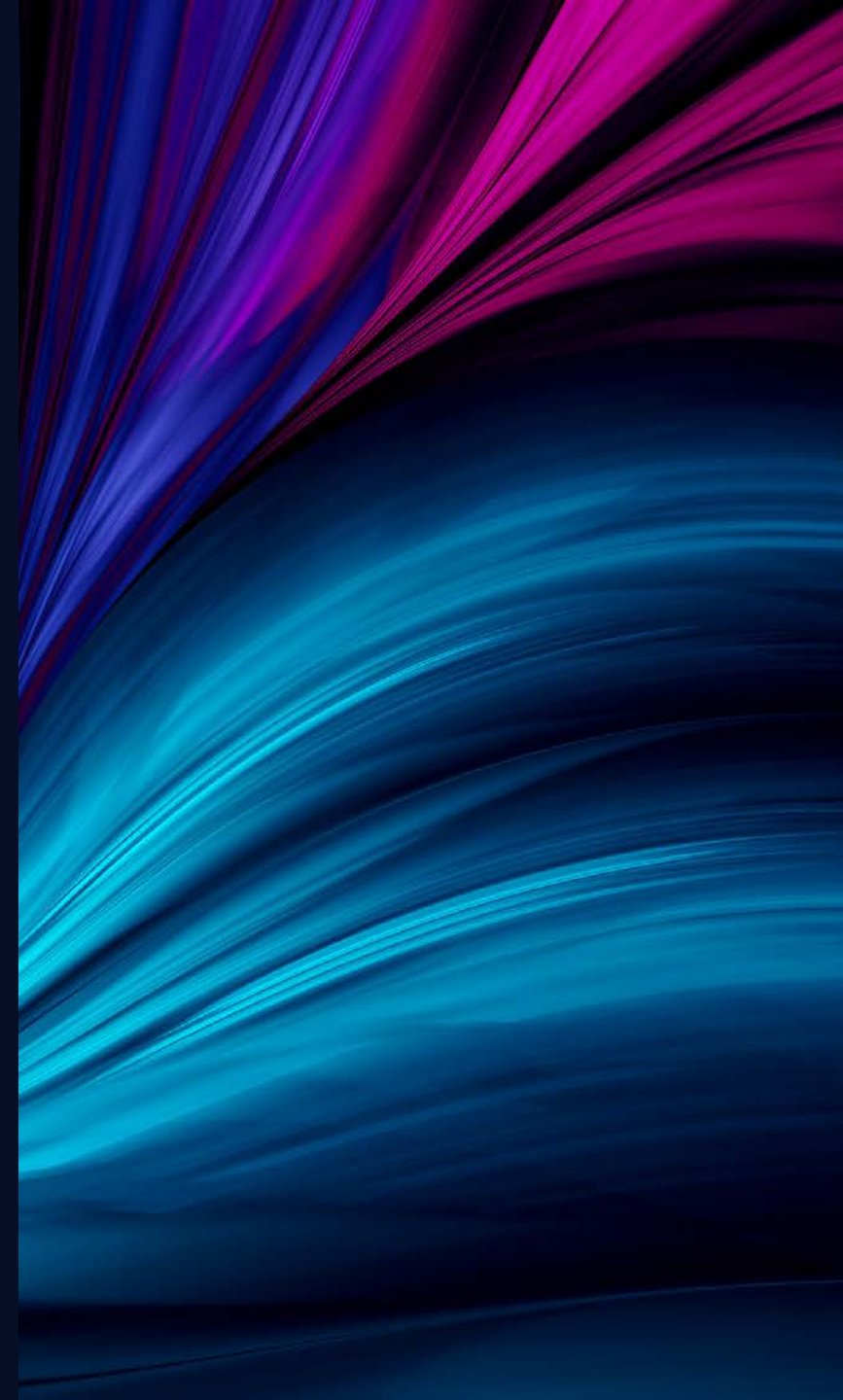


*Design Think before you develop  
your next AI product*

Arushi Srivastava

May 2024



# About Me

Senior Director, NTT Data Smart World Solutions

~20 years in Software Solutions

Emerging Technologies

# Today's Talk

The AI State of Affairs

Issues that haunt AI in the absence of Design Thinking

AI

How Can Design Thinking Help?

How to Design Think for AI?

