Design Synthesis

Jon Kolko
Director & Founder, Austin Center for Design

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0/ Today

What is Synthesis, and why is it important?

What are methods I can use?

Let's try it: Method – **Process Flow Diagramming**
Let's try it: Method – **Concept Mapping**
Let's try it: Method – **Insight Combination**
Let's try it: Method – **Reframing**

How can I use this in real life?

0/ Rules

We will go extremely fast.

Turn off the inner voice.

Make fun of everything.

Get your money's worth.

Theory

Well-Structured Problems

Ill-Structured Problems

Wicked Problems

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Well-Structured Problems

Ill-Structured Problems

Wicked Problems

In a well structured problem, all of these are true:

We can test our solution.
We can identify problem, goal, and interim states.
We can identify solution steps.
We can identify domain knowledge.
We can solve the problem while obeying the laws of nature.
We can solve the problem using only practical levels of effort.

Herb Simon, 1973

Well-Structured Problems

Ill-Structured Problems

Wicked Problems

In an ill-structured problem, some of these are true:

We cannot test our solution, or cannot test it easily.
We cannot easily identify problem, goal, or interim states.
We cannot identify all of the solution steps.
We cannot identify domain knowledge (it may be tacit).
We may be constrained by the laws of nature.
Solutioning may outweigh practical efforts.

Herb Simon, 1973

Well-Structured Problems

Ill-Structured Problems

Wicked Problems

In a wicked problem, the following are true:

Wicked problems have no definitive formulation.
Wicked problems have no criteria upon which to determine “solving”.
Solutions to wicked problems can only be good or bad.
There are no complete list of applicable "moves" for a solution.
There are always more than one explanation for a wicked problem.
Every wicked problem is a symptom of another problem.
No solution of a wicked problem has a definitive, scientific test.
Every wicked problem is unique.

Horst Rittel, 1973

Well-Structured Problems	Ill-Structured Problems	Wicked Problems

Designers solve problems using a process.
Design Synthesis is the magical part of the process.

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Ethnography

Synthesis

Prototyping

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Ethnography

Synthesis

Prototyping

Immersion – gathering data and understanding of a unique situation

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Ethnography

Immersion – gathering data and understanding of a unique situation

Synthesis

Prototyping

Hypothesis validation through generative form giving

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Ethnography

Immersion – gathering data and understanding of a unique situation

Synthesis

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Hypothesis validation through generative form giving

Synthesis is the process of making meaning through inference-based sensemaking.

Ethnography

Synthesis

Prototyping

Synthesis is the process of making meaning through inference-based sensemaking.

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deductive

inductive

abductive

ac4d

Jon is a Designer.

All Designers are Arrogant Bastards.

Therefore, Jon is an Arrogant Bastard.

deductive

The output is guaranteed to be true,
if the premise is true.

inductive

abductive

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All of the designers I've ever seen wear black t-shirts.

Therefore, the next designer I will see will be wearing a black t-shirt.

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Gives good evidence that a conclusion is true.

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inductive

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When a designer works on a project, they often draw diagrams of things. It seems to help them learn about a new topic.

I've seen grade school students struggle to learn complex topics of math or science.

I can abduct that students might be able to learn better by drawing diagrams in a classroom setting.

abductive

The argument from best explanation, depending on circumstances and experience – an **inference**.

Ethnography

Synthesis

Prototyping

Synthesis is the process of making meaning through inference-based sensemaking.

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Ethnography

Synthesis

Prototyping

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David Snowden

"We have found that [our sensemaking framework] helps people to break out of old ways of thinking and to consider intractable problems in new ways… it is designed to allow shared understandings to emerge through the multiple discourses of the decision-making group."

Karl Weick

"Sensemaking is, importantly, an issue of language, talk, and communication. Situations, organizations, and environments are talked into existence... Sensemaking is about the interplay of action and interpretation rather than the influence of evaluation on choice."

Robert Hoffman

"By sensemaking, modern researchers seem to mean something different from creativity, comprehension, curiosity, mental modeling, explanation, or situational awareness... Sensemaking is a motivated, continuous effort to understand connections (which can be among people, places, and events) in order to anticipate their trajectories and act effectively."

Ethnography

Synthesis

Prototyping

Synthesis is the process of making meaning through inference-based sensemaking.

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Ethnography

Synthesis

Prototyping

It's a process of learning.

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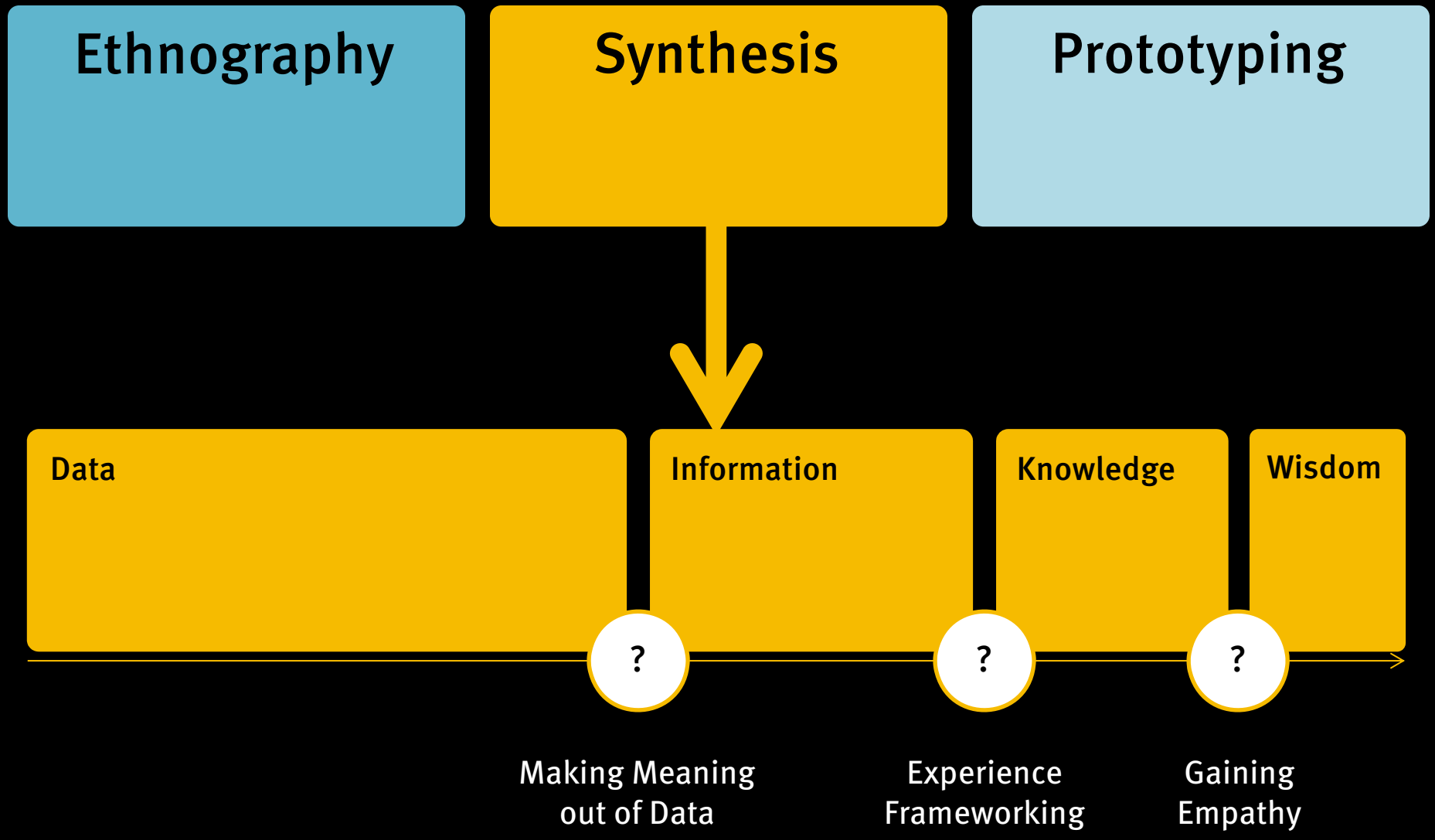
Ethnography
Synthesis
Prototyping
Data
Information
Knowledge
Wisdom
?
?
?
Making Meaning out of Data
Experience Frameworking
Gaining Empathy

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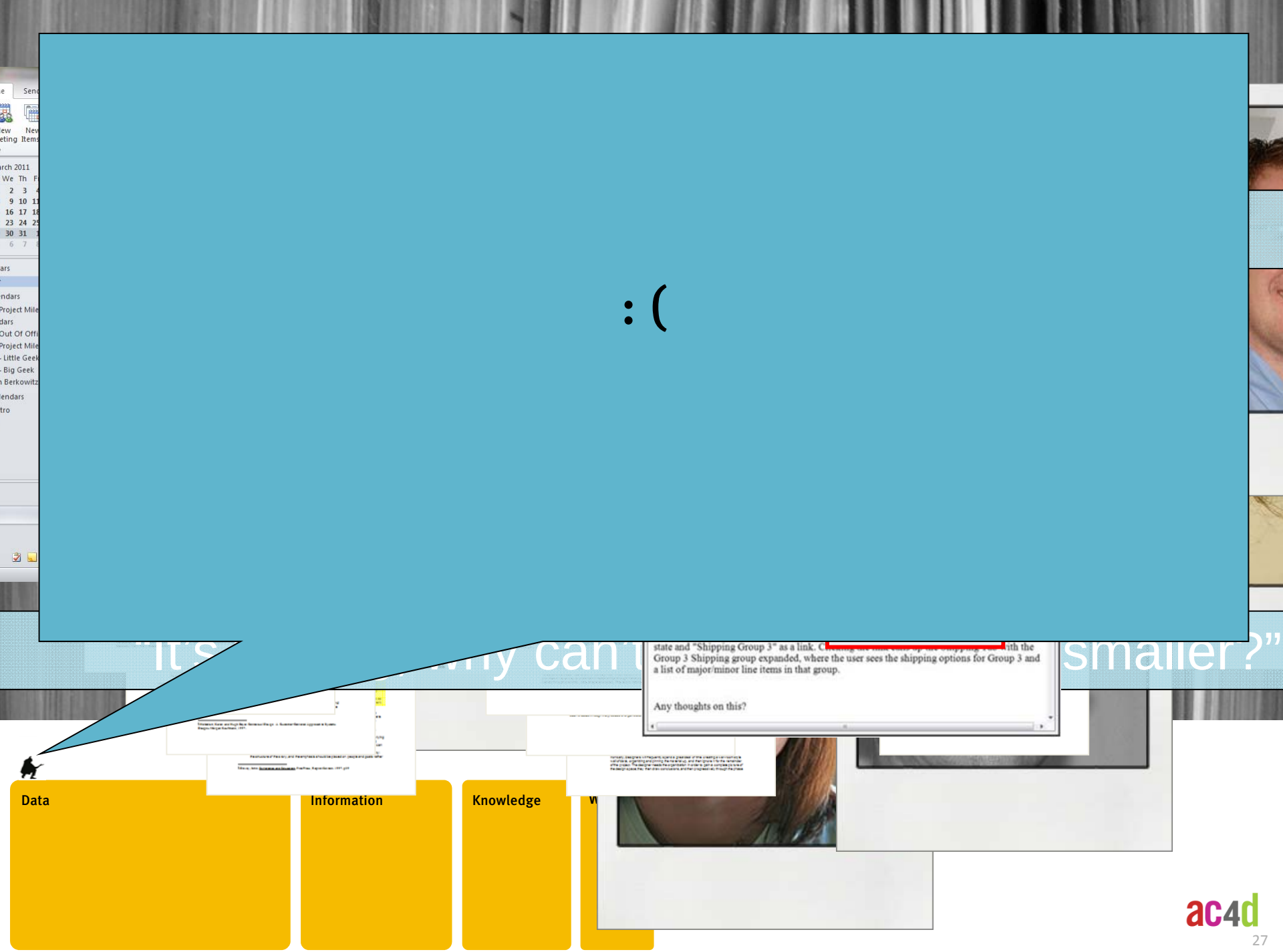
:(

