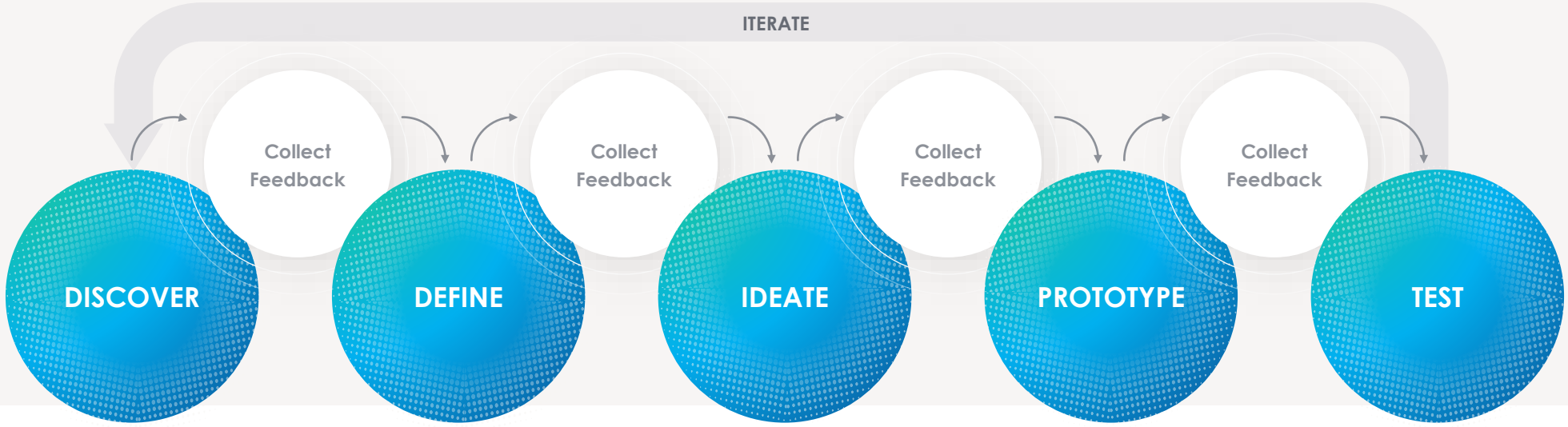
Design-Thinking Framework: Process Overview



Learn about context

- Team interviews
- Primary Stakeholder interviews
- Surveys
- Data analysis
- Metrics
- Competitors
- Focus
- Observation
- Clustering insights
- Context mapping
- Journey maps

Determine features

- Databases
- Context maps
- Storyboards
- Stakeholder stories
- Problem statement
- Narratives
- Assumptions mapping
- Comparative analysis

Create Solutions

- Brainstorm sessions
- Data modeling
- Affinity maps
- Card sorting
- Context data flows
- Information architecture
- Design principles

Simulate

- Design hand-offs
- Design documentation
- HTML/JS prototypes

Validate

- A/B testing
- Heuristic evaluation
- Analytics
- Performance testing
- Observations
- Desirability evaluations
- Metrics