# *The Promise of AI*



Enhance Human Productivity



Consistency and Reliability in Outcomes

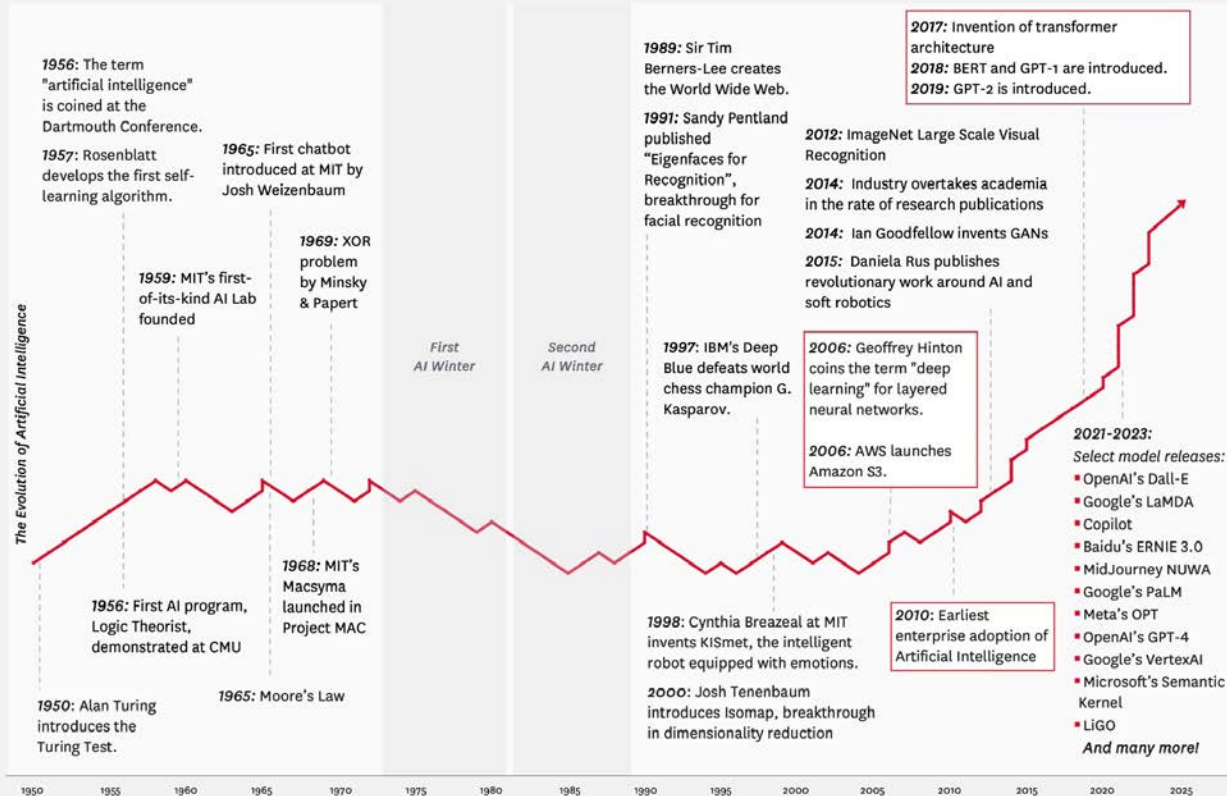


Enable Continuous Learning

# From Then to Now...

## THE GLASSWING VIEW: THE HISTORY OF AI

Glasswing Ventures' proprietary, data-driven timeline of the evolution of Artificial Intelligence



The chart, prepared by Glasswing Ventures, is a real representation of critical events that prompted the origin of AI and its advancements. Events are defined as new technological and algorithmic inventions, new models, published papers, AI events, and more. The callouts are select events that played an instrumental role in progressing the field of AI to where it is today.

GLASSWING VENTURES TEAM

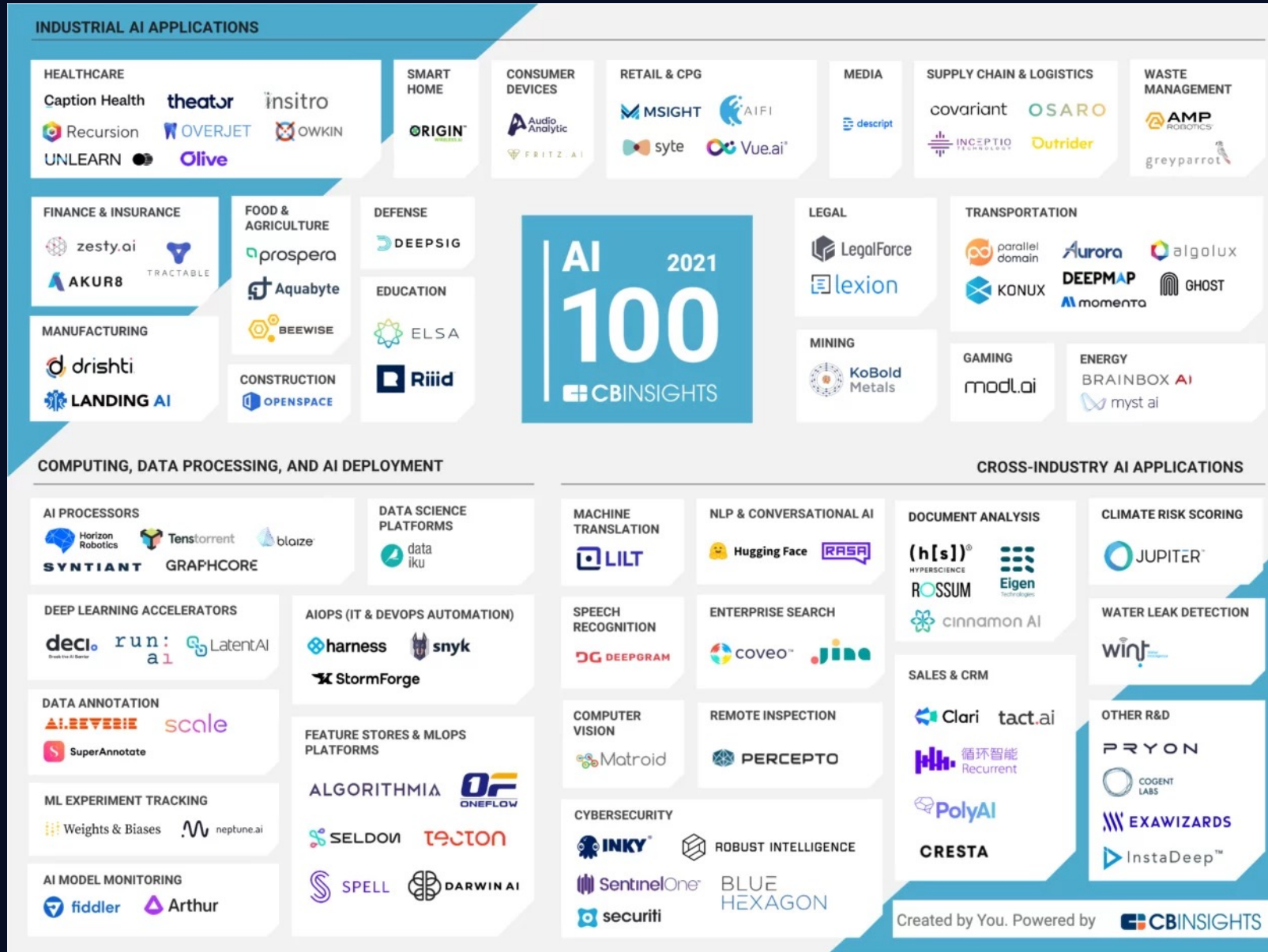
| 2001                                       | 2010                                    | 2018          | 2022           |
|--|---|---------------|----------------|
| First Investments in Enterprise & Security | First Investments in ML & Early AI Tech | Fund I \$112M | Fund II \$158M |

Early developments followed by long gaps.

Development of foundational and supporting technology ecosystem

And now- Generative AI.

# Buzz-worthy Developments



All Industry Verticals

Cross Industry Applications

Use case focused development

Platforms, Processors & Automation

NLP, Vision and Search

# *Where is current state AI really good at?*

NLP based  
chatbots

Collating  
knowledge from  
heterogeneous  
data sources

Anomaly  
Detection

Predictive Analysis

Personalized  
Recommendations

# Where are we heading

## When will there be a 50% chance that Human-level Artificial Intelligence exists?

Our World  
in Data

Timelines of 356 AI experts, surveyed in 2022 by Katja Grace and colleagues.