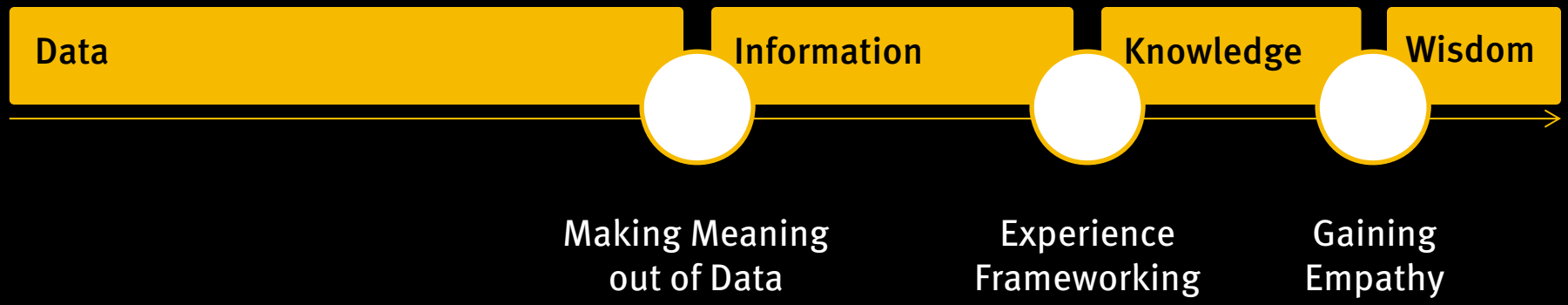
"It's ... why can't ... smaller?"



Data

Information

Knowledge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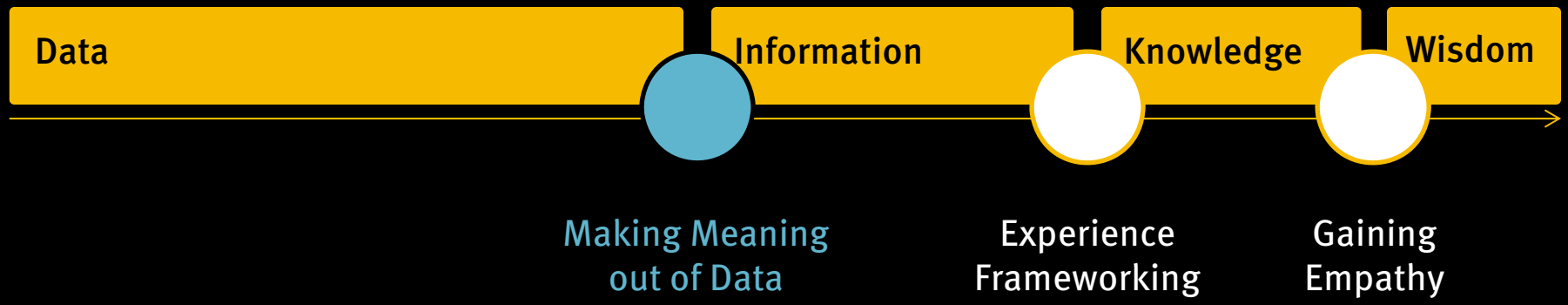
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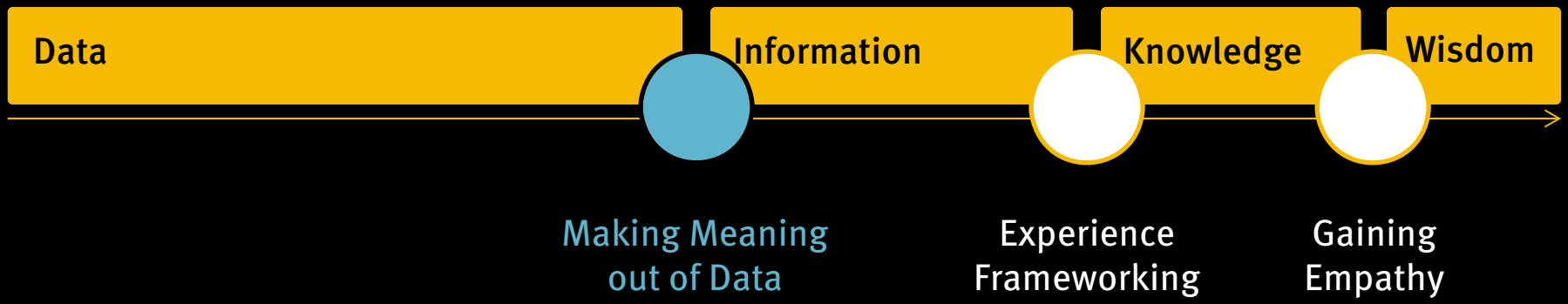
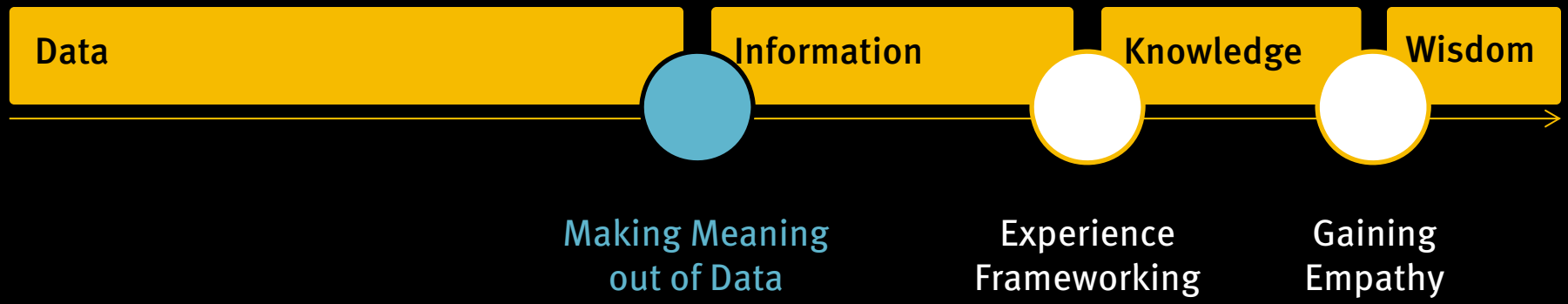
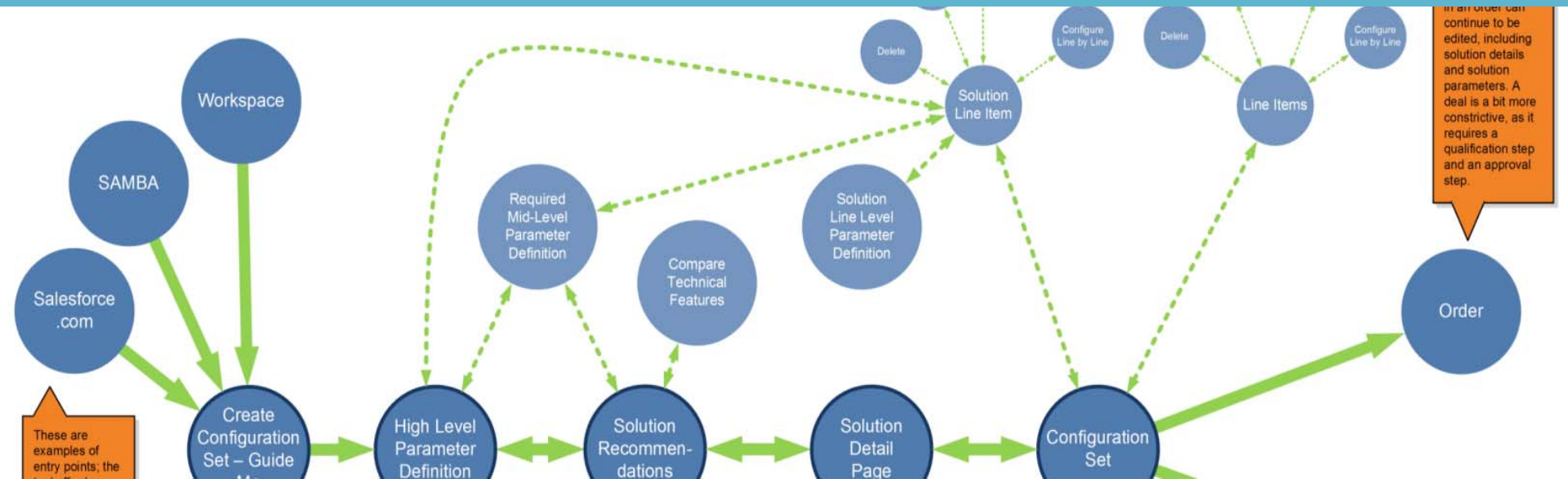


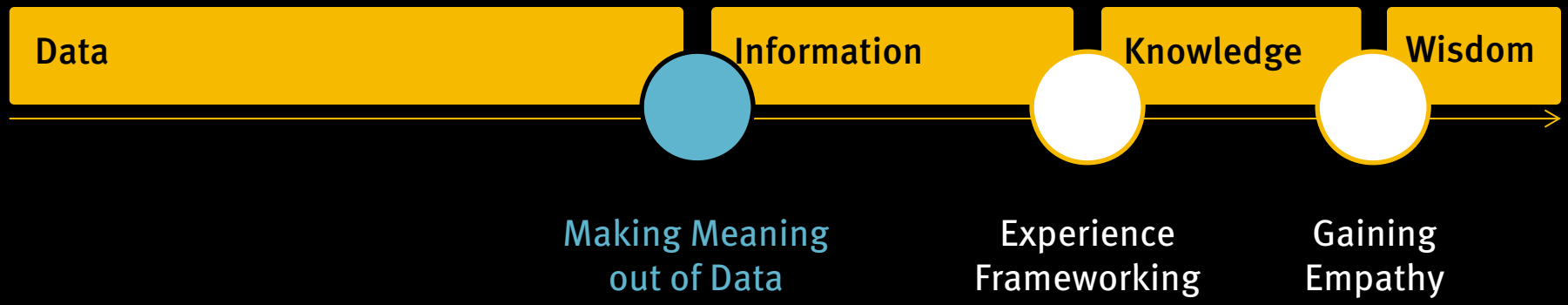
1.

Externalize the Process – Get out of your laptop.