AIML Research & Development
Design Principles

CATEGORY	DESCRIPTION	DESIGN PRINCIPLE	DEFINITION	AIML R&D
Utilitarian Value Principle	Design principles to fulfill desires related to convenience	Functional need	Product/service's functions must be designed to meet user's various functional requirements	Doesn't Meet
		Flexibility	Flexibility with the direction led by the insight of data over desired outcomes in terms of data's contents, results, or timelines	Meets Criteria
		Easy	Product/service must be learned easily or memorized to use	Doesn't Meet
		Efficiency	Product/service must be designed to achieve the purpose with the least effort	Doesn't Meet
		Simplicity	Product/service must be designed to be simple	Doesn't Meet
		Informativeness	Product/service must be designed to provide clear and detailed information	Meets Criteria
		Error Prevention	Product/service must be designed to minimize user errors and to recover easily from the errors	Doesn't Meet
		Understandable	Product/service must be designed to be from knowledge that can be explained	Meets Criteria
		Consistency	Contents, structure, interaction, and design of product/service must be consistent	Doesn't Meet
		Directness	Direct access of the product/service's function or interface must be given to users in deliveries such as APIs, Excel, dashboards, reports	Doesn't Meet
Affective Value Principle	Design principles to fulfill aesthetic/emotional desires	Expectations	Product/service results must be designed to be exportable, downloadable, put into a database, or modified in any way	Doesn't Meet
		Reliability	Product/service must feel reliable	Doesn't Meet
		Efficiency	Product/service must be more interested in accurate scientific discovery (research) over analytic charts on a deadline (BI)	Meets Criteria
		Simplicity	Product/service must feel clean, neat, and ordered	Doesn't Meet
		Aesthetics	Product/service must feel aesthetically satisfactory	Doesn't Meet
		Addictiveness	Product/service must be designed to make the user want to keep using the product/service	Meets Criteria
		Magic	Product/service must be designed to share the parts of advanced methods that are not easily explainable	Doesn't Meet
Sociability Value Principle	Design principles to fulfill desires related to social/cultural activity	Relationship	Product/service must be designed to support the user to establish and maintain social relationships	Doesn't Meet
		Socio-cultural value	Product/service must be designed to use the locale and customs of the user's data	Meets Criteria
		Knowledge	Product/service must be designed to make the user feel empowered	Meets Criteria
		Equality	Product/service must be designed to make the user not feel discriminated against by others	Doesn't Meet
		Identity	Product/service must be designed to support the user to express their identity	Meets Criteria

Interview for Empathy

USER INTERVIEW QUESTIONS

FOLLOW UP QUESTIONS

Open Discovery Questions

1. *Tell me about…?*
2. *Why do you…?*
3. *How much/many…?*
4. *How often do you…?*
5. *What … do you use/do?*
6. *Could you describe to me how you…/ your experience with…?*

Bouncing Back

1. *You mentioned (xxx), can you tell me more about this?*
2. *That's interesting, tell me more.*
3. *What do you mean by (xxx)?*

Understanding user tasks/activities

1. *Can you describe how you/how you would…?*
2. *What are all the things you need to do in order to…?*
3. *Walk me through… how you would?*
4. *What is the difference between … and … ?*

Digging Further

1. *Why?*
2. *You mentioned (xxx) what's the reason for that?*
3. *How come?*

Performing / Showing

1. *Can you show me how you …?*
2. *Can you guide me (to do the task)?*

Asking for clarification

1. *What did you mean by (xxx)?*

Recalling the past/ anticipating the future

1. *Can you recall a situation when you … what did you do?*
2. *Can you tell me about your most significant experience?*
3. *How do you think … is going to help you?*
4. *Could you describe the ideal product/experience?*

Rephrasing / Interpreting / Mirroring

1. *So, you are saying that (xxx)?*
2. *Repeating part of the sentence with a question mark*
3. *It sounds like you are saying (xxx), is that correct / did I understand correctly?*

Opinions / points of view /attitude and projections

1. *What do you think about …?*
2. *What do you like/dislike about … ?*
3. *What would your friend/colleague think of that?*
4. *Some people … other … what is your opinion on that?*

Recalling past experience

1. *Can you give me / think of an example of (xxx)?*
2. *Can you show me how you did (xxx)?*

Talking about problems and pain points

1. *How does this problem impact you?*
2. *If you had a magic wand, what would you change?*
3. *What's the hardest / most frustrating part about…?*

The "Maybe not the end of the interview"

1. *Is there anything you would like to add?*
2. *Any questions you would like to ask me about the project?*
3. *Would you like to talk about a specific topic before we finish?*