The experts were asked when unaided machines will be able to accomplish every task better and more cheaply than human workers.

Each line represents the answer of one expert

90% of the 356 experts gave a date within the next 100 years.

Half of the experts gave a date before 2061

- 5% gave answers for dates later than 2160.
- 1.1% said it will never exist.

2020 2030 2040 2050 2060 2070 2080 2090 2100 2110 2120 2130 2140 2150 2160

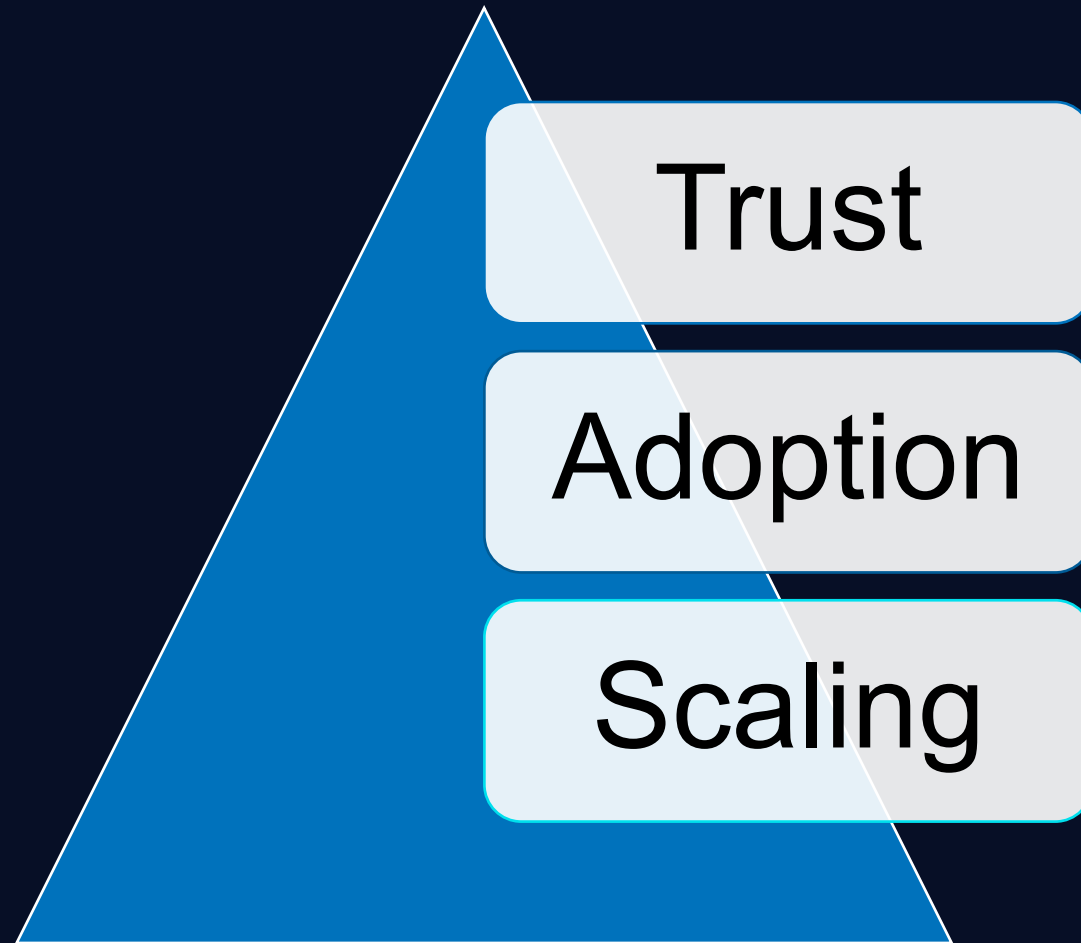
Data from Zach Stein-Perlman, Benjamin Weinstein-Raun, Katja Grace – 2022 Expert Survey on Progress in AI.

Licensed under CC-BY by the authors Charlie Giattino and Max Roser

It is here to get better with over 80% of businesses adopting it by 2025.



# *Most Prominent Areas of Challenges in AI*



# Most Prominent Challenges in Scaling and Adoption of AI

## Common Artificial Intelligence Challenges



Source: Everest Group survey with IT heads across 200 global enterprises in North America and Europe on their AI adoption

Talent and Skills

Data Management & Legacy Applications/Infrastructure

Extremely Expensive

Inadequate Policy and Compliance Infrastructure

Unclear ROI

# *Most Prominent Challenges in Trusting AI*

1

Bias

2

Accuracy & Realtime Intelligence

3

Explainability

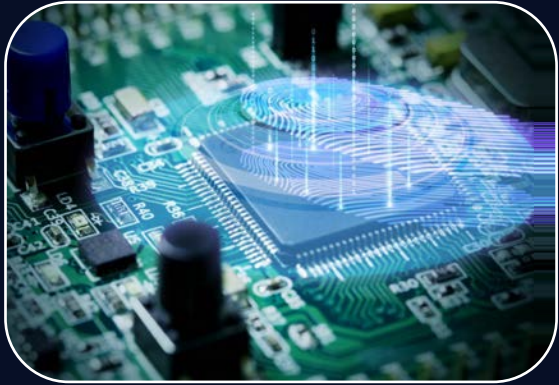
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Security - Copyright & IP Infringement

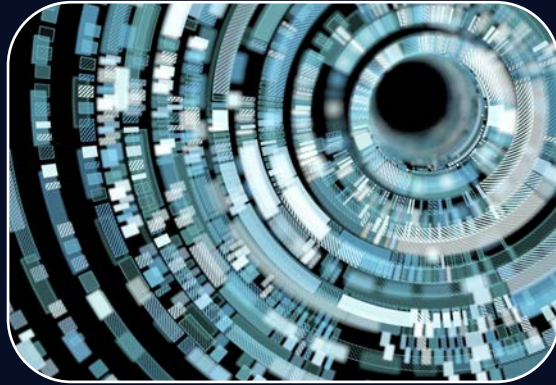
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Quality – Drift, Parroting, Hallucinations

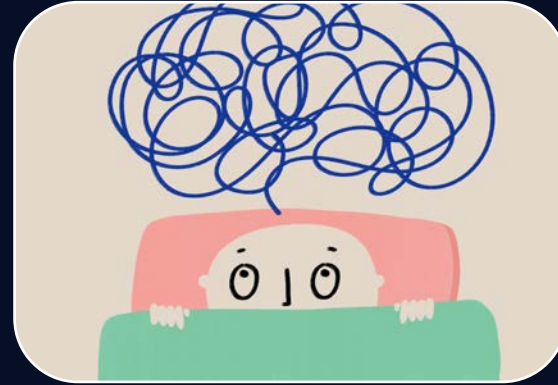
# *Why do most present AI products suffer from these common issues?*