2.
Make diagrams.





3.
Interpret. Heavily.

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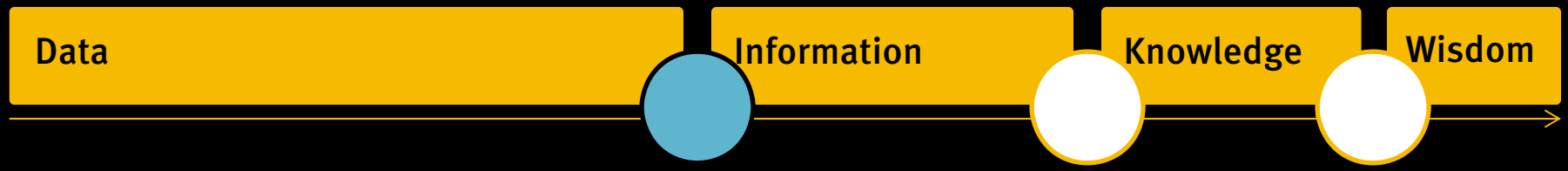

Making Meaning out of Data

Experience Frameworking

Gaining Empathy

Methods:

affinity diagramming
hierarchy creation
✓ flow diagramming
scenario development

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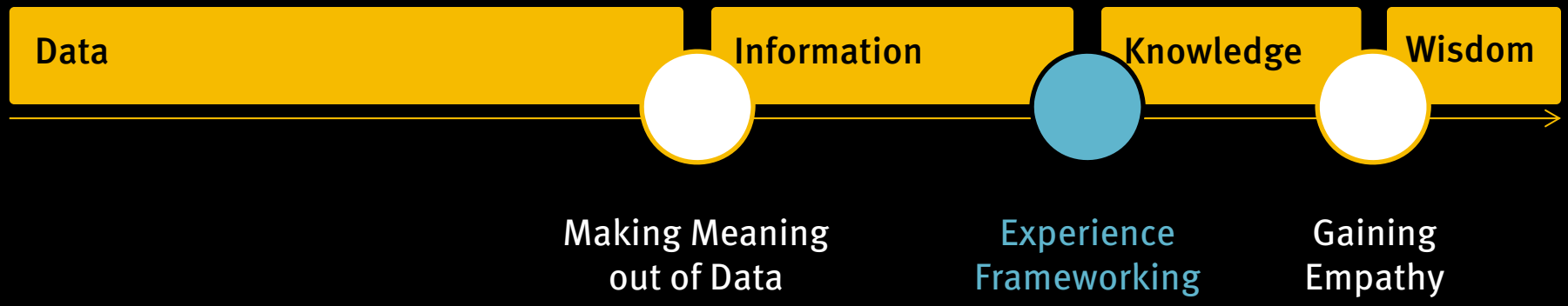
Data
Information
Knowledge
Wisdom
Making Meaning out of Data
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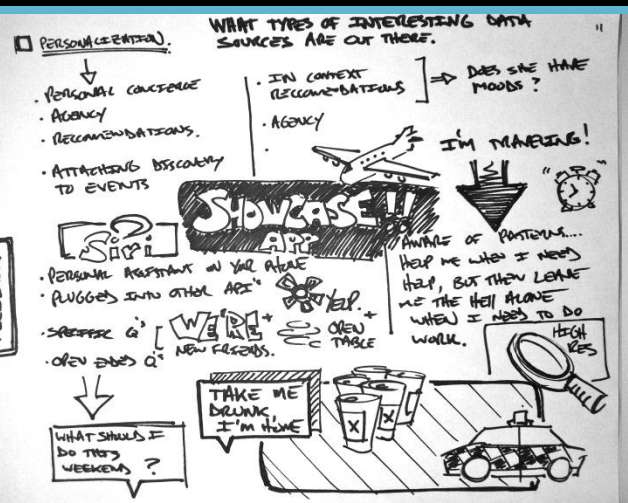
Data → Information → Knowledge → Wisdom

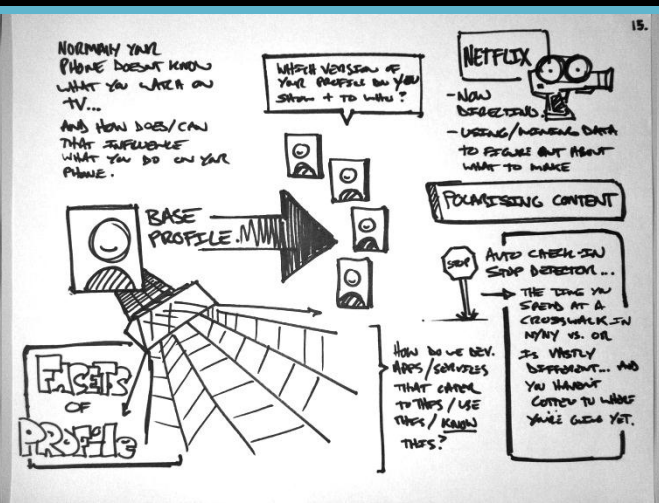
Making Meaning out of Data

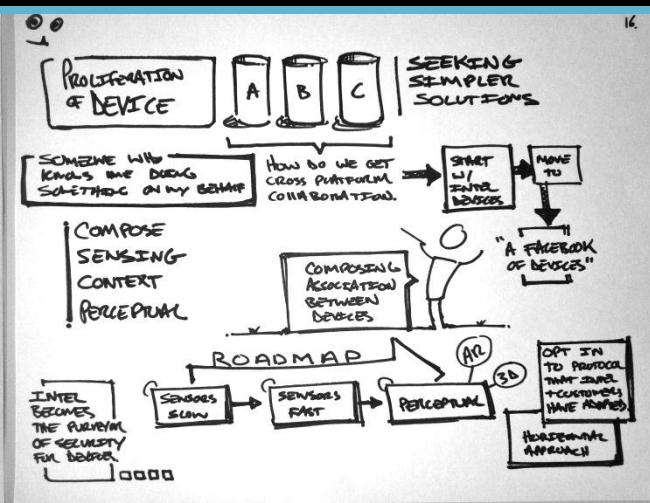
Experience Frameworking

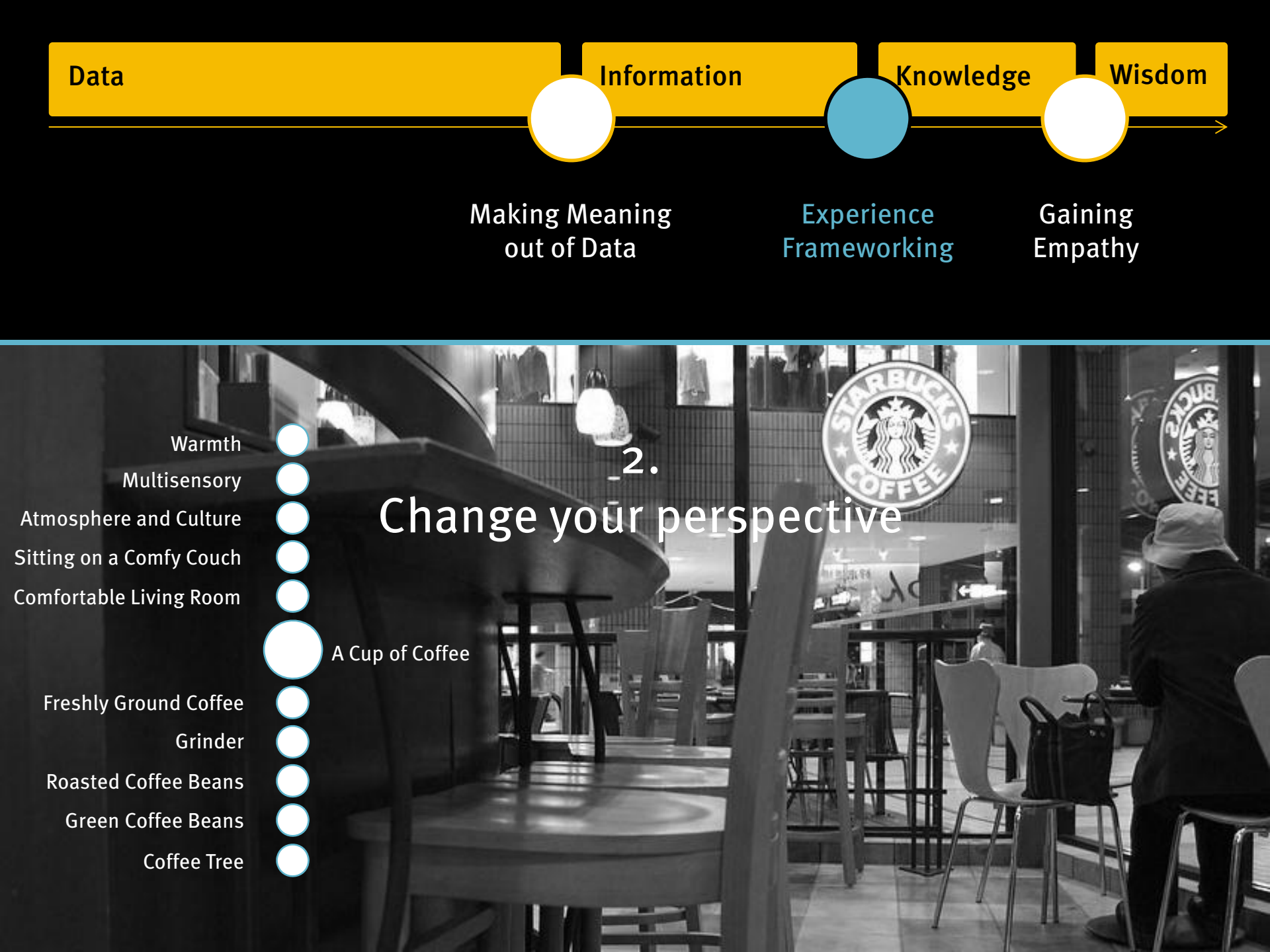
Gaining Empathy

1.
Tell a story








Data
Information
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Making Meaning out of Data
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2.
Change your perspective
Warmth
Multisensory
Atmosphere and Culture
Sitting on a Comfy Couch
Comfortable Living Room
A Cup of Coffee
Freshly Ground Coffee
Grinder
Roasted Coffee Beans
Green Coffee Beans
Coffee Tree
STARBUCKS COFFEE

Making Meaning out of Data

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3. Shift the context

A product, being assembled

A product, being purchased

A product, being unpacked and set up

A product accessory

A product, being used

A product that doesn't work

A product, becoming worn and loved

A product, that was misplaced

A product, being passed down to a new generation

A product, becoming obsolete

A product, being upgraded

A product, being discarded

A product, becoming another product

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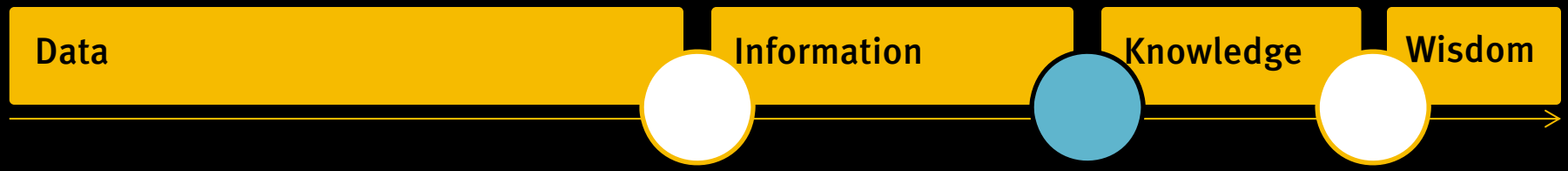

Making Meaning out of Data

Experience Frameworking

Gaining Empathy

Methods:

✓ concept mapping
temporal zoom
semantic zoom
storyboarding

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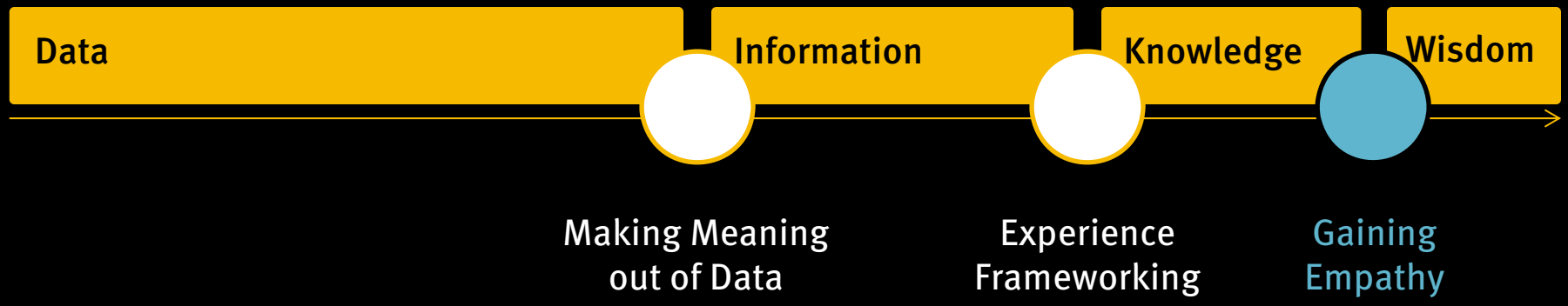
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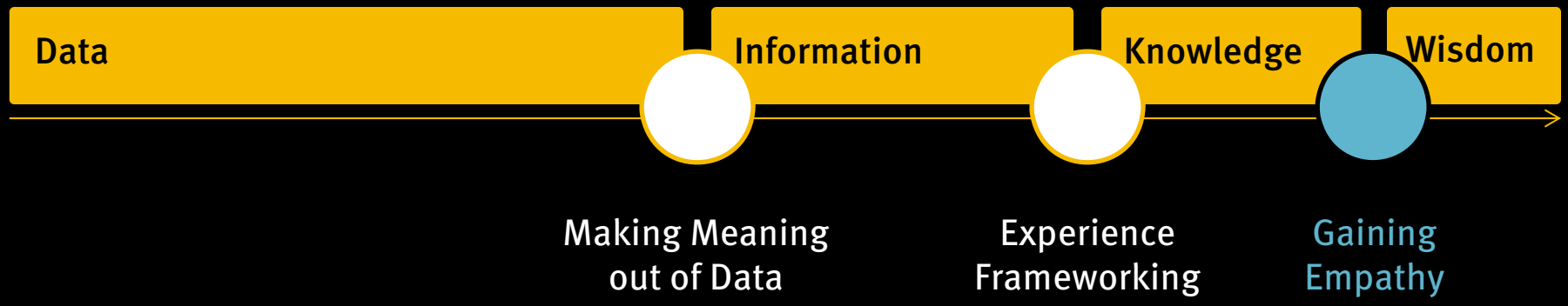

1.
Consider a provocation

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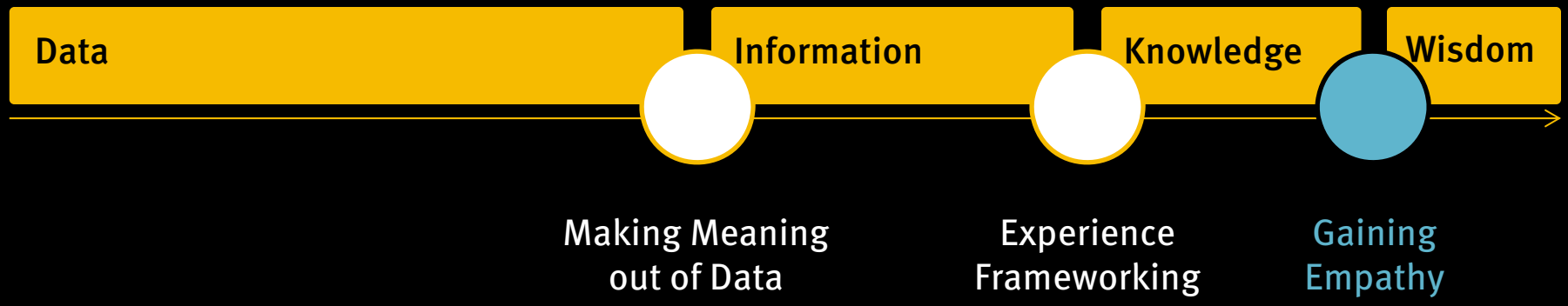

2.
Force a constraint-shift

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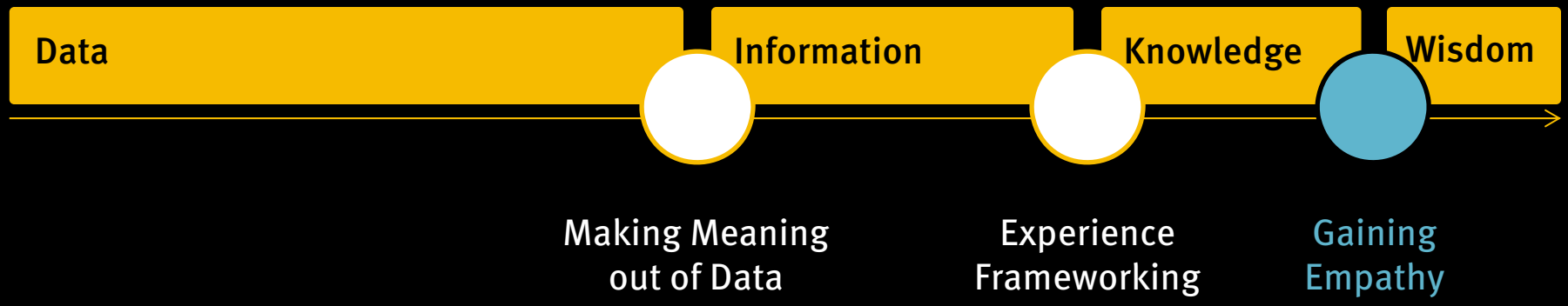

3.
Walk a mile in their shoes

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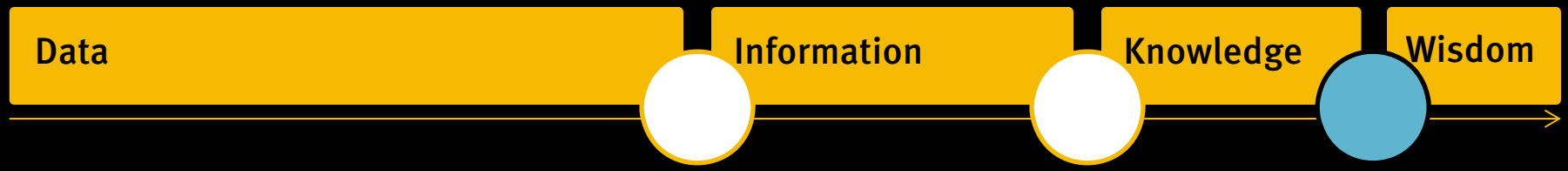

Making Meaning out of Data

Experience Frameworking

Gaining Empathy

Methods:

- ✓ reframing
- ✓ insight combination
- participatory design

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Methods

The Story So Far...

Your colleague, Melvin, has abruptly decided to go back to school to fulfill his lifelong dream of becoming a Taxidermist. Melvin had just finished the research phase of a project with a large client, and all of his work on the project – is gone. The only thing left are some insights he's extracted and a few of his notes, scribbled quickly.

You've been assigned to the project, but no one seems to have any background information about what he was doing; it's up to you to take what Melvin started and then move the project forward.

Process Flow Diagrams

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A Process Flow is…

A set of steps, and the sequencing of the steps, intended to produce a desired result.

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A Process Flow Diagram visualizes behavior, in a representational format, over time.

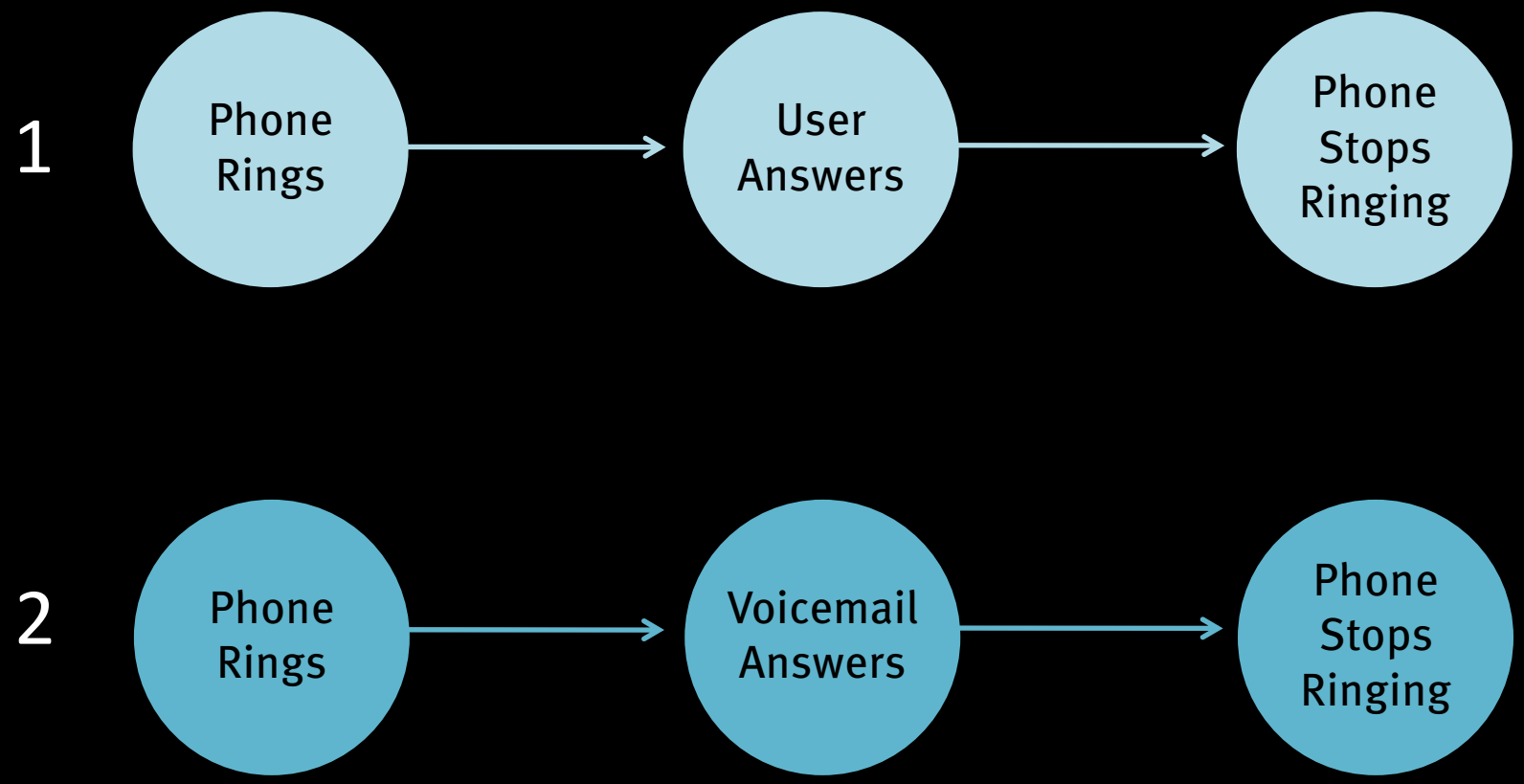
An **informal** scenario flow diagram:

1. Indicates the relationship and order of actions
2. Shows major interface states
3. Helps to visualize the “whole”, as well as proximity to the whole
4. Abstracts logical relationships in favor of linearity

A **formal** process or data flow diagram:

1. Indicates logical decision points
2. Articulates major data containers, and paths in and out of those containers
3. Can be used by engineers as an input into coding and architecture development

An Informal Scenario-Flow Diagram describes progress, steps, relationships, and order.



