How to Develop an Al Roadmap in a Fast-Changing Landscape

A Tale in Three Parts



Buckle Up!

A Tale in Three Parts



Major Al Investments

In 2023 alone, large technology companies have invested **\$15.6 Billion** in other AI companies.



As models scale up, they become more capable



Model Scale: Model Size, Compute Time, and Data

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Only trained to guess the next token

"I couldn't see in the dark room because the light was ____."

Note: Instead of words, researchers use **tokens** so account for punctuation, spaces, and symbols.

How did they train the model to pass those tests?

They didn't.

Tech companies increased models to enormous sizes...

encountered surprises

From Learning Sequences to Learning Relationships



As training progresses, the model's understanding of language becomes more sophisticated



Token Identification

Basic grammar like nouns, verbs, and adjectives.

Local Context and Syntax

Word order and syntax. Arranges subject, verb, and object together coherently.

Long-Range Dependencies

Recall references that appear in separate sentences or thematic coherence in a paragraph.

Semantic Understanding

Learns to relate words to their meanings and contexts.

Complex Structures and Abstractions

Learns more abstract textual elements like irony, rhetorical questions, and basic narrative structures.

Sound Smart at Dinner Parties

Emergent Behavior

"The arising of novel and coherent structures, patterns, and properties during the process of self-organization in complex entities." (Corning, 2002)

8 Billion Parameters

Google researchers made astounding discoveries while constructing the PaLM Large Language Model (540B)

Documented in Google's paper <u>Scaling Language Modeling with Pathways</u>



62 Billion Parameters



540 Billion Parameters



Two Historic Events

Intelligent Artifacts

We have arranged minerals to think. These intelligent artifacts can be built to become more intelligent, without end in sight.

Discovery of the Laws of Intelligence

Intelligence is having its Newtonian Physics moment. The laws of intelligence are emerging from the noise.

108

Dataset Size

tokens

2.4

105

107

Parameters

non-embedding

10⁹

109

3.0

2.7

 10^{1}

 $L = (C_{\min}/2.3 \cdot 10^8)^{-0.050}$

10-5 10-3 10-1

Compute PF-davs. non-embedding

10-7

This is all based on technology that is 3 years old

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PRODUCTION PROTOTYPE VS. MATURE PRODUCT

	iPhone 1 (2007)	iPhone 14 Pro Max (2022)
Screen	3.5 inch	6.1 inch
Resolution	320 x 480	1290 x 2796
Storage (max)	16 GB	1 TB
Apps	No 3rd party apps	~5 million apps
Camera (MP - megapixel)	2 MP - rear only	3 rear (48 MP, 12 MP, 12 MP) + 1 front 12 MP
Copy / Paste	Nope!	Select text / objects in images

IMPROVEMENT CADENCE

	Smartphone	A.I. Tools
Innovation Cycle Time	Hardware pace (annual cadence)	SaaS software pace (monthly cadence)
Distribution	Worldwide supply chain & retail distribution	Internet Connection
Hardware	Cutting-edge handsets to billions of end users	Centralized servers of commodity HW

New Technology Adoption Has Accelerated over Time

Years until 25% population adoption

Major Al Releases

Each layer of the generative AI tech stack will rapidly evolve and it will reinforce the velocity

The Ferris wheel of change starts slowly...

...but doesn't stay that way

Al will improve rapidly

Where in the workforce will this impact hit?

Act II

Each Role is Composed of Multiple Tasks & Each Task has Various Levels of Potential Automation

Task Category	Description	Role 1: Outside Sales	Role 2: Outsourced Customer Service Rep	Potential Cost Savings
Automate	Task can be fully automated	Record the meeting notes in CRM; route plan	Transcribe the call, summarize main points, score outcome	80% to 99%
Augment but not automate	Productivity, efficiency, and accuracy improved but will continue to be performed by person.	Identify products customer should be purchasing but isn't	Suggest potential fixes to the problem. Provide context about the customer.	5% to 50%
No Automation	Tasks will continue to be performed by a person.	Visit prospective customer offices to establish trust & confidence	Defuse an angry customer	N/A

Potential AI Impact will Differ by Industry

Source: Accenture Research based on analysis of Occupational Information Network, US Dept Labor, US Bureau of Labor Statistics

Potential AI Impact will Differ by Role

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Plan for Approaching Al

Phase 1			
Phasa 1	Phase 2		
Flidse I	Q1 – Q2 2024	Phase 3	
Get Started		Q3 2024+	
Tertiary functions	Augment Existing Processes + Build Capability	Bigger Bets / Re-envision	
	Secondary functions	Core functions & processes	

Phase 1: Embrace, Educate, and Expand

Objective: Engage with the teams already using generative AI to normalize and proliferate the use.

