learning
  - While conventional models often need manual tweaks for improvements, generative models adapt and refine their outputs continually through training.
- Complexity and Flexibility
  - Generative models can handle a vast array of tasks, from creating realistic human faces to composing music, showcasing an unprecedented level of versatility.
- Data Efficiency
  - Generative AI can augment datasets, creating new data points that can be crucial for areas where data collection is expensive or challenging.

The Most Popular AI tools For Marketing and Consulting

ChatGPT
Created by Open.ai, the most famous AI chatbot of them all. In just two months, ChatGPT reached 100 million users.

Google Bard
A conversational generative AI tool based on Google's LaMDA (Google's conversational AI model) that can summarize web pages, explain code, and boost productivity for any use case.

Kive.ai
Kive.ai focuses largely on visuals and helps designers, brand managers, and art directors organize visual libraries and create AI-powered mood boards.

10Web
This AI website building platform helps marketers and bloggers build Wordpress sites at lightning speed — and helps improve UX and solve page speed issues.

Jasper
A generative AI chatbot focused on blog writing.

ChatSpot
HubSpot's all-in-one AI tool for marketers: It takes all the information in a user's HubSpot CRM and combines it with the power of ChatGPT, DALL-E 2, Stable Diffusion, and keyword research.

HubSpot AI Content Assistant
HubSpot's AI Content tools include a blog writer, paragraph rewriter, email writer, and content writer. It can help you take care of creating a first draft of all your copy initiatives.

SEO.ai
This tool is built to accelerate keyword research and help SEO-focused marketers do more, faster, and more effectively.

Main AI services: Bard AI

- https://bard.google.com
- Developer: Google AI
- Language model: LaMDA (Language Model for Dialogue Applications) FREE
- Information source: Real-time internet
- Response quality: Comprehensive and informative
- Availability: Limited (currently in beta testing)
- Bard AI is a large language model chatbot developed by Google AI. It is trained on a massive dataset of text and code, including books, articles, code, and conversation data. This allows Bard AI to generate comprehensive and informative responses to a wide range of questions. For example, Bard AI can provide summaries of factual topics, create stories, and translate languages.
- Bard AI also has access to real-time information from the internet. This means that it can keep its responses up-to-date with the latest news and information. Bard AI is still under development, and it is not always able to provide accurate or complete information.

Google's AI Evolution: GEMINI

- Google's Flagship AI Model – Gemini
  - Direct competitor to OpenAI's ChatGPT-4 Enterprise.
  - Powered by TPUv5 chips; can operate with 16,384 chips simultaneously.
  - Release Date: December 2023.
- AI-Driven Tools for Enterprise
  - "Duet AI in Workspace" for seamless drafting in Google apps.
  - PaLM: Text model for processing extensive documents.
- Cloud & Security Enhancements
  - 20 new AI models added; total now stands at 100.
  - Partnerships with Meta Platforms and Anthropic for exclusive models.
- Pricing & Availability
  - AI tools priced at $30/user/month from Dec 2023
  - Upcoming offerings for SMBs and consumers.

Main Ai Services: Chat GPT-4

- OpenAI https://chat.openai.com
- Language model: GPT-4 (Generative Pre-trained Transformer 4) **20 usd monthly**
- Information source: Dataset of text and code up to September 2021
- Response quality: Creative and engaging
- Availability: More widely available
- ChatGPT is a large language model chatbot developed by OpenAI. It is trained on a massive dataset of text and code, but it does not have access to real-time information from the internet. This means that ChatGPT's responses are limited to the information that was available in the dataset that it was trained on.
- ChatGPT is able to generate more creative and engaging text formats than Bard AI. For example, ChatGPT can write poems, scripts, and musical pieces. It can also generate different creative text formats of text content, like poems, code, scripts, musical pieces, email, letters, etc.
- ChatGPT is also more widely available than Bard AI. It is available through OpenAI's API, and it can be used in a variety of applications, such as chatbots, virtual assistants, and content generation.