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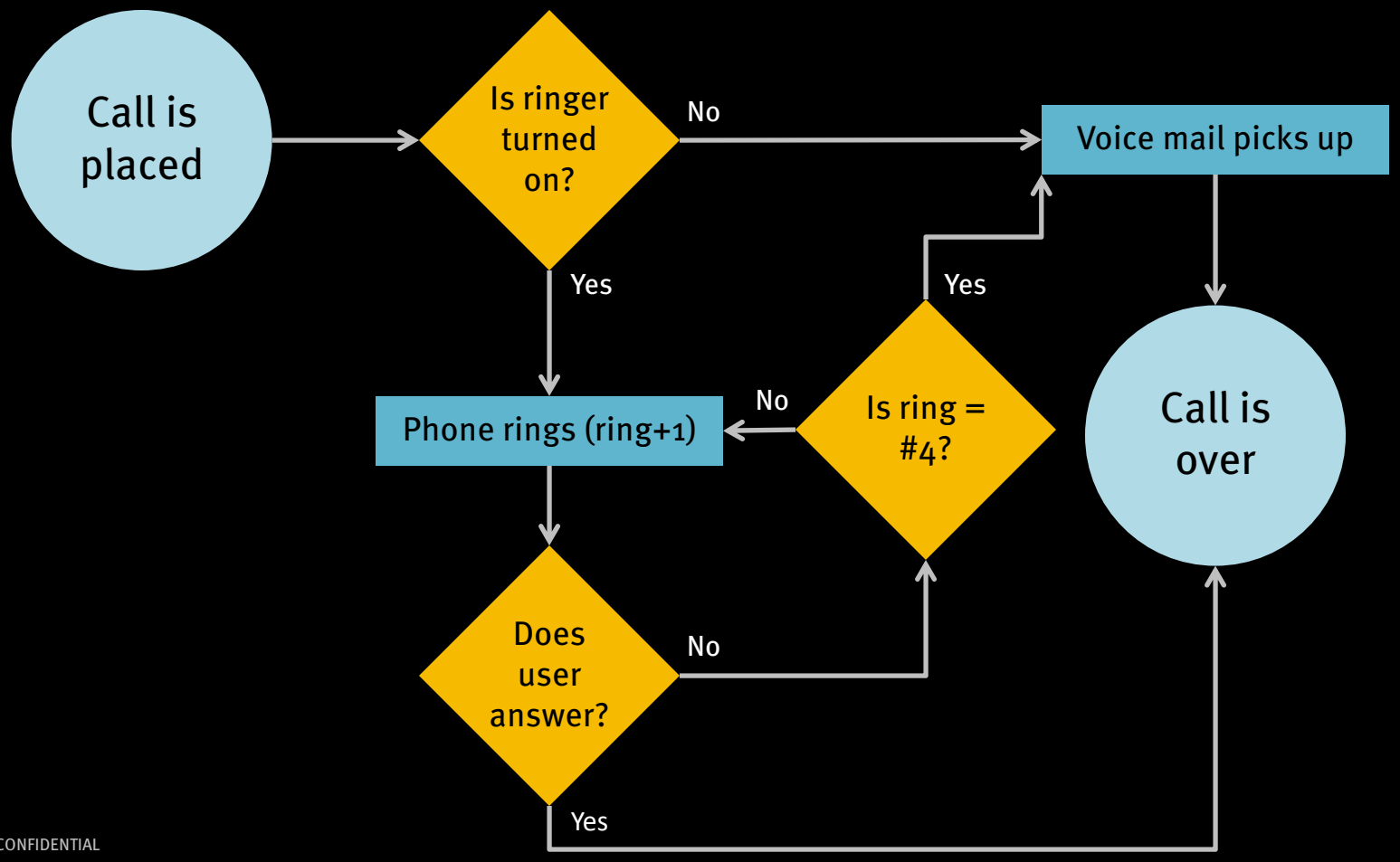
A formal Process Flow Diagram show logical decision points, accurate flow, and order.



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Creating a Process Flow Diagram is an f'in pain in the ass.

1. List entities (objects, people – the "nouns" of the system) and operators (actions – the "verbs" of the system) (2 hours)
2. Define things to be counted or incremented (1 hour)
3. Define boundary conditions (beginning and ending, as well as sub-flows or sub-processes) (1 hour)
4. List primary actions necessary to achieve boundary condition (3 hours)
5. Begin with a walkthrough, sketching each step in a high-level flow (10 hours)
6. Fill in the rest of the structure, revising the main flow as necessary (20 hours)
7. Reorganize, visually, to create a coherent overall structure (20 hours)
8. Use visual design to clarify and make the content more accessible (10 hours)

Create a formal process flow diagram.

1. List entities (objects, people – the “nouns” of the system) and operators (actions – the “verbs” of the system)

2. Define things to be counted or incremented

3. Define boundary conditions (beginning and ending)

4. List primary actions necessary to achieve boundary condition

5. Begin with a walkthrough, sketching each step in a high-level flow

6. Fill in the rest of the structure, revising the main flow as necessary

Concept Mapping

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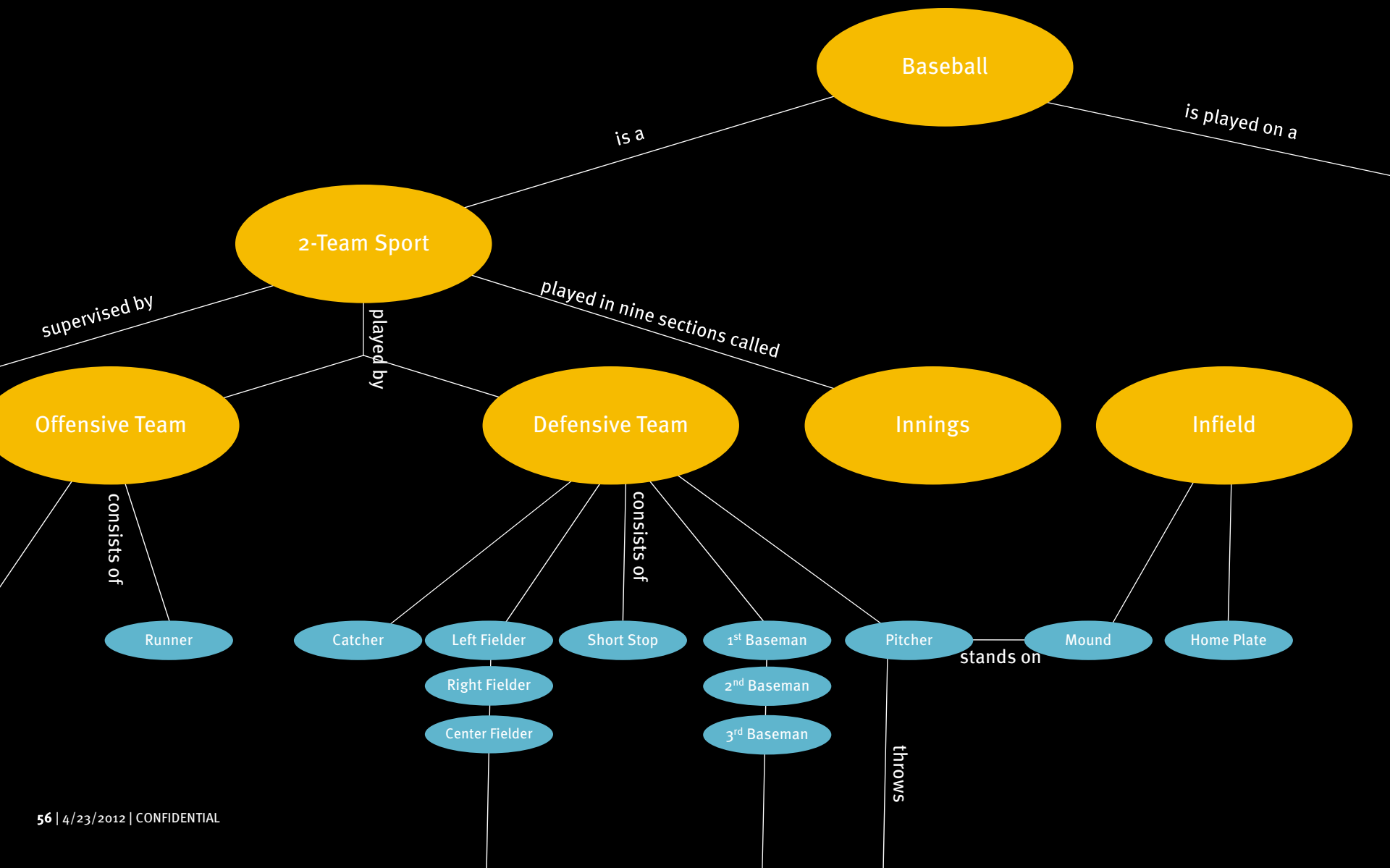
A Map is…

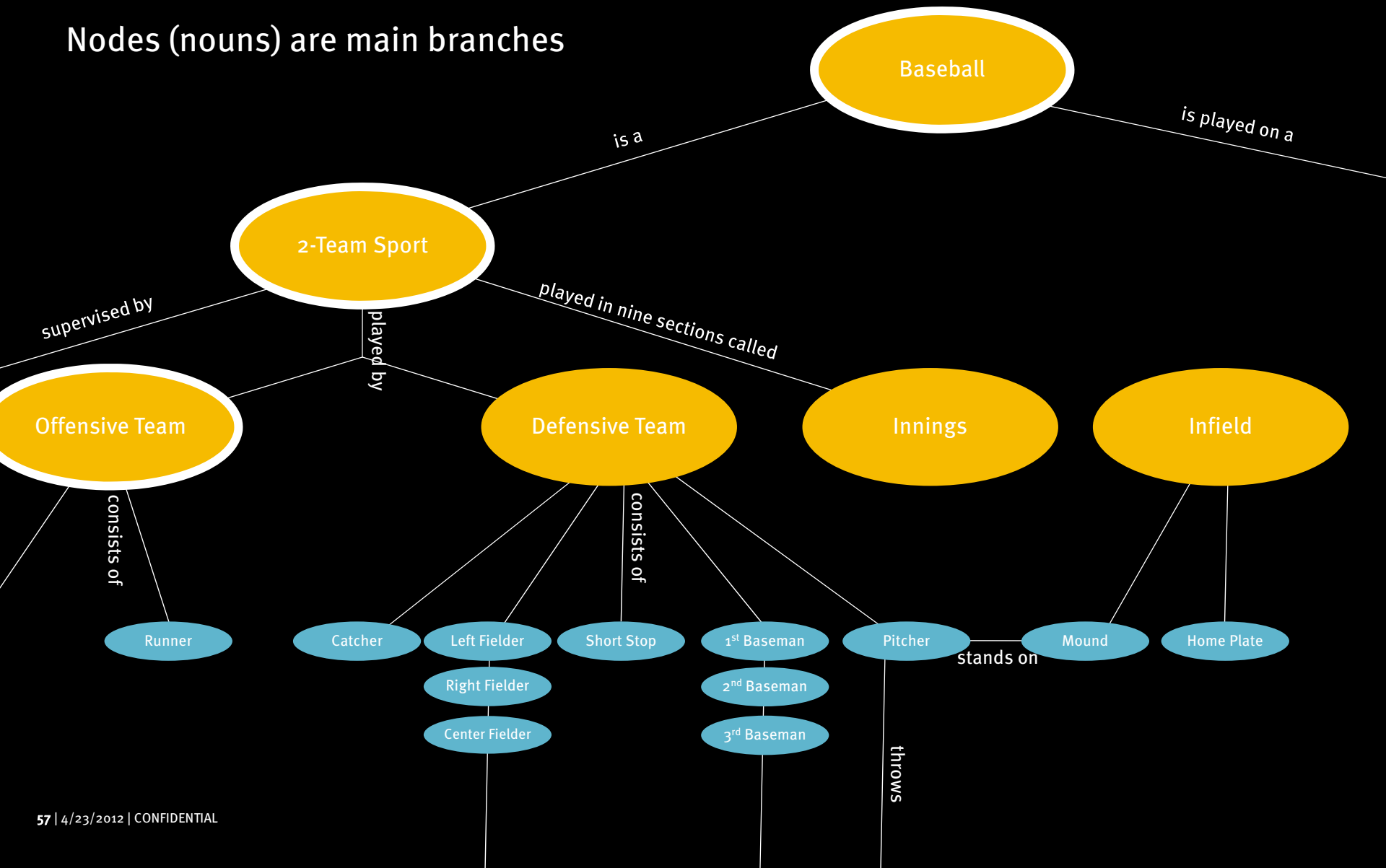
A representation of a system,
intended to help someone find their way

A Concept Map is a representation of a system. It sacrifices accuracy for comprehensibility.

