

# From UX to AI Strategy & Product


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# Intro

WHO AM I?

A person with long, dark hair is seen from behind, looking out over a vast landscape. The scene is hazy, with a body of water in the middle ground and distant hills or mountains on the horizon. The sky is a pale, overcast grey. The overall mood is contemplative and serene.

# Intro: About Me



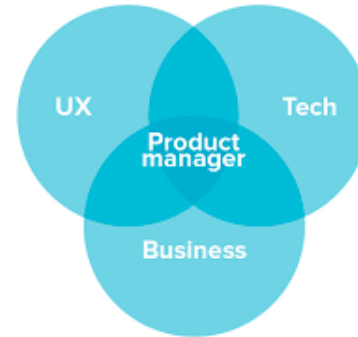
Ryerson  
University

**SV** Social  
Ventures  
Zone

**Roles**



**Mandate**



**Experience**



**Contexts**

# Intro: My Current Team

## Academic Backgrounds

- 6 PhDs (mostly Computer Science) with deep learning specialization
- 3 Master's specialized in machine learning and applied computing
- 2 non-technical

## Industry backgrounds

- Autonomous cars
- Deep learning for satellite imagery
- AI consulting
- Demand forecasting
- Academic AI research
- Entrepreneurship & Startups

## AI Specializations

- Computer Vision, Image Processing & Recognition
- Time Series Analysis, Forecasting & Anomaly Detection
- Deep Learning
- Natural Language Processing (NLP)
- Sequence Modelling
- Recommender Systems
- Reinforcement Learning

# Agenda

1. Intro ✓
2. AI Level-Setting
3. Capabilities & Use Cases
4. Executing
5. Learn More

# AI Level-Setting

# **Understanding AI**

## **Sample Things I Found Helpful**



# Memorable Phrases: Definition

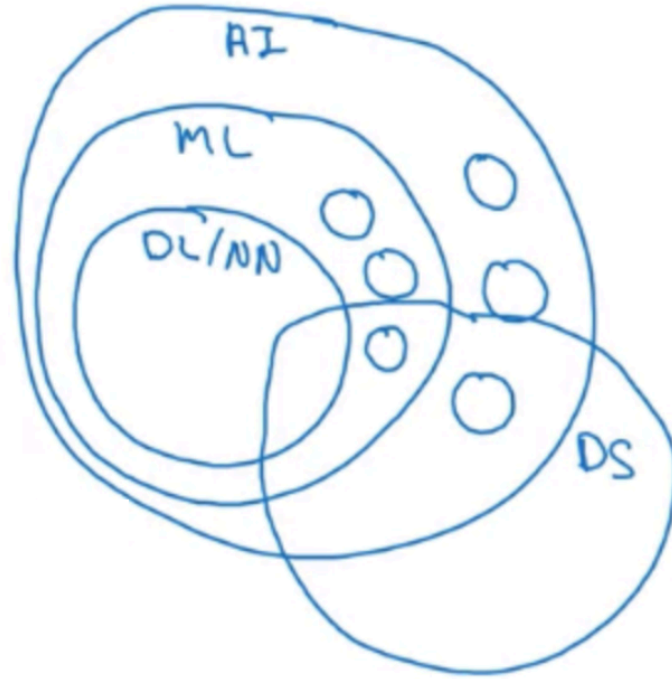
*“[T]he science and engineering of making intelligent machines, especially intelligent computer programs.”*