Tech Focus



Data – The new participant



Lack of Explainability



New

***This is where design thinking can help!***

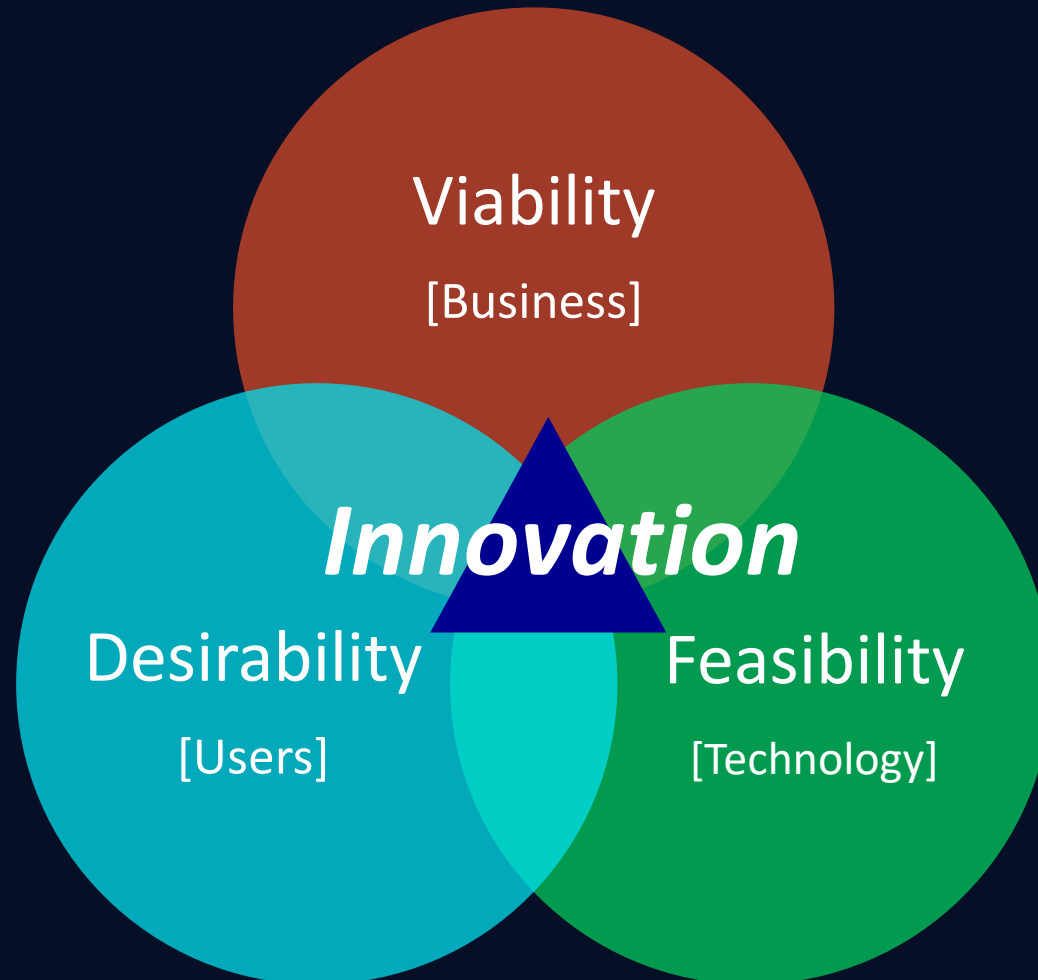


User-centric Innovation

Cross-functional Collaboration and  
Diversity

Iterative Improvement to reduce risks

# *What is Design Thinking?*



## *The Definition*

An approach to solving **wicked problems** by understanding **users' needs** and **developing insights** to solve those needs resulting in an **“a-ha” experience** for not only the users but creators and stakeholders as well.

## *It's Not New Or Novel*



Everything has been said before, but since nobody listens we have to keep going back and beginning all over again.

(Andre Gide)



# *When is it most useful?*

## Why?

- Understand user needs and develop insights

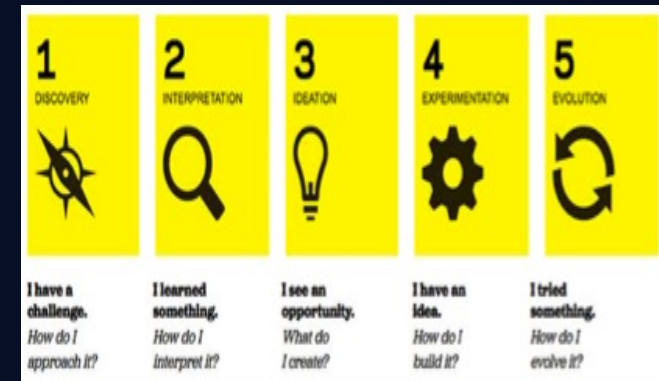
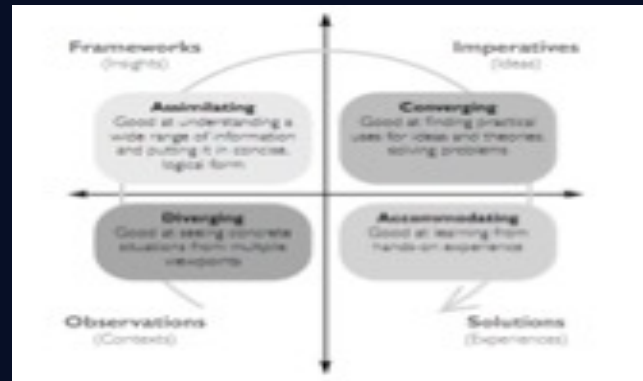
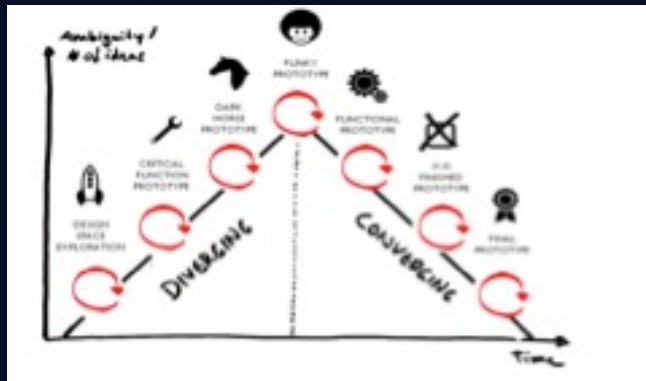
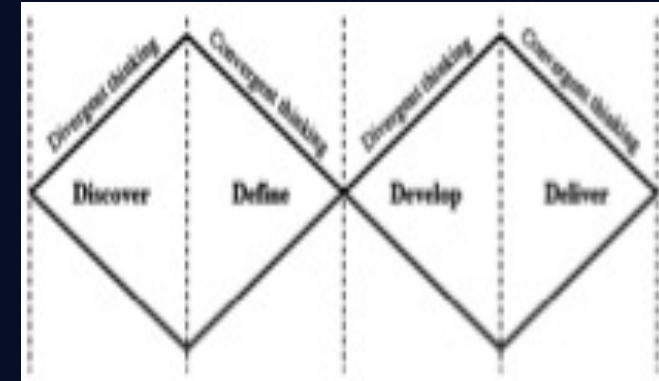
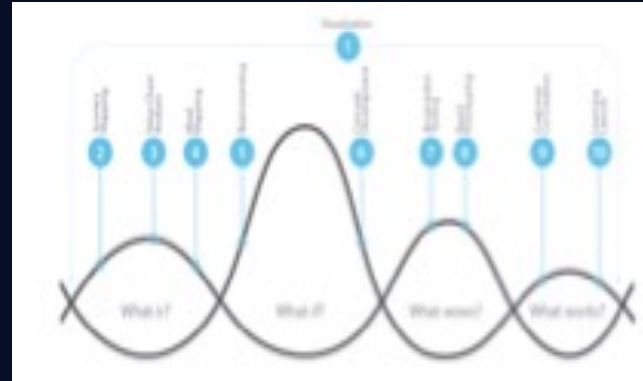
## When?