Phase 1: Embrace

Phase 1: Educate

Execs: Explain what it is, what it may be used for, and the risks of not starting to plan for it.

Legal: The AI policy should not be "No use of any kind, for any purpose."

IT: AI foundation models, large technology vendor landscape, researching available tools

Budget: Set aside resources in 2024 to allow for research, education, innovation, and experimentation

Phase 1: Expand

Phase 1: Example Use Cases

Phase 2 : Build the Organizational Capability

Learned from 80+ AI projects

Al projects are not traditional software projects

No one knows the real requirements

Significant infrastructure requirements and process

Most of your organization will reject Al

A.I. model development and traditional software development are distinct processes

Phase 2: Build Organizational Capability

- Build the Team: Technical Roles
 - Roles: Data Engineering, Data Science, ML Ops, etc.
 - Decide what should be grown in-house, hired, or retained externally
 - Identify specialized firms to help flex and augment needed staff roles
- Build the Team: Non-Technical Roles
 - Project Management: Familiar with AI implementation and in-production processes, not only traditional software
 - Change Management: Highly important, hard to effectively outsource
- Create the Processes
 - Challenge (and invigorate!) your functional teams to describe how their process would work with AI tools
 - Maximize shared expertise, policy, processes, data, data pipelines, tools, etc.
 - Ranges from prompt libraries to Center of Excellent

Phase 2: Exercise the Capability

Differing Sophistication of AI-Powered Tools

Direct Use / Out of the Box

- ChatGPT (marketing copy, emails, analysis, etc.)
- Adobe Firefly (create images from text)

Minor Configuration

- WrangleWorks (Excel plug-in used to manage the spreadsheet hell your teams live in)
- Spellbook (Word plug-in that reviews and updates Legal docs)

Configured Solutions

- ProtonAI (Sales opportunity identification)
- PROS / Vendavo / PFX / Zilliant Price Optimization (Pricing)
- Action IQ (Customer Management)

Phase 2: Example Use Cases

Sales	Supply Chain / Pricing	eCommerce	Customer Support	General Corporate
 Opportunity identification Matching customer product ID's to yours for large bids Cross-sell / up- sell analysis Personalized outreach 	 Matching product ID's from vendors Vendor cost updates Price guidance to sales Demand forecasting 	 Product titles Product descriptions Product attributes (for searching) 	 Call transcription Call summary Call scoring Ticket creation Analysis & summary across tickets for trends 	 Draft policies Draft emails (non-sensitive)

Sense the Market

Communicate the Plan

- Employees
- Customers
- Suppliers

Phase 3

Phase 3: Ground in Your Company Identity

PURPOSE

VALUES

DIFFERENTIATION

Phase 3: Envision

Opportunities

- Efficiency & Cost Savings
- Solve New Problems

Risks

- Competitive Challenges
- Socio-Political

Phase 3: Envision

Among AI High Performers, twice as many see opportunity in creating new businesses and sources of revenue.

Respondents at Al high performers² respondents Reduce costs in 19 core business 33 Create new businesses 23 and/or sources of revenue 12 100% Increase revenue 21 27 from core business Increase value of offerings 33 by integrating Al-based 30 features or insights

All other

Source: McKinsey & Co.

Top objective for organizations' planned generative AI activities

My Rules of Thumb

Over time, 100% of cognitive tasks will be able to be performed by A.I.

Headquarters (decision factories) and industries with highly skilled knowledge workers are likely areas of transformation

Any role acting like a machine in a knowledge process is better performed by a machine i.e. A.I.

Rock n' Roll

VOLUME

Adapt to the Landscape

Each day will bring a new challenge and new opportunity

Thank You

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ChatGPT Tips & Tricks

- First and foremost, try it out. Really push its reasoning capabilities on real world problems.
- Plug-ins: travel planning.
- Advanced Data Analysis: Bin customers by spend.
- Custom Instructions: Add opportunity perspective.

About Brooks Hamiton

15+ years designing, deploying, and selling AI solutions in Distribution and Manufacturing

- Developed AI solutions for revenue management and sales effectiveness
- Solutions now price \$100+ Billion annually
- Leadership roles in Professional Services and Product Management

Vice President of Services at Zilliant

- Created and reviewed 100+ AI solutions
- Lead the global Technical team (80+ people)
- Designed the AI deployment methodology
- Created the Price Mode framework, used as a Rosetta Stone in B2B pricing