*- John McCarthy, widely recognized as one of the godfathers of AI.*

# Memorable Phrases: Relationships

*All machine learning is AI, but not all AI is machine learning.*

# Diagram: Relationships

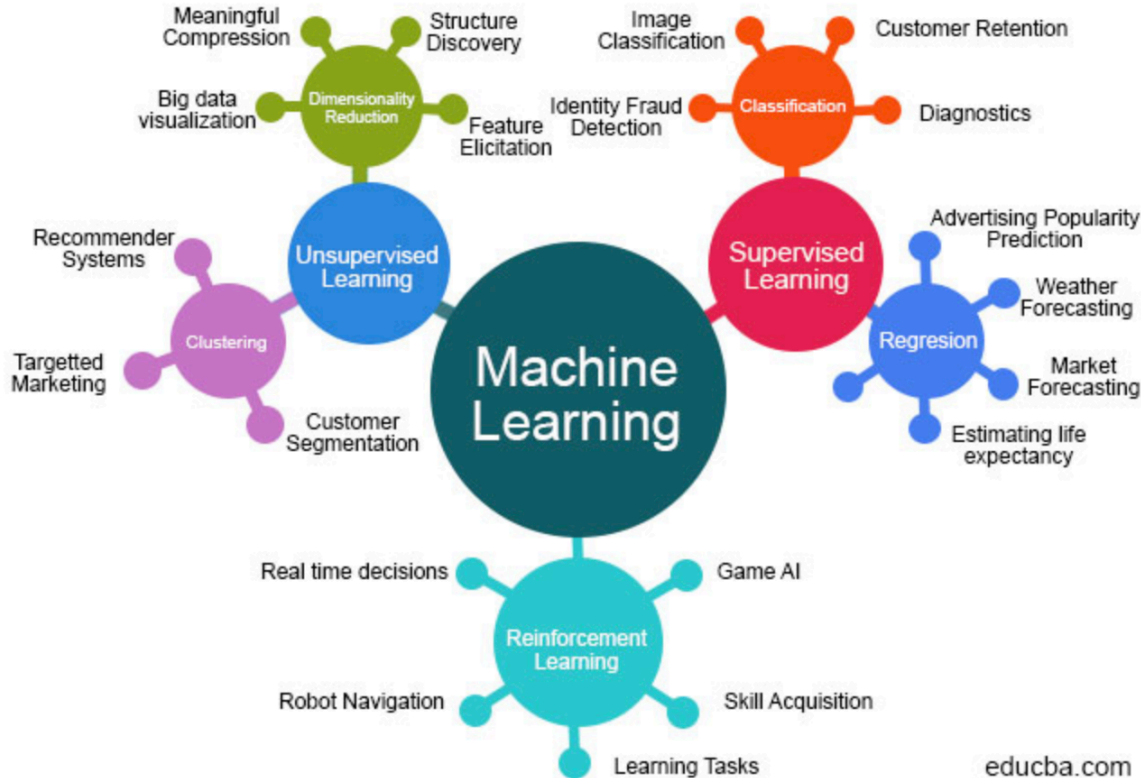


# Memorable Phrases: Potential AI

*'AI is the new electricity.'*

*Andrew Ng, renowned AI researcher*

# Diagram: ML Types & Examples



# Landscape

## More Things I Found Helpful

# Landscape: AI Potential Value

*“PwC estimates that artificial intelligence could add \$15.7 trillion to global GDP by 2030.”*