Main AI Services: Free Chat GPT 3.5 vs. Paid GPT4

- Usage Limits
  - Free Version: Typically has stricter rate limits, fewer tokens available per request, and a cap on the number of requests per month.
  - Licensed Version: 20 usd month unlimited requests, allowing for more extensive usage.
- Features and Capabilities
  - Free Version: May offer basic features.
  - Licensed Version: Might include advanced features, customizations, or specialized models.
- Response Time and Priority Access
  - Free Version: Slower response times and lower priority in the queue.
  - Licensed Version: Faster processing, dedicated resources, or priority access.
- Support and Documentation
  - Free Version: Limited support and basic documentation.
  - Licensed Version: Dedicated support, comprehensive documentation, and potential access to tutorials or workshops.
- Reliability and Uptime
  - Free Version: Less guaranteed uptime.
  - Licensed Version: Commitments to higher uptime percentages, potentially backed by Service Level Agreements (SLAs).
- Updates and Improvements
  - Free Version: May receive updates later than licensed versions.
  - Licensed Version: Immediate access to updates, new features, or improvements.

Main Ai services : FREE Chat GPT 3.5 vd paid GPT4

Legacy (GPT-3.5)

The previous ChatGPT Plus model

Reasoning

Speed

Conciseness

Default (GPT-3.5)

Optimized for speed, currently available to Plus users

Reasoning

Speed

Conciseness

GPT-4

Our most advanced model, available to Plus subscribers.

GPT-4 excels at tasks that require advanced reasoning, complex instruction understanding, and more creativity.

Reasoning

Speed

Conciseness

AI Tools For Strategic Consulting (1/2)

- ThoughtSpot
  - Uses AI to help organizations get more from their data. It allows users to explore data, get automated insights, and make better decisions faster.
- UiPath
  - An RPA (Robotic Process Automation) tool that can be used to automate repetitive tasks, combined with AI for more complex processes.
- Tableau
  - While primarily a visualization tool, Tableau has been integrating more AI and ML capabilities to provide predictive analytics and data exploration.
- Alteryx
  - A data analytics platform that integrates AI and machine learning capabilities. It allows consultants to build predictive models without necessarily having a deep background in coding.

AI Tools For Strategic Consulting (2/2)

- RapidMiner
  - A data science platform that provides various tools for data mining, machine learning, and advanced analytics.
- H2O.ai
  - Offers an open-source machine learning platform that makes it easy to build smart applications.
- Qlik
  - Offers end-to-end, real-time data integration and analytics solutions that can help consultants in making more informed decisions.
- ChatSpot and HubSpot's Content AI tools

Why AI in Strategic Consulting for NPO?

- Data-driven decision-making
  - Using real-time data, AI provides insights to make more informed strategic decisions.
- Predictive analytics for effective strategies
  - AI's ability to foresee trends enables consultants to anticipate changes and strategize accordingly.
- Automation of repetitive tasks
  - AI can handle routine data tasks, allowing consultants to focus on complex problem-solving.
- Enhanced donor engagement & fundraising predictions
  - AI can analyze donor behavior and predict fundraising patterns to streamline efforts.

AI's Application in Non-Profit

- Tailored donor outreach
  - Using AI, non-profits can segment their donors, personalizing outreach for increased engagement.
- Predicting fundraising trends
  - AI can analyze past data to predict future fundraising opportunities and challenges.
- Allocating resources more efficiently
  - AI helps in predicting which sectors or initiatives may require more funding or manpower.
- Enhancing community engagement
  - AI tools can analyze community feedback, enhancing programs for better community engagement.

AI for Personalized Marketing & Fundraising Letters

- Personalization at Scale
  - Use data to tailor letters for each recipient's preferences and past interactions.
  - Example
    - For a wildlife conservation nonprofit, AI could analyze a donor's past interactions and donations. If the donor frequently supports marine life projects, the AI can craft a personalized appeal about a new ocean conservation initiative.
- Optimal Engagement Timing
  - AI can predict the best time to send letters or emails for maximum impact.
  - Example
    - An AI system analyzes engagement patterns of a list of recipients and finds that a particular segment frequently opens emails on Sunday afternoons. The next campaign for that segment is scheduled accordingly.

