Artificial Intelligence and its Future in the Supply Chain





Jake Hoffman



- Joined in 2018
- Super Cool Al Photos











GNOSIS FREIGHT

Who is **Gnosis Freight?**

Founded in 2017 in Charleston, South Carolina

Leader in Container Lifecycle Management, providing end-to-end supply chain visibility and custom supply chain execution modules

 Trusted by: ROOMSTOGON CENTURY SOUTHONS
L A Z B O Y Jur life comportably: Ontinental ULINE FIVE BELOW
MOBLE HOUSE HNI S Shippabo SAM





History of Artificial Intelligence

- > 1950s Not new; initially coined in 1956 at the Dartmouth conference
- 1990s Machine learning, neural networks, deep learning; all statistical and math based
- 2010s Mainstream AI adoption (Amazon Alexa, Siri, self driving cars)
- > 2022 The Era of LLMs





Emergence of Large Language Models (LLMs)

- Increases in computing power (specifically GPUs) made it feasible to train extremely large models with billions of parameters (think linear equation with more variables)
- "Data is the new oil" increasing amounts of digital data make for great training grounds
- GPT-3, introduced by OpenAI, was the first model that would perform tasks without specific training
- ChatGPT introduced to the public in 2022





generated by ChatGPT

Impact of AI on Global Supply Chains

- Al is becoming an integral part of global supply chains already
- Key Use-Cases:
 - Predictive Analytics and Demand Forecasting
 - Warehouse Automation
 - Customer Service and Engagement
 - Data Processing and Standardization (my favorite)



From Unstructured to Structured Data

- Unstructured data plagues the industry
 - > People love* to talk about this! "Industry of paper and pencil"
- "Lags behind in technology"
- An issue of standardization
 - > Not just EDI standards; global standards are difficult to create/ maintain
- Conduit between languages and data formatting = LLMs?



Invoice Reading Example

- Electronic invoice data can be sent through Excel, PDF, etc;
- By 2024, 38 percent of invoices are expected to be exchanged electronically (not through PDF or mail) in the United States*
- AP Departments convert invoice details to electronic data via manual submission
- EDI Standards require integration, mapping, onboarding



generated by ChatGPT



*source: https://fedpaymentsimprovement.org/wp-content/uploads/e-invoicing-white-paper.pdf

Pre-Processed

Fr8 Invoi*e: #9832-ZX Sh*pp*ng Da&e: 15/07/20×× Consi&nee: Glob@l Tr&de Inc Desc*ipt*on QTY We*ght (kg) R*te Amount Cntr Load A 1 2500 \$1.50/kg \$3750.¤¤ Palletiz*d Boxes 15 375 \$0.80/kg \$**unreadable** Expedited Serv#ce --- --- \$250.00 **ink blot** S*btot*l: \$***unreadable*** Fuel Surc*arge (5%): \$***smudge*** Total Fre*ght Charges: \$****.50 Pa*ment Terms: Due upon re*ei*t **handwritten note**: Delayed - check c#stoms! **oil smudge across the bottom** Terms & Cond*tions: All goods carr*ed under standard industry t&rms. Claims for loss or damage must be reported w*thin 48 hours of delivery. **more smudges and a partial coffee ring**

Processed

"Currency": "USD", "Description": "Palletized Boxes", ĥ "PaymentTerms": "Due upon receipt,



Data Structure Examples

- > Customs entries and documentation
- Email communications
 - ERD / Cutoff Dates
 - Booking Process (request, acceptance, rejection, confirmation)
- Phone calls / Zoom Calls
 - > Meetings summarized, with tasks identified





credit to South Park

Employee Efficiency and AI

- Al perceived by many to "take" jobs away from employees in the supply chain industry
- Susceptible roles are those that are repetitive and rule-based. Examples:
 - Customer Service
 - Loading / Unloading trailers and containers
 - Data entry (previous example!)
- World Economic Forum Data
 - Eliminate 85 million jobs
 - Create 97 million



Employee Efficiency and Al

- > AI can be utilized as a collaborative tool to enhance employee productivity
- Examples from developers to sales reps:
 - GitHub CoPilot (video in a few slides)
 - Sales Emails
 - Job Applications
- > The "skeleton" of creative work can often be created by AI
 - …. Like this PowerPoint



Productivity Example

🗩 You

Help me put together a presentation on artificial intelligence and its impact on global supply chains

ChatGPT

Creating a presentation on artificial intelligence (AI) and its impact on global supply chains can be quite extensive, considering the breadth of the topic. Here's an outline that you could use for structuring your presentation, along with some key points you might want to cover in each section:

Title Slide

- Title: "The Impact of Artificial Intelligence on Global Supply Chains"
- Subtitle: "Navigating the Future of Logistics and Supply Management"
- Your name and affiliation

Introduction

- Define AI and its relevance in today's technology landscape.
- Briefly mention how AI is revolutionizing industries, with a focus on supply chains.

Overview of Global Supply Chains

- Explain what global supply chains are and their importance in world trade.
- Highlight the complexity and interconnectivity of modern supply chains



GitHub CoPilot Example





More Supply Chain Examples

- Companies are building models trained on internal data to handle simple customer service tasks, answer questions about the company, and even set demos from a chatbot on a website.
- Smart robots and scanning technologies at warehouses
 - Employee efficiency improved workers alongside robots
- Improved OCR (Optical Character Recognition) at ports, terminals, rail yards, warehouses to improve data quality and safety



Conclusions

- Large Language Models (LLMs) are incredibly powerful in understanding complex data
- Inter-operability between global systems has always been a challenge that maybe LLMs can help solve
- AI will replace jobs, but create more (repetitive, tedious tasks will be automated)
- Incredibly powerful as a co-pilot (making this presentation)



Thank you. Any Questions?