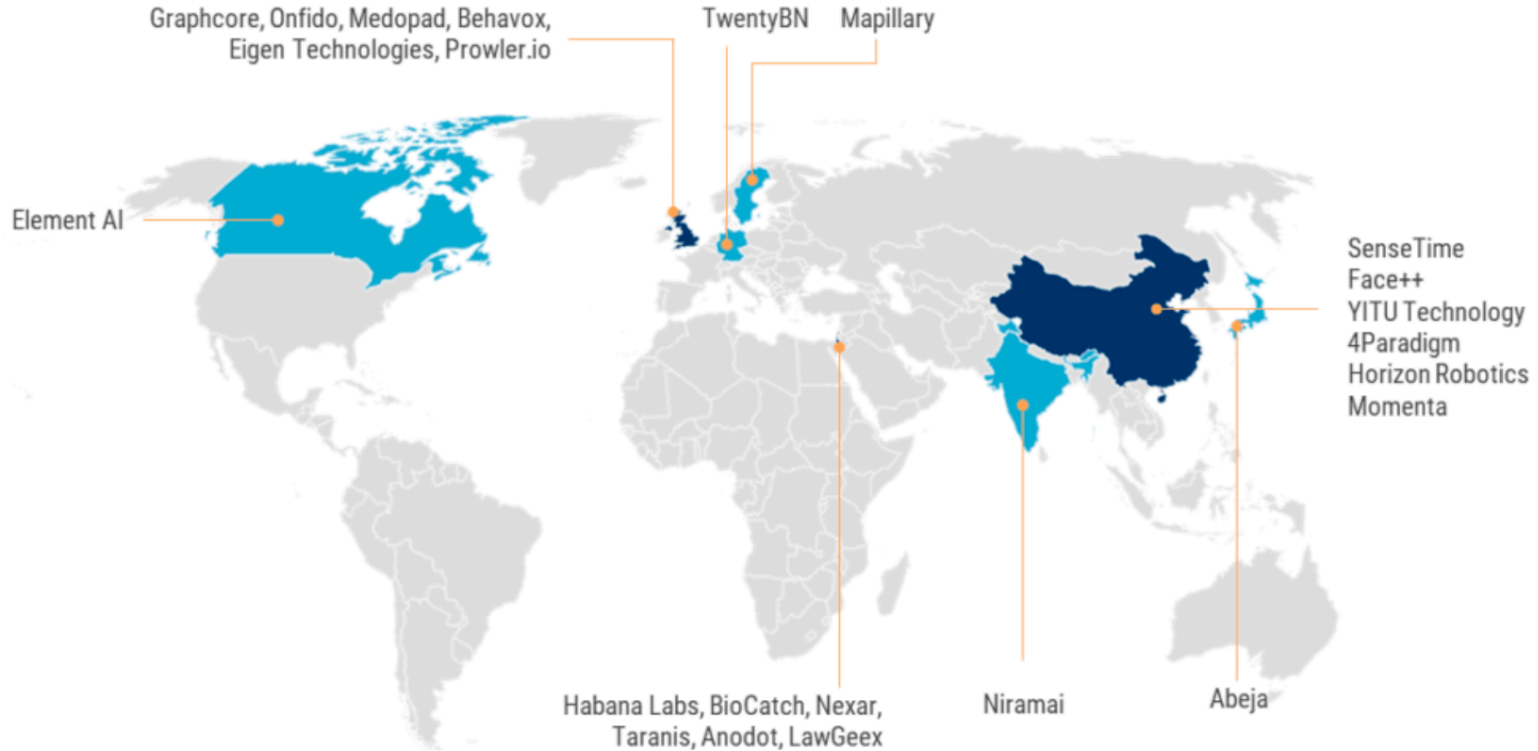
# Landscape: Top 100 AI Startups (Global)



Source: CBInsights | <https://www.cbinsights.com/research/artificial-intelligence-top-startups/>

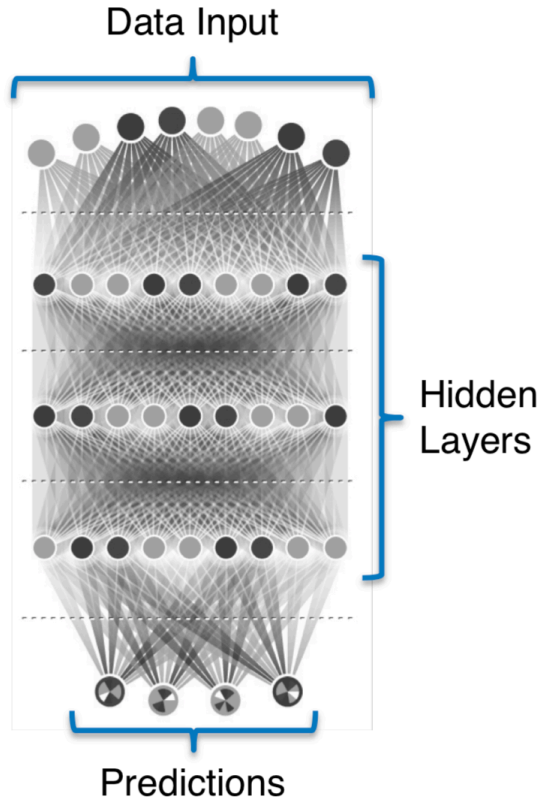


# Landscape: Those outside U.S.



# Capabilities & Use Cases

# 5 Major Capabilities



**Forecasting:** neural nets enable learning of complex non-linear correlations in diverse data, leading to significantly more accurate and longer horizon forecasts compared to traditional analytics.