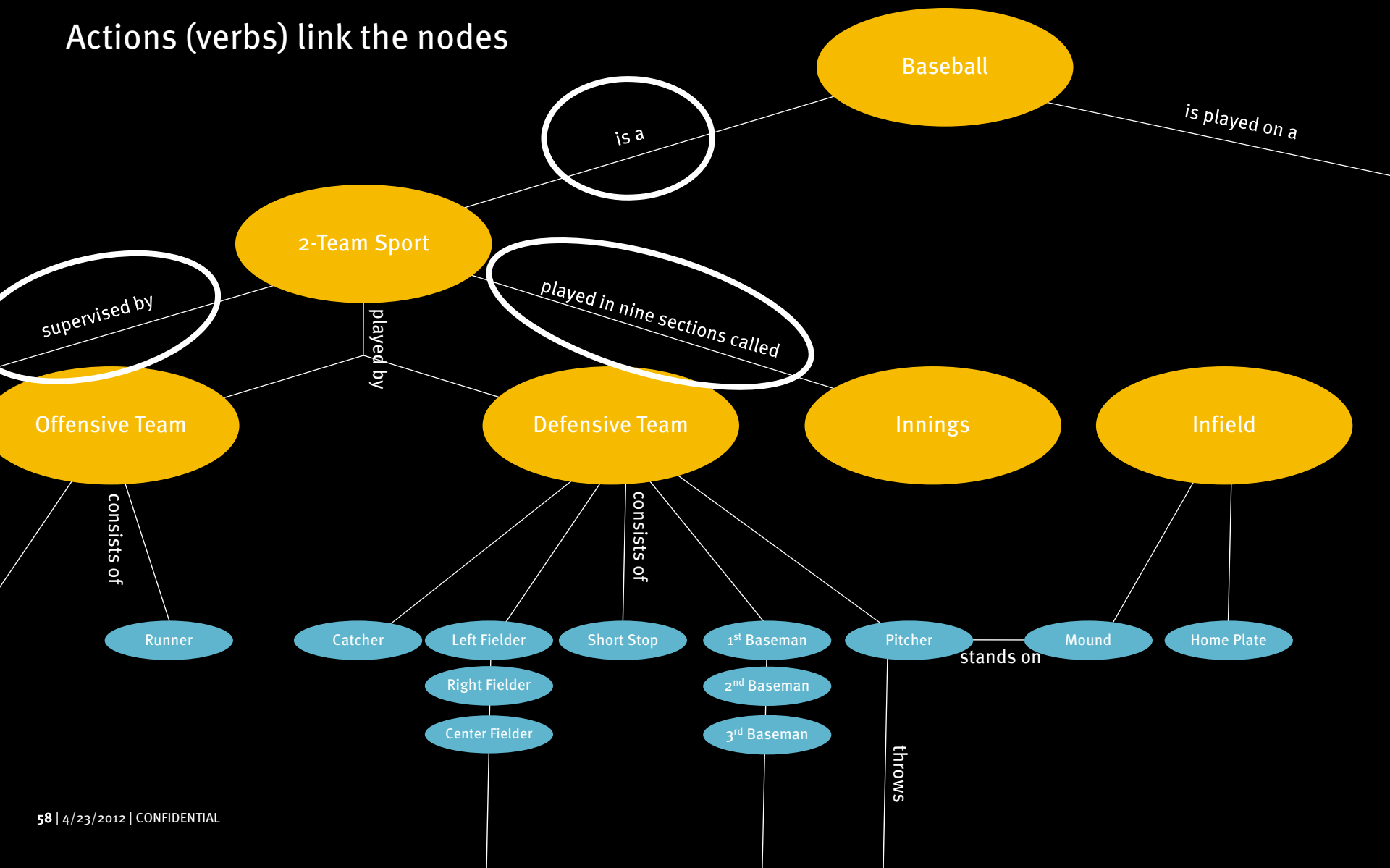
1. Visualizes both the forest and the trees (breadth and depth)
2. Rarely has a “beginning” and “end”
3. Helps people find their way (it’s a map, after all): provides direction and instruction
4. Forces selectivity, abstraction, prioritization and hierarchy
5. Is visual (a tool for perception)
6. Is semantic (a tool for cognition)
7. Frequently represents the user’s mental model of a how a system might work
8. Can also represent the designer’s manifest model of how a system might appear


Baseball
is a
is played on a
2-Team Sport
supervised by
played by
played in nine sections called
Offensive Team
Defensive Team
Innings
Infield
consists of
consists of
Runner
Catcher
Left Fielder
Short Stop
1st Baseman
Pitcher
Mound
Home Plate
stands on
Right Fielder
2nd Baseman
Center Fielder
3rd Baseman
throws

Nodes (nouns) are main branches



Actions (verbs) link the nodes



"Baseball Deconstructed"

Explaining the regulations, structure and intricate activities involved in a game of baseball to a novice

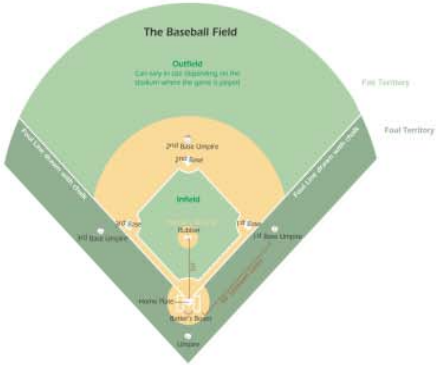
The objective for the **offensive** player is to score as many **runs** as possible during an **inning**. This can be accomplished by successful batting, **walking** and **stealing**. The idea is to run the **base circuit** starting from the batting position and then progressing on to first base, second base, third base and ultimately back to **home plate**. A **batting order** determines the sequence in which the offensive players will bat.

BASEBALL is a team Team Sport played by nine

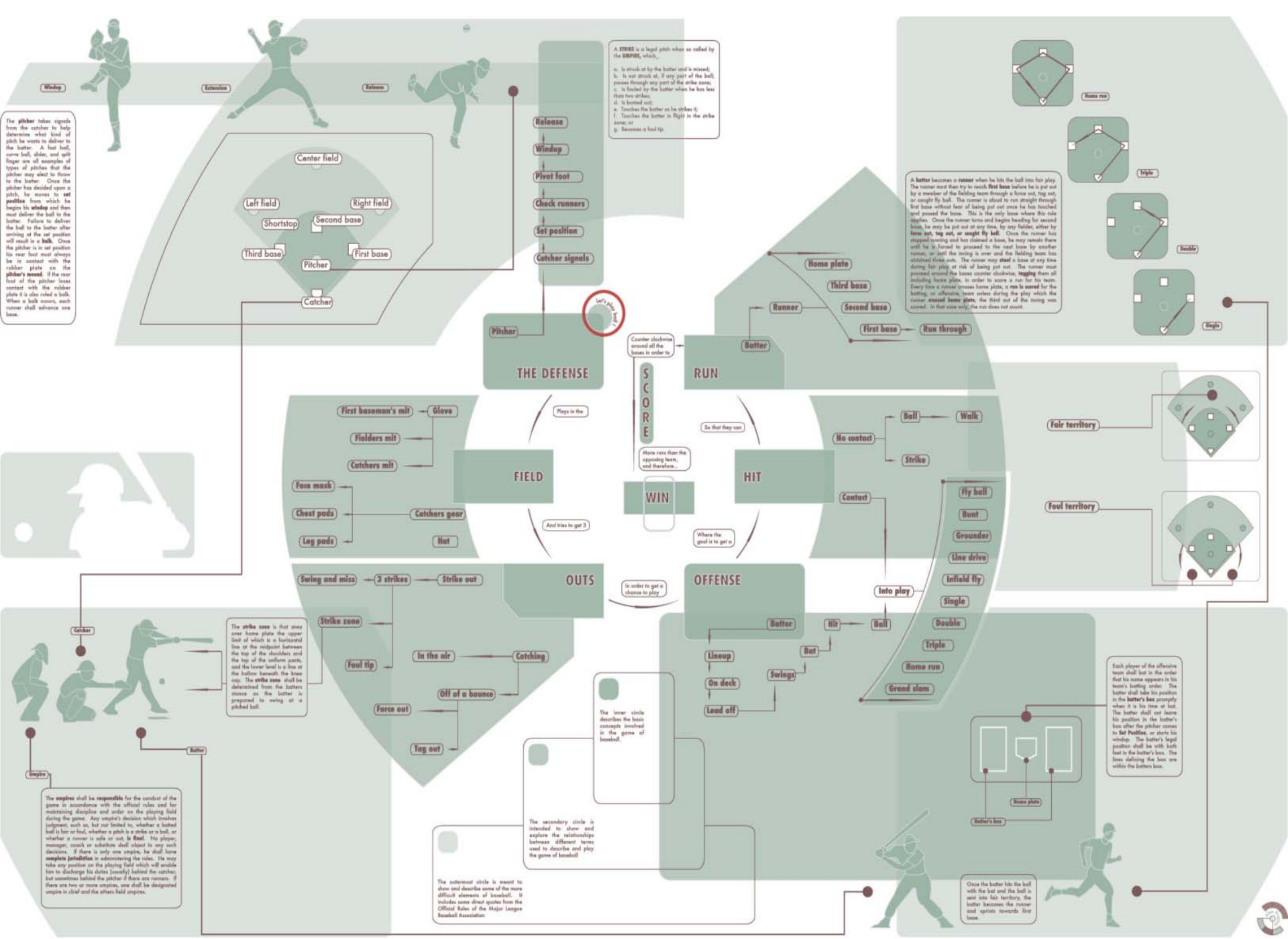
- Offensive players consisting of a Batter who swings a Bat at a thrown ball which he can
  - Hit with a
    - full swing
    - bunt
    - into
      - Fair territory to become a Runner and run to
        - 1st Base = Single
        - 2nd Base = Double
        - 3rd Base = Triple
        - Home Plate = Home Run to ultimately score a Run for his/her Team the team with the most Runs at the end of 9 Innings wins the game
      - Foul territory
        - one time and receive a Strike
        - two times and receive another Strike
        - three or more times No strike
  - Miss
    - the ball a first time and receive a Strike
    - the ball a second time and receive another Strike
    - the ball a third time and receive an Out
      - 1. Out requires the next batter in the Batting order to go up to Bat
      - 2. Outs means the Defensive players will switch positions with the Offensive players completing half of an Inning. A total of 9 Innings will complete a Game

- Defensive players who comprise
  - The Infielders which include a
    - 1st Baseman who stands on 1st Base
    - 2nd Baseman who stands on 2nd Base
    - Short Stop who stands between 2nd Base and 3rd Base
    - 3rd Baseman who stands on 3rd Base
  - The Outfielders which include a
    - Left Fielder who stands on the left side of the Outfield
    - Center Fielder who stands in the center of the Outfield
    - Right Fielder who stands on the right side of the Outfield
  - The Battery which include a
    - Catcher who uses a
      - Catcher's mitt to catch the balls thrown by the Pitcher
      - complex set of Signals to communicate to the Pitcher which type of ball to Pitch
    - Pitcher who pitches a ball that will be
      - Hit by a Batter
      - In the strike-zone adding to a batter's Strike count causing an Out with the accumulation of 3 Strikes
      - Outside the strike-zone
        - the first time
        - the second time
        - the third time
        - the Umpire will call "Ball" adding to the batter's Ball count
        - the fourth time the Umpire will call Walk which allows the batter to advance to 1st Base

The objective for the **defensive** player is to cause **three outs** during an **inning**. This can be accomplished by successful **pitching** causing a **strike out**, **tagging** a runner, catching a **fly ball** or causing a **forced out**. The **battery** uses **signals** to communicate with each other and intricate **tactics** to ensure their advantage over the opposition. All members of the defense are constantly on the look out for runners trying to **steal** a base and the chance to catch a fly ball causing an automatic out. If the defense has successfully caused three outs, then the **positions are reversed** and they assume the offensive playing roles allowing them the chance to score some runs.