AI-Optimized Grant Application Content

Streamlining Grant Applications with AI

- Data-Driven Content
  - AI can analyze successful grant applications from the past to suggest impactful wording or structuring.
  - Example
    - An education nonprofit utilizes AI to review past successful grant applications. The AI identifies that applications emphasizing “holistic education” and “long-term community impact” had a higher success rate. The next application incorporates these themes prominently.
- Feedback and Revision
  - AI can offer real-time feedback on draft applications, pointing out areas of improvement or potential issues.
  - Example
    - While drafting a grant application for a health initiative, the AI system flags that the proposed budget breakdown lacks clarity. The team revises this section before submission.

Use AI on Excel

- Use AI to automate tasks: There are a number of AI-powered tools that can automate tasks in Excel, such as data entry, formatting, and analysis.
- Use AI to analyze data: AI can be used to analyze data in Excel to identify patterns and trends.
- Use AI to generate reports: AI can be used to generate reports from data in Excel. Use AI to create charts and graphs: AI can be used to create charts and graphs from data in Excel.

AI Tools For Excel

- Google Cloud Platform Data Studio
  - Google Cloud Platform Data Studio is a cloud-based data visualization tool that can be used to create charts and graphs from data in Excel. It offers a variety of features, including data preparation, data blending, and data sharing.
- Tableau
  - Tableau is a data visualization software that can be used to create interactive charts and graphs from data in Excel. It offers a variety of features, including data cleaning, data aggregation, and storytelling.

How To Use Bard For a Spreadsheet on Google Docs

1. Open a Google Docs spreadsheet.
2. Click on the Insert menu and select Bard.
3. In the Bard text box, enter your question or request. For example, you could ask Bard to "Create a table of the sales data for the month of January" or "Write a formula to calculate the total sales for the year."
4. Bard will respond with a table, formula, or other output.
5. You can then edit the output as needed.

Specific Examples of How You Can Use Bard For a Spreadsheet on Google Docs

- Create a table
  - You can ask Bard to create a table of data based on your specifications. For example, you could ask Bard to "Create a table of the sales data for the month of January, with the columns for product name, quantity sold, and total sales."
- Write a formula:
  - You can ask Bard to write a formula to calculate a specific value. For example, ask Bard to "Write a formula to calculate the total sales for the year."
- Translate text
  - You can ask Bard to translate text from one language to another. For example, ask Bard to "Translate this text from English to Spanish."
- Summarize text
  - You can ask Bard to summarize a text passage. For example, ask Bard to "Summarize this article in 100 words."

How to Use ChatGPT for a Spreadsheet on Google Docs:

1. Create a Google Docs spreadsheet.
2. Install the GPT for Sheets and Docs add-on.
3. In the spreadsheet, click on the Extensions menu and select GPT for Sheets and Docs.
4. In the GPT text box, enter your question or request. For example, you could ask ChatGPT to "Create a table of the sales data for the month of January" or "Write a formula to calculate the total sales for the year."
5. ChatGPT will respond with a table, formula, or other output.
6. You can then edit the output as needed.

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What is an AI Prompt?

- Definition
  - A prompt is an input query or statement provided to an AI system, guiding it on what type of information or action is expected in its response.
- Purpose
  - Direction
    - Gives AI a clear sense of direction or task to perform.
  - Context
    - Helps the AI understand the context or the specific area of inquiry.

What is an AI Prompt?

- In Practice
  - Natural Language
    - Prompts are often written in natural language, like asking a question or giving a command.
  - Customization
    - AI's response can be fine-tuned based on how the prompt is phrased.
- Examples
  - Asking a chatbot, "What's the weather today?"
  - Providing a sentence starter to a text generator: "Once upon a time..."
- Great article for prompts
  - https://blog.hubspot.com/marketing/chatgpt-prompts

Tutorial: Creating AI Prompts

- Understand the goal
  - Start with a clear objective. What problem are you trying to solve with AI?
- Be specific
  - Specificity ensures accurate and relevant AI responses. Detail is key.
- Split complex tasks into simpler prompts
  - If a task is too large or complex, break it down. This makes AI processing more efficient and results more accurate.