**Clustering:** unsupervised learning methods allow segmentation and categorization of customers with no prior knowledge of the number or types of categories. The model learns the categories from the data automatically.

**Reinforcement Learning:** autonomous agents can execute multi step tasks (like stock buy/sell orders) and autonomously improve based on the outcome.

**Natural Language Understanding:** AI-based understanding and processing of documents, contracts, financial statements, earnings reports and other content enable automation of a large variety of processes from mortgage TACs in home financing to handwritten check processing by AML.

**Recommender Systems:** Similar to Netflix and Amazon, it is possible to use modern machine learning methods to produce high quality product recommendations in retail banking products as well as match buyers and sellers of publicly trading assets

# 5 Common Industries

1. Finance
2. Transportation
3. Healthcare
4. Manufacturing
5. Marketing

# Finance: Common Use Cases

- Predict loan candidates or defaults
- Predict & prevent customer attrition
- Extract / summarize / analyze documents
- Client segmentation
- Product Recommendations
- Investment advising
- Encouraging deposit / savings

# Transportation: Common Use Cases

- Autonomous personal and delivery vehicles
- Traffic management & flow
- Delay predictions (driving, flying etc)
- Facial recognition (airport security)

# Healthcare: Common Use Cases

- Illness Prediction
- Illness Diagnosis
- Improve clinical care & workflows
- Predict ICU transfers