Michael Albers
PRDS 370 - Information Architecture
Professor Jon Kolko
October 5th, 2003


Windup
Extension
Release
The pitcher takes signals from the catcher to help determine what kind of pitch he wants to deliver to the batter. A fast ball, curve ball, slider, and split finger are all examples of types of pitches that the pitcher may elect to throw to the batter. Once the pitcher has decided upon a pitch, he moves to set position from which he begins his windup and then must deliver the ball to the batter. Failure to deliver the ball to the batter after arriving at the set position will result in a balk. Once the pitcher is in set position his rear foot must always be in contact with the rubber plate on the pitcher's mound. If the rear foot of the pitcher loses contact with the rubber plate it is also ruled a balk. When a balk occurs, each runner shall advance one base.
Center field
Left field
Right field
Shortstop
Second base
Third base
First base
Pitcher
Catcher
Release
Windup
Pivot foot
Check runners
Set position
Catcher signals
A STRIKE is a legal pitch when so called by the UMPIRE, which_
a. Is struck at by the batter and is missed;
b. Is not struck at, if any part of the ball; passes through any part of the strike zone;
c. Is fouled by the batter when he has less than two strikes;
d. Is bunted out;
e. Touches the batter as he strikes it;
f. Touches the batter in flight in the strike zone; or
g. Becomes a foul tip.
Pitcher
Let's play ball!
THE DEFENSE
Plays in the
Counter clockwise around all the bases in order to
SCORE
More runs than the opposing team, and therefore...
WIN
Home plate
Third base
Second base
First base
Runner
Batter
Run through
RUN
A batter becomes a runner when he hits the ball into fair play. The runner must then try to reach first base before he is put out by a member of the fielding team through a force out, tag out, or caught fly ball. The runner is about to run straight through first base without fear of being put out once he has touched and passed the base. This is the only base where this rule applies. Once the runner turns and begins heading for second base, he may be put out at any time, by any fielder, either by force out, tag out, or caught fly ball. Once the runner has stopped running and has claimed a base, he may remain there until he is forced to proceed to the next base by another runner, or until the inning is over and the fielding team has obtained three outs. The runner may steal a base at any time during fair play at risk of being put out. The runner must proceed around the bases counter clockwise, tagging them all including home plate, in order to score a run for his team. Every time a runner crosses home plate, a run is scored for the batting, or offensive, team unless during the play which the runner crossed home plate, the third out of the inning was scored. In that case only, the run does not count.
Home run
Triple
Double
Single
First baseman's mit
Gloves
Fielders mit
Catchers mit
Face mask
Chest pads
Leg pads
Catchers gear
Hat
FIELD
So that they can
HIT
No contact
Ball
Walk
Strike
Contact
Fair territory
Foul territory
Fly ball
Bunt
Grounder
Line drive
Infield fly
Single
Double
Triple
Home run
Grand slam
Into play
And tries to get 3
Where the goal is to get a
Swing and miss
3 strikes
Strike out
OUTS
In order to get a chance to play
OFFENSE
Batter
Hit
Ball
Bat
Swings
Lineup
On deck
Lead off
Catcher
Strike zone
The strike zone is that area over home plate the upper limit of which is a horizontal line at the midpoint between the top of the shoulders and the top of the uniform pants, and the lower level is a line at the hollow beneath the knee cap. The strike zone shall be determined from the batters stance as the batter is prepared to swing at a pitched ball.
Foul tip
In the air
Catching
Off of a bounce
Force out
Tag out
Each player of the offensive team shall bat in the order that his name appears in his team's batting order. The batter shall take his position in the batter's box promptly when it is his time at bat. The batter shall not leave his position in the batter's box after the pitcher comes to Set Position, or starts his windup. The batter's legal position shall be with both feet in the batter's box. The lines defining the box are within the batters box.
Home plate
Batter's box
Umpire
Batter
The umpires shall be responsible for the conduct of the game in accordance with the official rules and for maintaining discipline and order on the playing field during the game. Any umpire's decision which involves judgment, such as, but not limited to, whether a batted ball is fair or foul, whether a pitch is a strike or a ball, or whether a runner is safe or out, is final. No player, manager, coach or substitute shall object to any such decisions. If there is only one umpire, he shall have complete jurisdiction in administering the rules. He may take any position on the playing field which will enable him to discharge his duties (usually) behind the catcher, but sometimes behind the pitcher if there are runners. If there are two or more umpires, one shall be designated umpire in chief and the others field umpires.
The inner circle describes the basic concepts involved in the game of baseball.
The secondary circle is intended to show and explore the relationships between different terms used to describe and play the game of baseball
The outermost circle is meant to show and describe some of the more difficult elements of baseball. It includes some direct quotes from the Official Rules of the Major League Baseball Association
Once the batter hits the ball with the bat and the ball is sent into fair territory, the batter becomes the runner and sprints towards first base.

Creating a Concept Map should be rigorous – after all, you are taming complexity!

1. Create a matrix showing the relations of terms: (10 hours)
    - List terms. Identify the main elements that make up the system; lean on your contextual research to understand the words that matter to the users the most.
    - Create empty matrix, plotting the words against themselves.
    - Identify relationships; these are qualitative and require interpretation.
2. Decide on main branches of the map, based on frequency of connections as well as common sense (2 hours)
3. Fill in the rest of the structure, in order to represent all of the elements in the system (5 hours)
4. Use visual design to clarify and make the content more accessible (10 hours)

For example…
Making a concept map of AC4D.

Social Entrepreneurship	Founders	Confidence	Project Management
Sketching	Branding	Roadmaps	Strategist
Behavior	Impact	Sarcasm	Visual Design
Creativity	Theory of Change	Jon Kolko	Wicked Problems
Fun	Beer	Whiteboards	Mobile

	Soc. Ent	Founders	Confidence	Project Mgmt	Sketching	Branding	Roadmaps	Strategist	Behavior	Impact	Sarcasm	Visual Design	Creativity	Theory of Change	Jon Kolko	Wicked Problems	Fun	Beer	Whiteboards	Mobile
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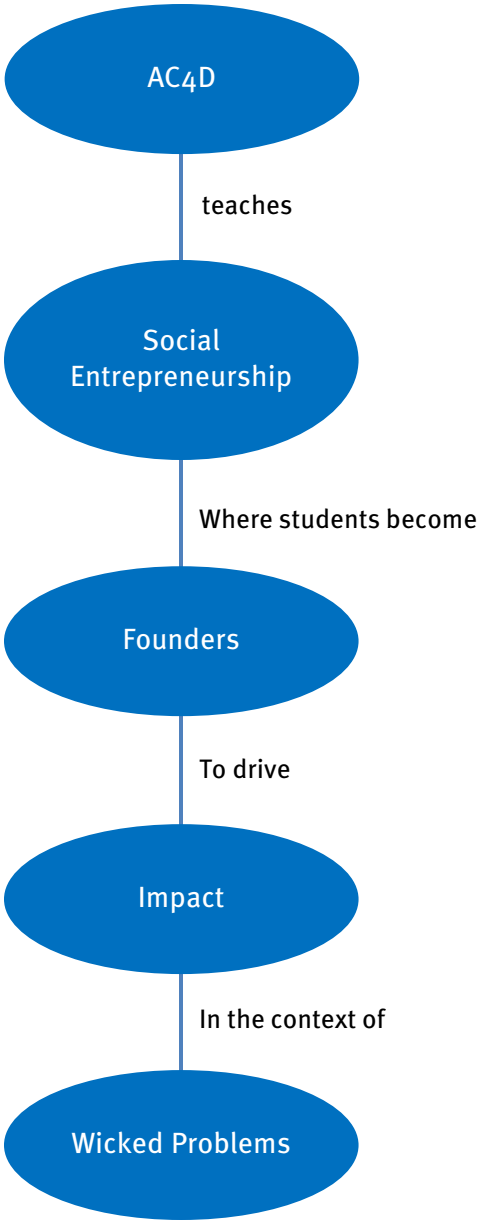
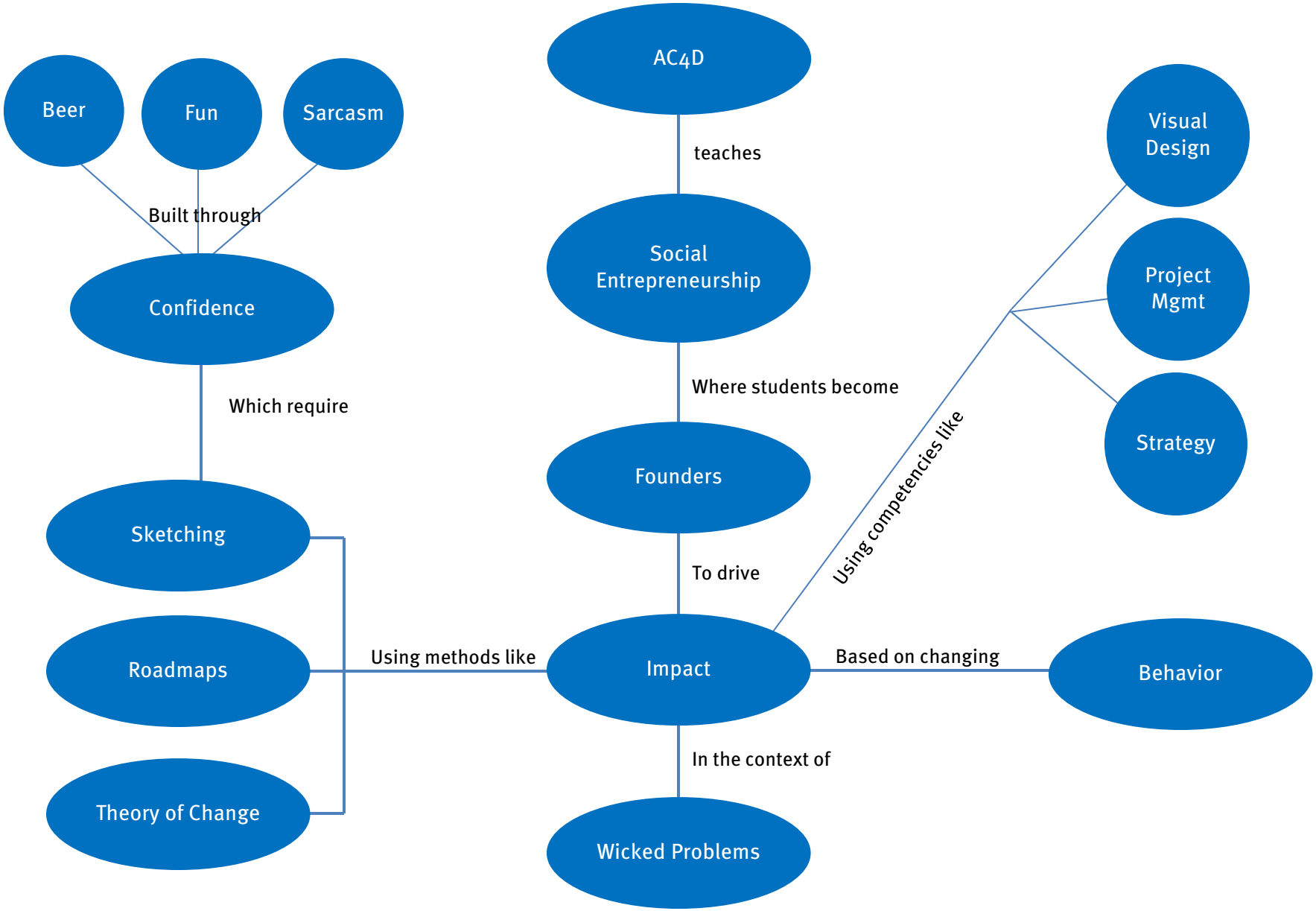