- Wicked problems

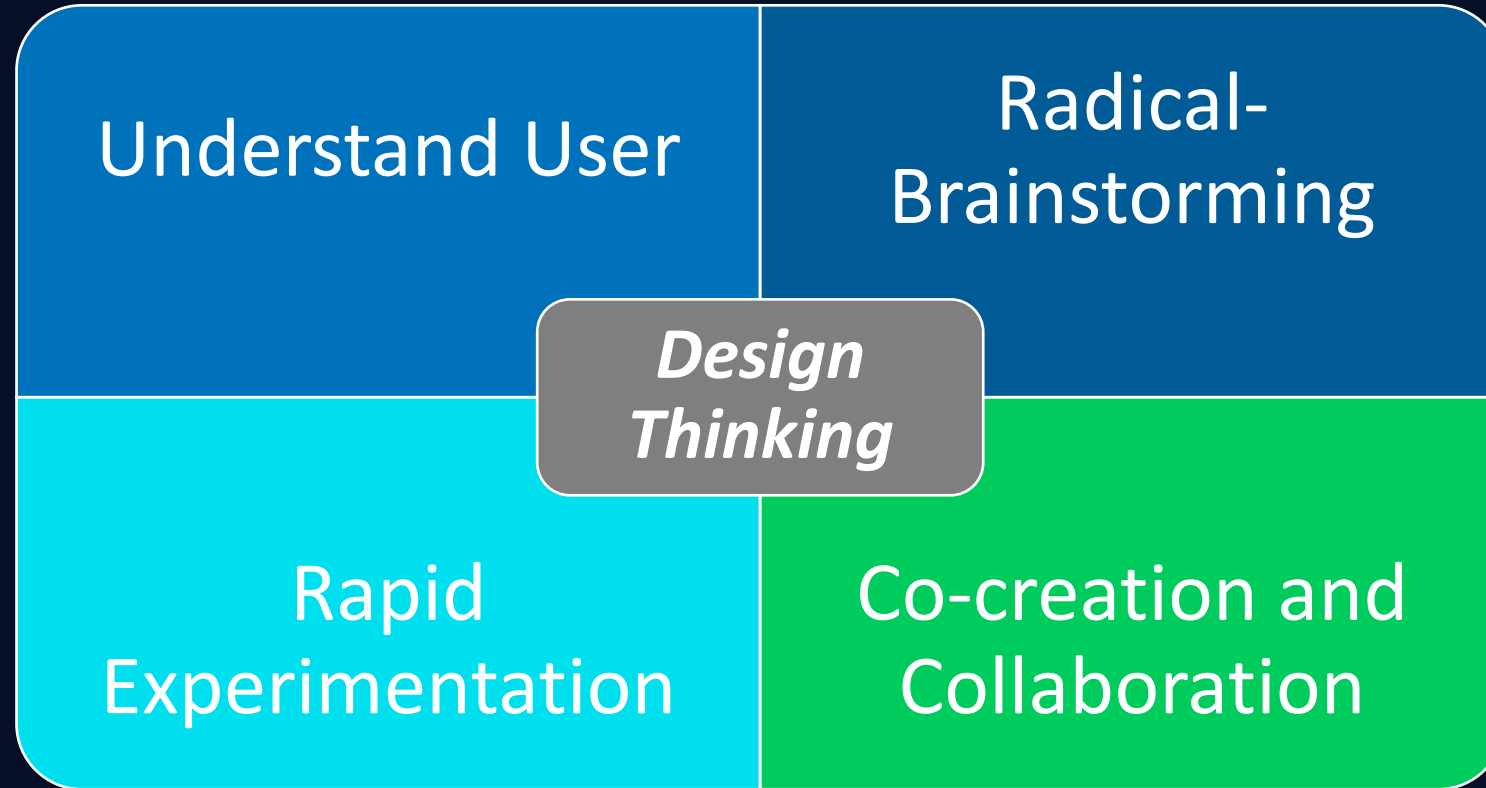
## Result?