# Manufacturing: Common Use Cases

- Anomaly detection
- Predictive / preventative maintenance
- Product assembly

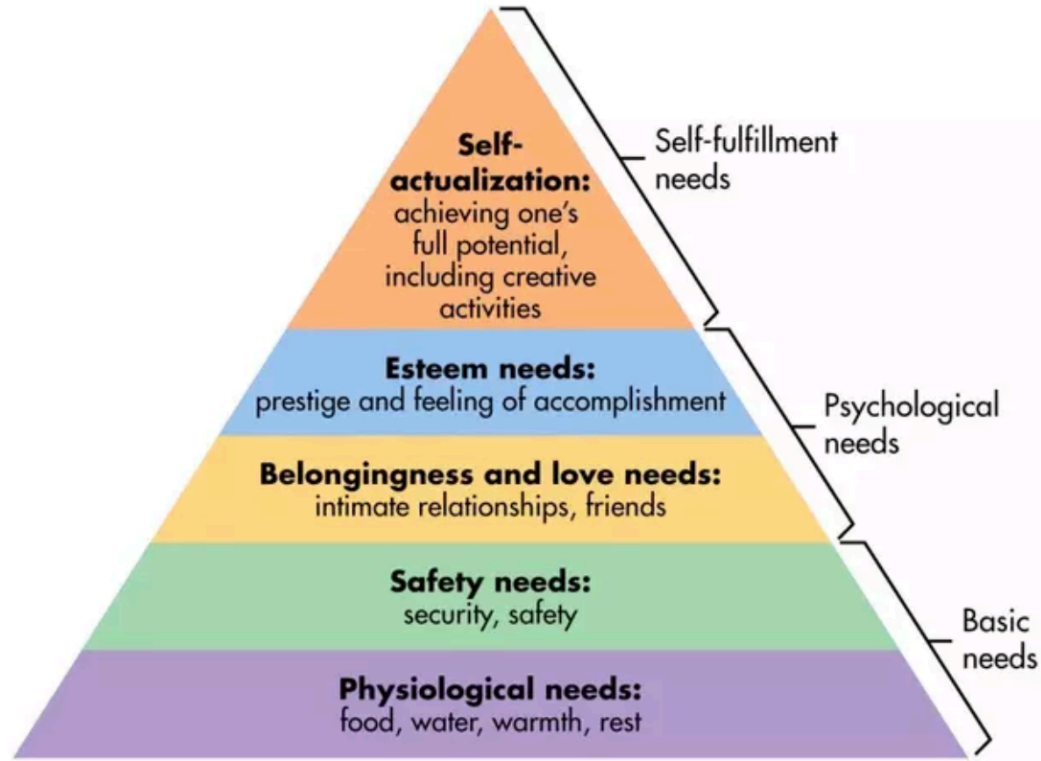


# Marketing: Common Use Cases

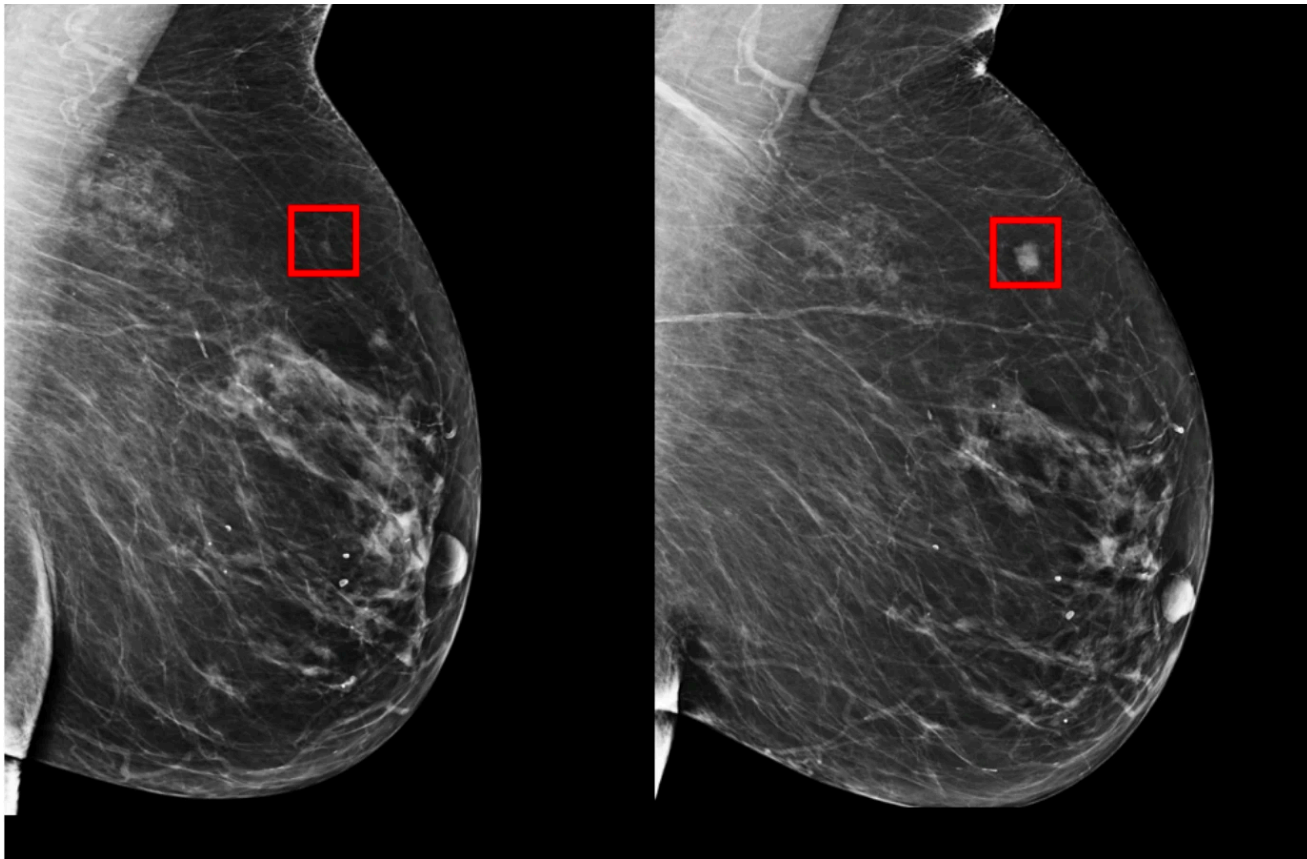
- Predictive Lead Scoring
- Personalization
- Targeted content & promotions