Crafting AI Prompts: Syntax

- Clarity
  - Start with a clear and concise question. Avoid ambiguity.
  - Example: Instead of "Tell about the weather", use "What's the weather forecast for New York City on September 5th, 2023?”
- Specificity
  - The more specific the prompt, the more targeted the AI's response will be.
  - Example: Instead of "Tell about cars", use "Describe the advantages of hybrid cars over traditional gasoline cars.”
- Context
  - Provide relevant background or context if necessary.
  - Example: "In the context of 19th-century literature, compare the works of Charles Dickens and Jane Austen."

Crafting AI Prompts: Best Practices in Syntax

- Avoiding Bias
  - Ensure prompts are neutral and don't lead the AI into generating biased or skewed information.
  - Example
    - Instead of "Why is coal the best energy source?", use "Discuss the pros and cons of coal as an energy source."
- Multiple Attempts
  - If initial prompts don't produce desired results, rephrase or add details.
  - Example
    - If "Explain cloud computing" isn't satisfactory, try "Provide a detailed overview of cloud computing, including its benefits for businesses."
- Action-Oriented
  - Use verbs that specify the kind of answer or response you're looking for.
  - Example
    - "List the top five renewable energy sources used globally in 2021."

Example 1: Donor Engagement

- Imagine a non-profit wanting to improve their donor retention rates.
- An AI prompt could be:
  - 'Generate a list of engagement strategies tailored for donors who've contributed over $10,000 in the last two years to health-focused non-profits.'
  - The AI could then analyze past engagement strategies that were successful for similar donor segments and suggest new ones

Example 2: Fundraising Predictions

- For a non-profit focusing on education in Connecticut, a prompt could be:
  - 'Analyze the fundraising trends of non-profits in the education sector in Connecticut from 2020 to 2023 and predict potential growth areas for 2024.'
- The AI can then provide insights based on past trends, socio-economic factors, and more.

Example 3: Resource Allocation

- If a non-profit needs budgetary assistance, a prompt might read:
  - 'Based on past expenditure data, suggest optimized budget allocations for marketing, events, and staff salaries for the next fiscal year.'
- The AI would analyze past expenditure efficiency and suggest a future budget."

Bibliography: Books

- "Artificial Intelligence: A Modern Approach" by Stuart Russell and Peter Norvig.
  - A seminal textbook offering a comprehensive introduction to the theories and practices in AI.
- "Superintelligence: Paths, Dangers, Strategies" by Nick Bostrom.
  - A deep dive into the long-term impact of highly advanced AI and its implications.
- "Human Compatible: Artificial Intelligence and the Problem of Control" by Stuart Russell.
  - A perspective on developing AI that is beneficial and aligned with human values.
- "Deep Learning" by Ian Goodfellow, Yoshua Bengio, and Aaron Courville.
  - A deep dive into deep learning, one of the cornerstones of modern AI.

Bibliography: Articles

- Google AI Blog
  - Contains insights, updates, and research articles from one of the leading companies in AI.
- OpenAI Blog and Research Papers
  - Offers cutting-edge research papers and articles about the latest in AI development.
- arXiv.org
  - An open-access archive where many researchers post their latest papers. Look under the "cs.AI" category for artificial intelligence papers.
- MIT Technology Review's AI section
  - Offers articles on the latest in AI development, ethics, and implications.
- Toward Data Science on Medium
  - Contains articles from practitioners and researchers about various AI and machine learning topics.
- Distill.pub
  - Provides peer-reviewed articles about machine learning research in a highly visual and interactive manner.
- Neural Information Processing Systems (NeurIPS) & International Conference on Machine Learning (ICML)
  - Both conferences regularly publish the latest in AI research. Their proceedings can offer a wealth of information.

Bibliography: Courses

- Stanford Webinar - Artificial Intelligence for Business Leaders
  - https://www.youtube.com/watch?v=wUHBoNOmGzs
- MIT's Introduction to Deep Learning
  - A free course providing foundational knowledge in deep learning.
  - https://ocw.mit.edu/courses/6-s191-introduction-to-deep-learning-january-iap-2020/