- Unique Experience

# School Of Thoughts



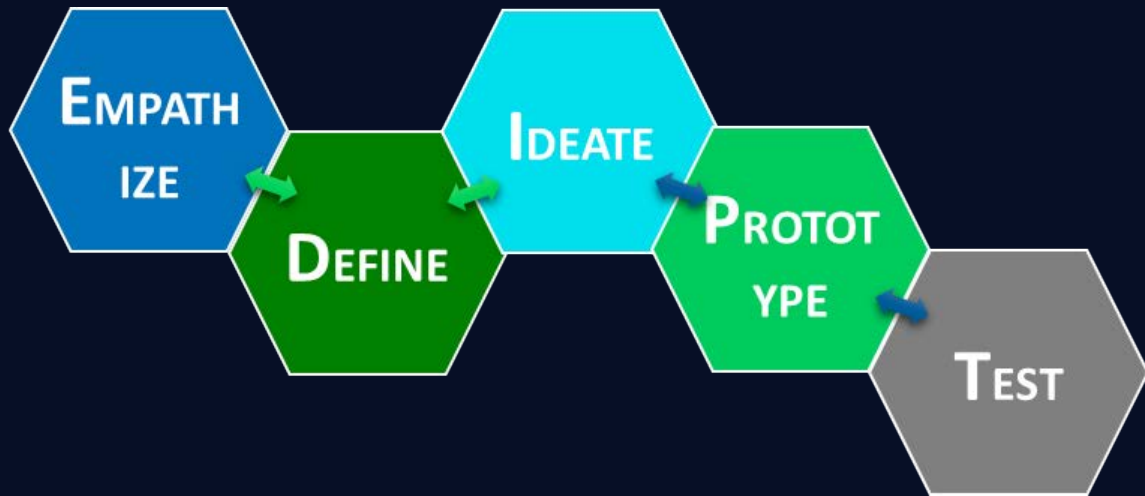
# Goals



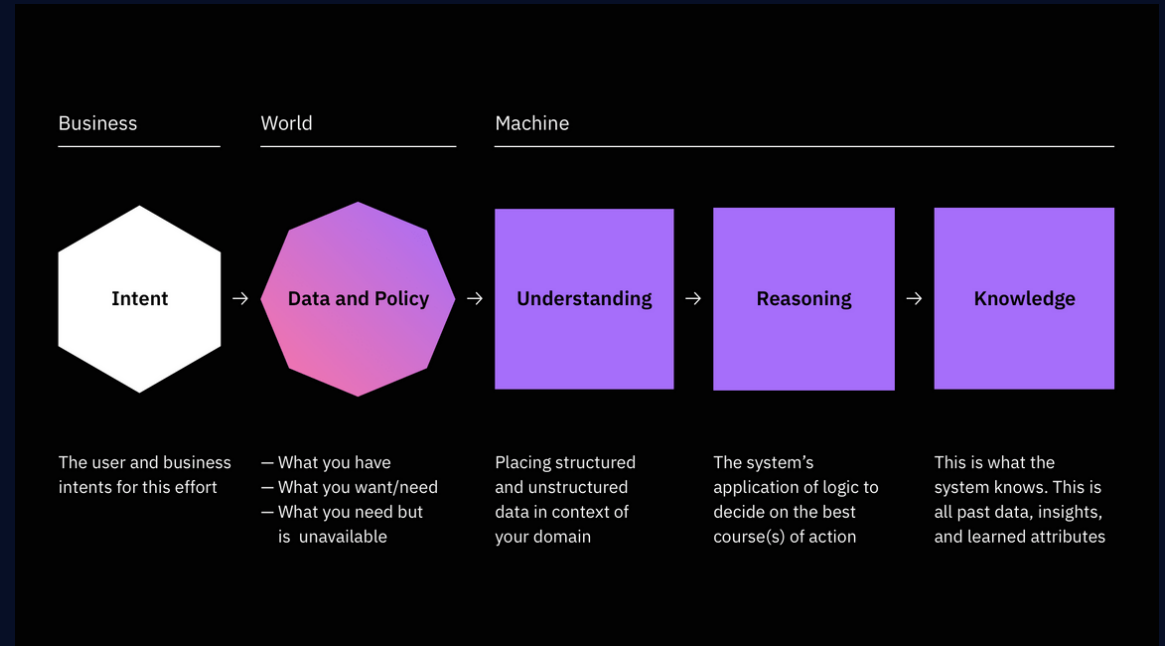
## *What It Is Not?*

1. Firefighting/Quickfix /Band-aid
2. Creating Problem for the given answer
3. Quick response to competition
4. Foolproof Formula for sure-shot business success