**Some Favourites**

# Framework: Hierarchy of Needs

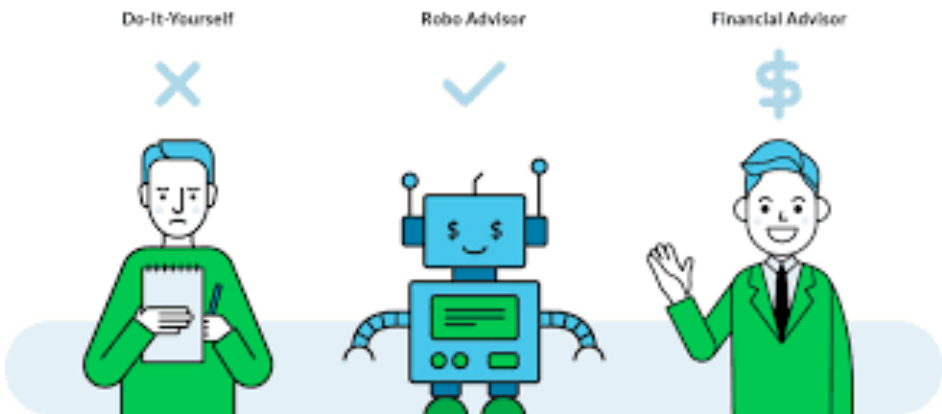


# Physiological (AI for Health): Cancer <5y



Source: MIT | <http://news.mit.edu/2019/using-ai-predict-breast-cancer-and-personalize-care-0507>

# Safety (AI for Wealth): Robo Advisors



Source: <http://www.personalfinancefreedom.com/robo-advisors-in-canada-top-7-review-comparison-2019/>

	ROBO-ADVISOR	VS	HUMAN-ADVISOR
FEES	0.2% - 1%		2% - 3%
SERVICES	MANAGE INVESTMENTS		ADDITIONAL SPECIALISED SERVICES
GOOD FOR	LESSER ASSETS LONG-TERM PASSIVE "LAZY" INVESTORS		MORE ASSETS PREFER FLEXIBILITY

Seedly

Source: <https://blog.seedly.sg/choosing-a-financial-advisor-robo-advisors-vs-human-advisors/>

# Safety (AI for Wealth): Robo Advisors

*In alphabetical order:*

Robo Advisor	Fees	Investment Approach	Minimum Account
BMO SmartFolio	0.4% to 0.7%	Match with one of five custom portfolios containing baskets of BMO ETFs	\$1,000
Invisor	0.50%	7 managed portfolios holding passive ETFs by risk tolerance; allocation aligns with global market weightings	None
Justwealth*	\$4.99/mo to approx. \$12,000, then 0.4% to 0.5%	60 portfolios, including US\$ denominated; mix of ETF providers; offers tax-loss harvesting	\$5,000
NestWealth	\$20 to \$80/mo	Allocated across six asset classes of industry-standard ETFs by risk tolerance	None
Questwealth Portfolios*	0.2% to 0.25%	5 actively-managed Questrade ETF portfolios; extensive account type offering	\$1,000
WealthBar	0.35% to 0.6%	5 low-cost ETF portfolios by risk tolerance; also non-traditional private-investment portfolios	\$1,000
Wealthsimple*	0.4% to 0.5%	Variety of ETFs; socially responsible investment portfolio focussed on cleantech, low carbon	None

Source: <https://www.moneysense.ca/save/investing/best-robot-advisors-in-canada/>