Sentence completion and drawing

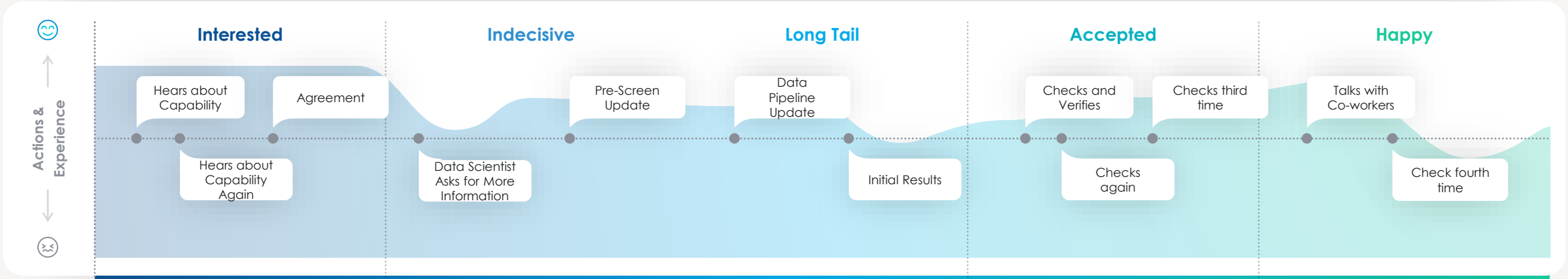
Ask to complete a situation, or draw upon something using a picture or new descriptive vocabulary, how they react to the concept, etc. Some people are more visual thinkers.