# Traditional v/s Emerging for AI

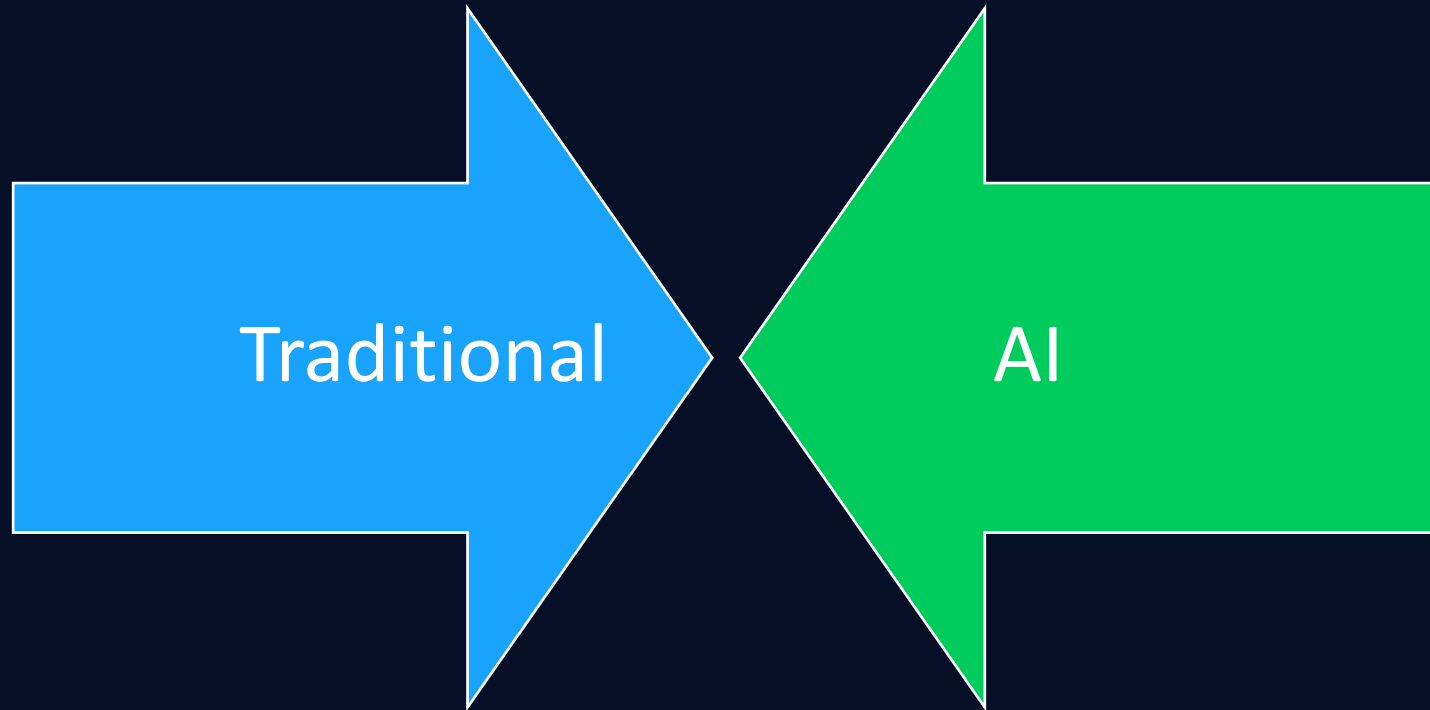


Based on Stanford's dSchool Design Thinking Approach



Based on IBM's Design for AI framework

*Why can we not use traditional design thinking as it is for AI applications?*



# Mode 1 : Empathize



To understand people, within the context of your design challenge.



Observe, engage and immerse.



Interviews, Empathy Maps

# AI considerations for “Empathize” Mode



- Observe the User in non-AI world
- Select the data sources based on their authenticity and accuracy
- Align AI solution to user’s context.



## Mode 2 : Define



- Capture Findings and create deep understanding of users and design space
- Craft a Meaningful and Actionable problem statement (point of view)
  - [User] needs [verb phrase] in a way that [describes how they feel]
  - How might we [verb phrase] ?
- Storytelling, Journey Mapping, Personas

## *AI considerations for “Define” Mode*



- Go back to user for Validation
- Insight questions for non-functional requirements
- Define the values of your solution that should be tested with each phase.

## Mode 3 : Ideate



- To generate the broadest range of possible solutions in both **volume and variety**.



- Brainstorming, Looking at existing solutions with cross-functional teams



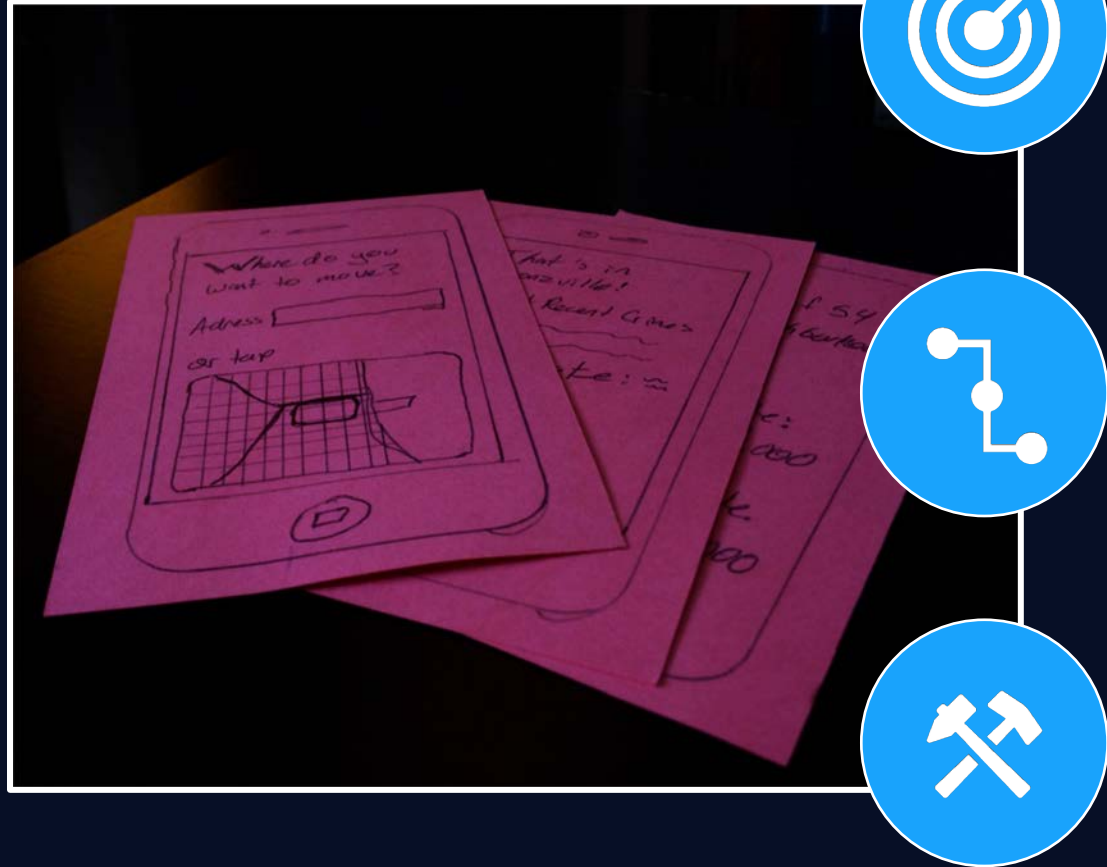
- Mind maps, Notes Cloud

# *AI considerations for “Ideate” Mode*



- Cross-functional teams
- Do not solve and research in this mode
- Surface all the AI opportunities and pitfalls
- Parallel universes!