**Executing**

## **Do**

~~XXXXXXXXXX~~

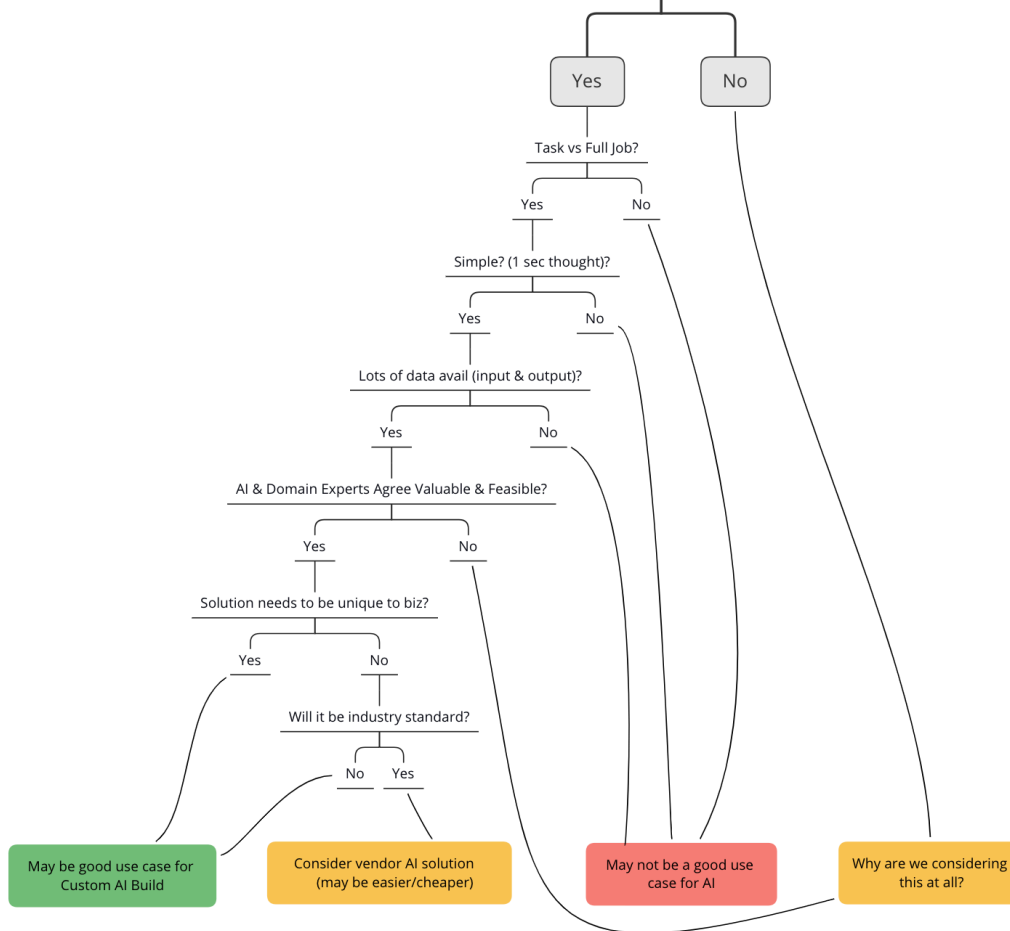
Still start with meaningful business / user problem to solve