The power of Silence

Silence is powerful. An interview is about actively listening

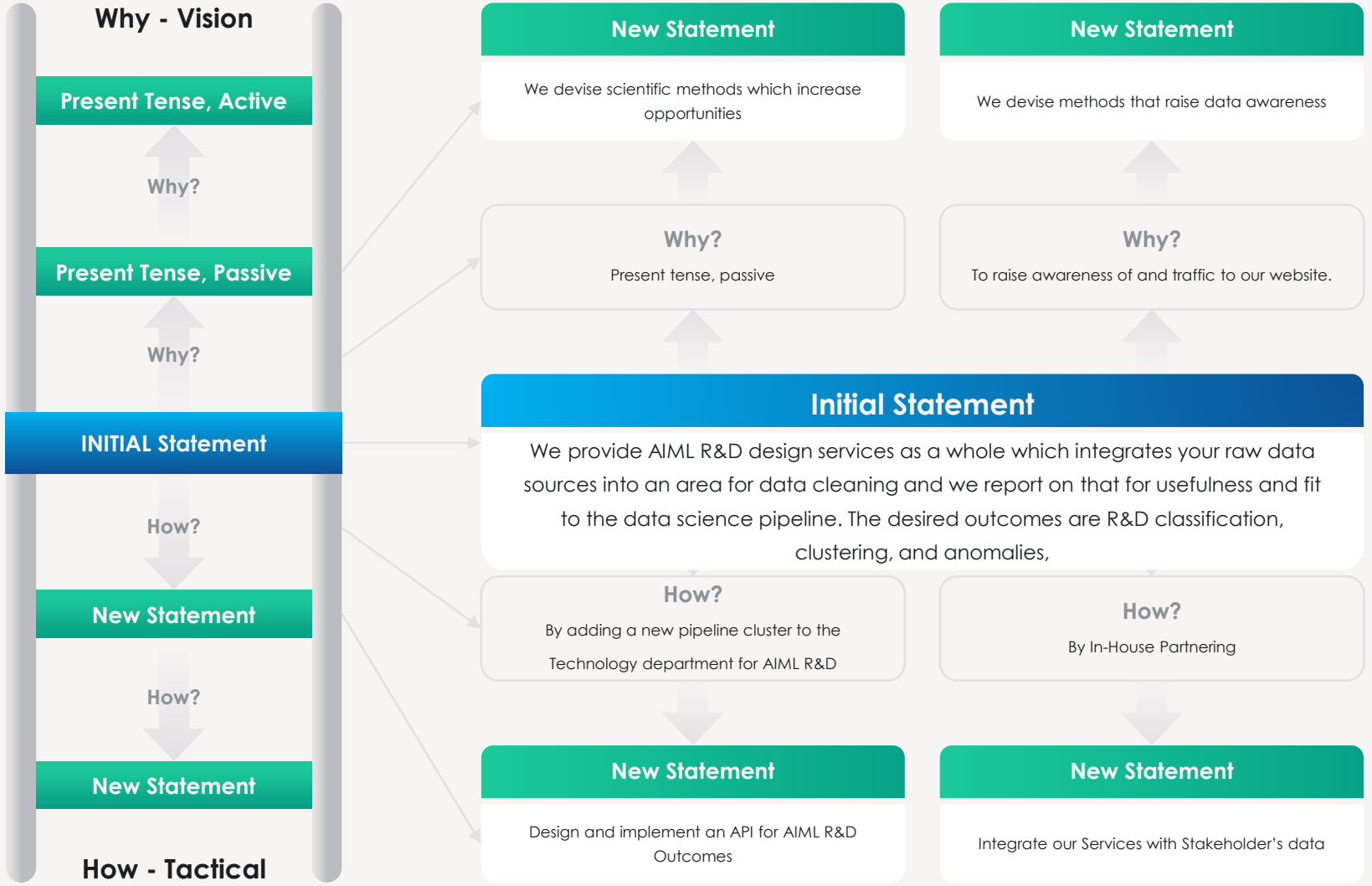
SCENARIO

Future Stakeholders hear of Capability for **Explainable** Data Science through Compelling Demos of Previously Successfully Completed Research Projects. It is best if the SVP can explain it without Data Scientist present.



PHASES	Awareness	Research		Explain	Explain Again
Needs	Get opportunities	Figure out whether it is worth the time	Choose Target Value	Have a great experience and learn more	Share solution with others
Actions	• Hears it from peers • Sees it on an internal demo	• Asks for more information • Searches • Checks and cleans data	Data Sub-Domain Tossup	Stakeholder Checks Results With Peers To Gain Confidence	• Talks with Co-workers about it. • Stakeholder Creates Next Step in Value • Stakeholder Creates Excel/Sharepoint or Dashboard/API/Website
Opportunities	Employees mention project during unrelated meetings	Develop Data Science Cluster providing all necessary information to make informed choices	Repeated Projects Will Accelerate	Maps and Analogies	Different Perspectives

Design Statement



QUICK GUIDE

1. Convene an interdisciplinary team.
2. Draft various stakeholder statements to address the problem
3. Use statement starters ("How might…" or "In what ways…")
4. If the problem is too narrow, ask "Why…" and "Why else…"
5. Then restate the problem in a broader, more open way
6. If the problem is too broad, ask "How…" and "How else…"
7. Then restate the problem statement more concretely

Ongoing Design Template

PROJECT NAME: Project ABC **AUTHOR:** John Folkers **START:** 08/01/23 **END:** 12/1/2023

1. STAKEHOLDER ENGAGEMENT

Follow-up meeting

2. YOUR SEGMENT

First time meeting

3. VALUE PROPOSITION

Our team is developing a AIML R&D service to help first time data owners with insights using data science.

4. CHANNEL(S)

Referral: Ask co-workers

5. RISKIEST ASSUMPTION(S)

6. EXPERIMENT FORMAT

7. SCENARIO/WORKFLOW

8. METRICS

9. SUCCESS CRITERIA

10. RESULT

11. LEARNINGS & INSIGHTS

VALIDATED | INVALIDATED | INCONCLUSIVE

12. NEXT STEPS

Sailboat Perspective

< 3 Months to deploy AIML R&D Cluster

Release in 4 months

DESTINATION
Goals & Vision

Data Cleaning Accelerates Projects

New AIML R&D Design Process

WIND
Moving Us Forwards

ICEBERG
Risks

Ongoing New Features Needed

Increased Scope

ANCHOR
Holding Us Back

Understandability

Data Sources Keep Changing