# Mode 4 : Prototype



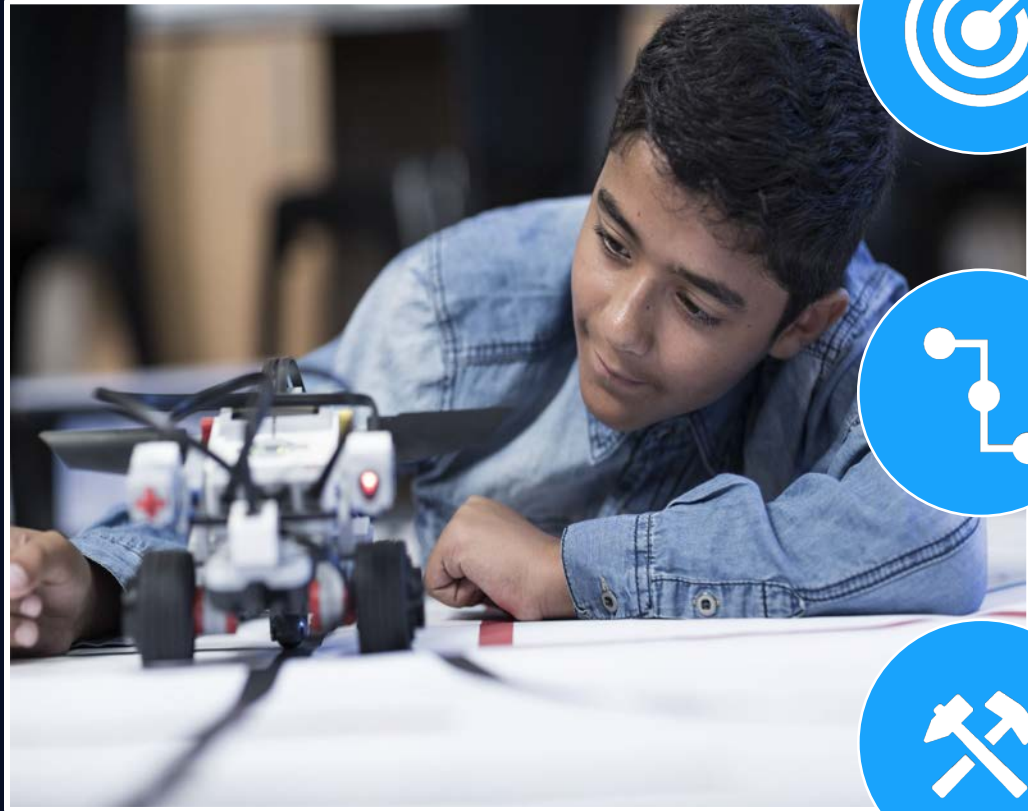
- To create physical form of your best ideas to allow people to experience and interact with them
- Learn and explore, solve disagreement and miscommunications, start conversation, break larger problem into smaller components and fail quickly and cheaply
- Sketching, physical mockups, wireframes, interaction flows, storyboards, prototypes

# AI considerations for “Prototype” Mode



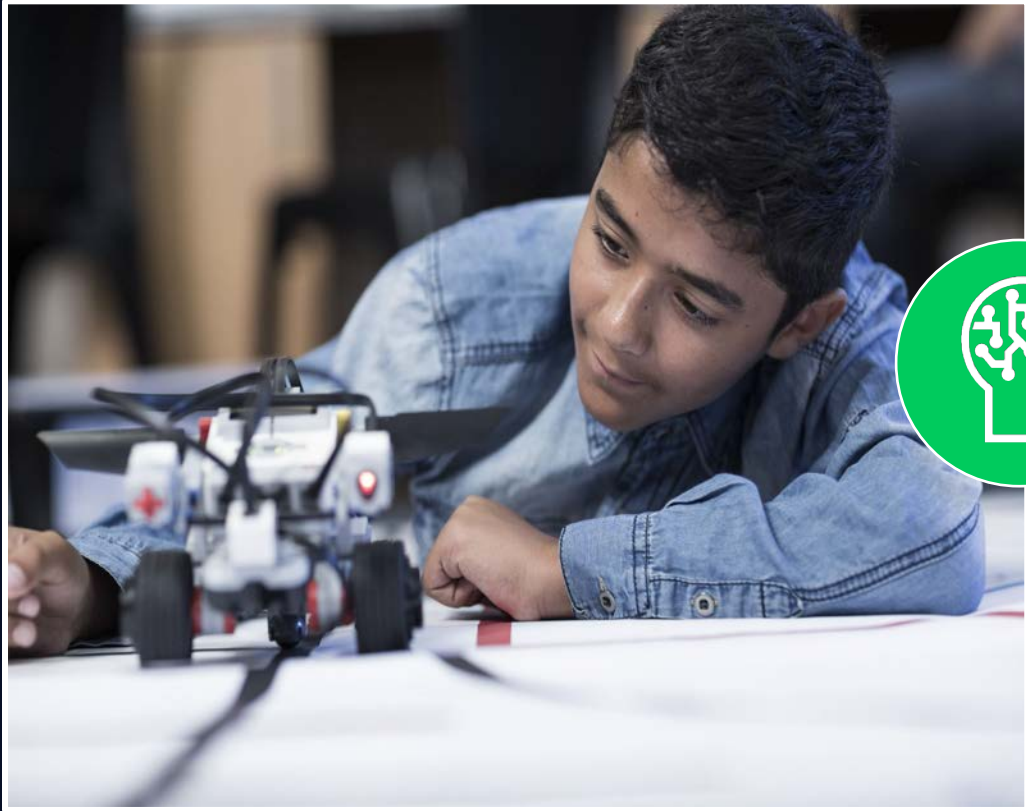
- Have a clear TEST goal for each prototype.
- Time Box Prototype building.
- Think how the user will test
- Test the “values”

## Mode 5 : Test



- To solicit feedback on prototypes by putting them into context of use.
- Refine prototypes and solutions, Learn more about the user, Continue to ask WHY and refine your point of view.
- Desirability Testing, Field Studies, Feasibility Testing (Cost, Tech etc.) and Viability Testing (SWOT etc.)

# AI considerations for “Test” Mode



- Show, Don't Tell
- Record reactions not just Pass/Fail
- Test with a new set of demographics and users.
- Test with newer versions of data sets



# AI Considerations For Each Of The Modes

## Empathize

- Observe the User in non-AI world
- Select the data sources based on their authenticity and accuracy
- Align AI solution to user's context.

## Define

- Go back to user for Validation
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## Ideate

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- Have a clear TEST goal for each prototype.
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## Test

- Show, Don't Tell
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# *Fundamental AI Considerations Beyond Design Stages*

1

**Transparency** – Ensure the users ALWAYS know when and where AI is being used

2

**Explain, explain, explain** – whatever is possible – credits, sources, confidence score!

3


**Test** for alternate scenarios more than ever – users, datasets, releases

4

**Final Decision/Approval** for any automated transaction related to critical user information, finances, health etc.

*Start wherever you are...*

Before you start  
prototyping  
your next idea



```
graph LR; A[Before you start prototyping your next idea] --> B[In your current project]; B --> C[For solving those WICKED problems];
```

In your current  
project

For solving  
those WICKED  
problems

# Thank You!