## **Avoid**

~~Starting with AI / ML as a solution~~

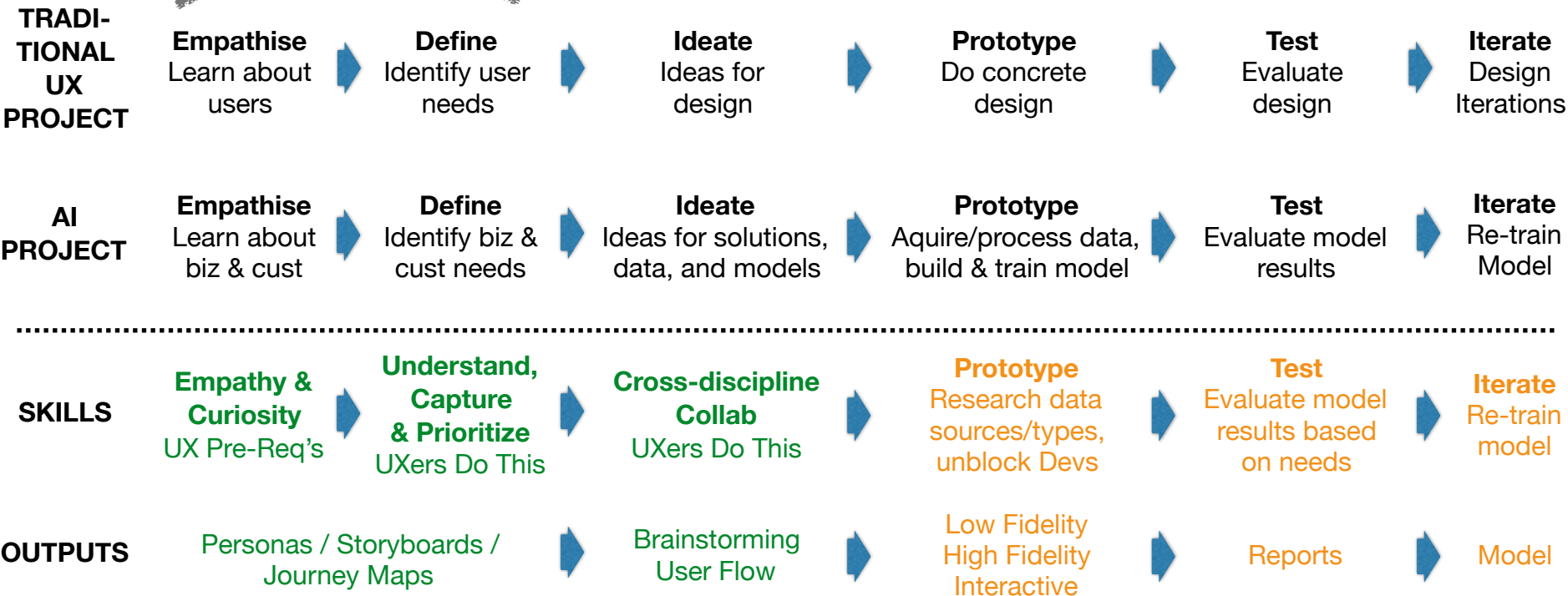


# Drives Biz/User Value &/ or Solves Biz/User Pain?



# TRAD. UX VS AI PROJECT COMPARED

*Research*



# Heuristics Still Apply...more than ever

## 10 Usability Heuristics for User Interface Design

by Jakob Nielsen on April 24, 1994

Topics: [Heuristic Evaluation](#) [Human Computer Interaction](#) [Web Usability](#)

**Summary:** Jakob Nielsen's 10 general principles for interaction design. They are called "heuristics" because they are broad rules of thumb and not specific usability guidelines.

### #1: Visibility of system status

The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

(Read full article on [visibility of system status](#) and watch 3 min. [video on the visibility heuristic.](#))

### #2: Match between system and the real world

The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

(Read full article on the [match between the system and the real world](#) and watch 3 min. [video on the real-world heuristic.](#))

### #3: User control and freedom

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

(Watch 2-min. [video on the user control heuristic.](#))

### #4: Consistency and standards

Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow [platform conventions](#).

(Watch 3-min. [video on consistency & standards.](#))

### #5: Error prevention

Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a

**Learn More**

# Learn: Foundational Understanding

- *Coursera: 'AI For Everyone' (Andrew Ng)*
- *'AI Transformation Playbook' (Andrew Ng)*
- *YouTube: 'ML Explained in 5 Min.' (Up and Atom)*

# Learn: Helpful UX & AI Articles

- *Human-Centered Machine Learning: 7 steps to stay focused on the user when designing with ML*
- *The UX of AI: Using Google Clips to understand how a human-centered design process elevates artificial intelligence*
- *The Designer's Guide to AI-Driven UX*

**Thank You!**



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