AC4D
teaches
Social Entrepreneurship
Where students become
Founders
To drive
Impact
In the context of
Wicked Problems

ac4d


Beer
Fun
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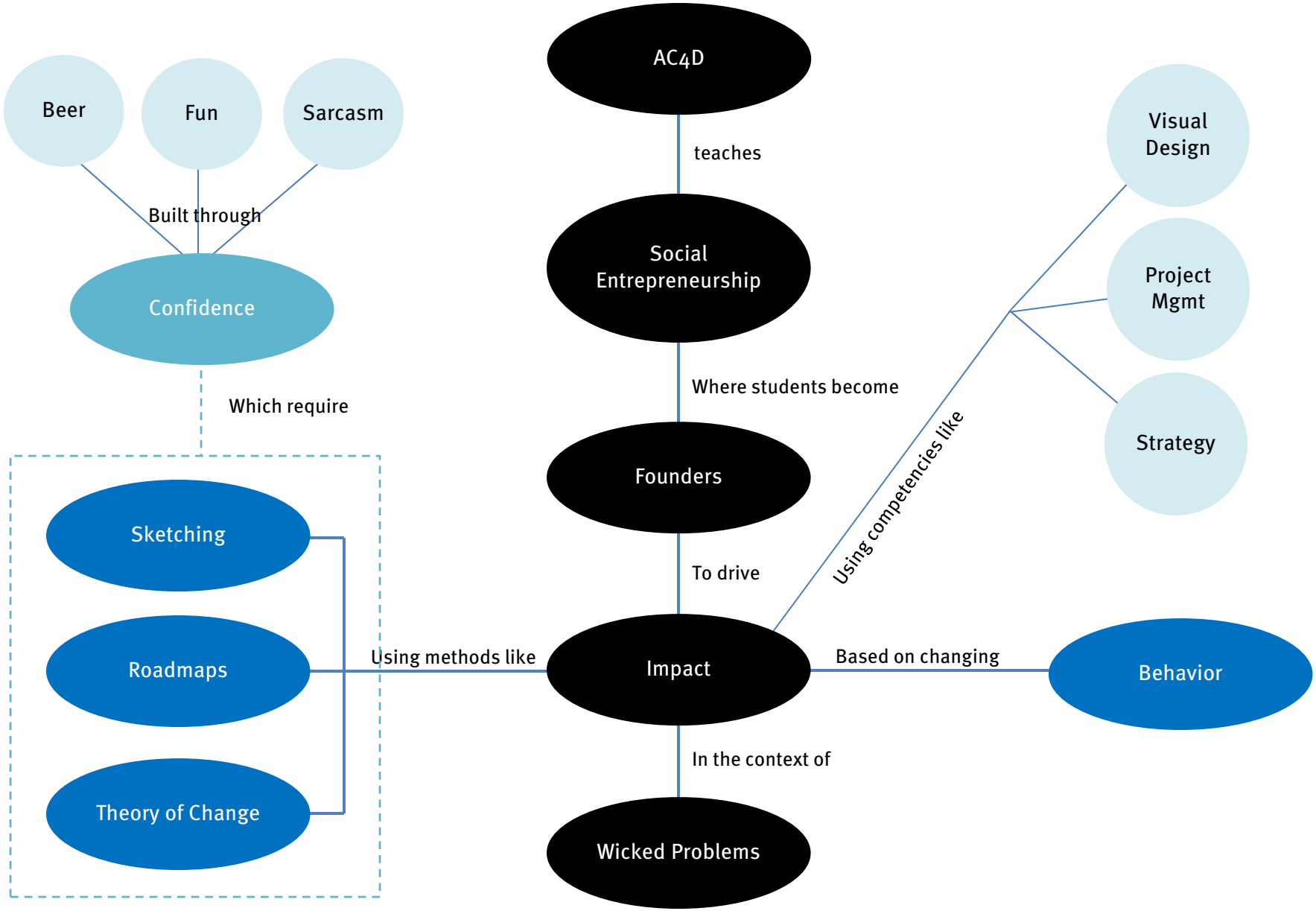
ac4d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ac4d

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    C. Identify relationships.

2. Decide on main branches of the map, based on frequency of connections.

3. Fill in the rest of the structure, in order to represent all of the elements in the system

Insight Combination

ac4d

An insight is a

clear, deep, meaningful perception
into human behavior in a particular design context.

It's a provocative statement of truth.

* And it may be wrong.

ac4d

Design patterns describe…

"possible good solutions to a common design problem within a certain context, by describing the invariant qualities of all those solutions"

Tidwell

Insight Combination is a method of building on insights and established design patterns in order to create initial design ideas.

1. Forces a detailed examination, and organization, of each individual insight
2. Is divergent, in that it actively produces new ideas and expands the entire set of insights
3. Pushes ideas forward in a nonlinear fashion, jumping over the expected to arrive at the unexpected
4. Allows for the combination of existing paradigms with new and novel ideas (it's a generative design activity)
5. Takes advantage of the personal experiences of the designers and investigators
6. Takes advantage of established design patterns

I saw this + I know this = Insight

ac4d

I saw this + I know this = Insight

Data gathered through ethnography, contextual inquiry, questionnaires, and interviews

ac4d

I saw this + I know this = Insight

Data gathered through ethnography, contextual inquiry, questionnaires, and interviews

Guided by ethics & morals, intellectual prowess, and the accumulation of world view and breadth of experience

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Clear, deep, meaningful perception into human behavior in a particular design context

I saw this + I know this = Insight + Design Pattern = Design Idea

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A trending paradigm that describes invariant qualities, referencing history and similar solutions

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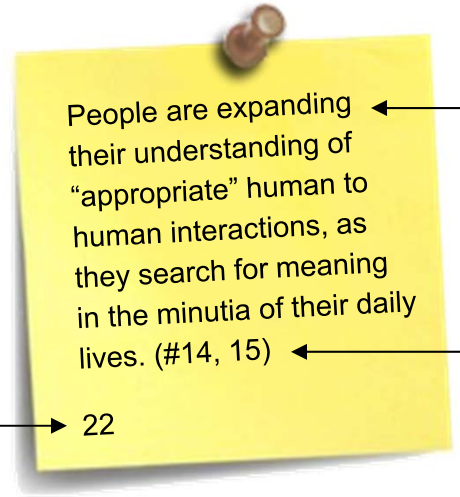
Clear, deep, meaningful perception into human behavior in a particular design context

A trending paradigm that describes invariant qualities, referencing history and similar solutions

A new, creative concept, somewhat facilitated by existing design paradigms

Insights go on yellow cards.

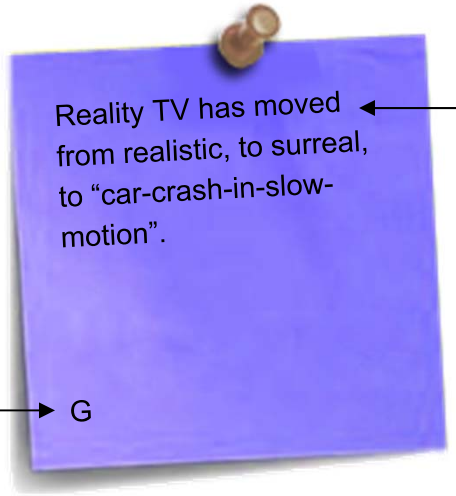


Provocative statement of truth

Evidence from a transcript (citation)

Unique insight number

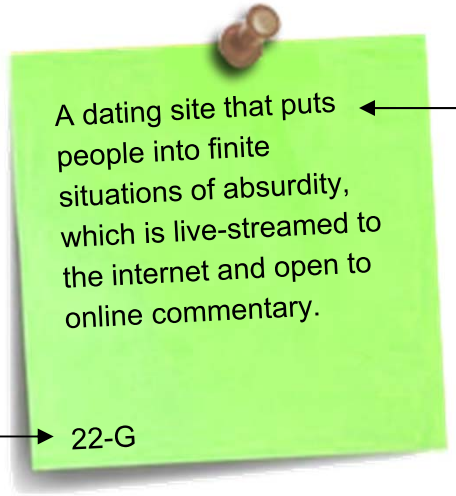
Patterns go on blue cards.



Pattern, or trending piece of culture and society

Unique pattern letter

Design ideas go on green cards.



Design idea, built on the combination of an insight and a pattern

Unique insight and pattern identifier

Insight Combination…

… with boring old enterprise configuration software …

ac4d

only when

ple avoided talking
til it was absolutely
ool should allow for
aterials where
dded or removed
, 199)

Support the increasingly detailed nature of a configuration.

As a configuration moves through the sales cycle, it will become increasingly detailed and complicated. The tool should afford all levels of detail in the configuration process. (#14, 15)

22

Allow for an iterative configuration process.

Even a simple configuration will exist in multiple states throughout the configuration process, and the user will try several variations before identifying an ideal and final solution. The configuration tool should support this. (#44, 123)

17

Provide both offline and online access.

Salespeople work in disconnected environments – like airplanes – and the tool should work in those environments too. (#98, 99)

87

an "invalid"

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port this.

Allow users to create multiple "what if" scenarios.

Salespeople frequently work through multiple configurations in parallel, in an attempt to understand all of the possible solutions to their problems.

(#123-144)

Allow for a visual configuration.

Salespeople frequently sketch out a configuration on a whiteboard or a piece of paper during the sales cycle; allow the tool to help them work in a visual manner.

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Direct manipulation, drag and drop tools on the web are increasingly prevalent.

R

More and more portable devices allow file management and employ some sort of data-synching.

G

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87

There seems to be a push towards online backup and recovery tools for large datasets.

D

Progressive disclosure with AJAX is an effective way to provide increasingly more granular levels of detail.

A

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Salespeople frequently sketch out a configuration on a whiteboard or a piece of paper during the sales cycle; allow the tool to help them work in a visual manner.

(#123-144)

People are increasingly familiar with visual and playful configuration tools that allow for side by side comparison of similar items.

F

Small screen
used in tand
broad opera

P

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Salespeople work in disconnected environments – like airplanes – and the tool should work in those environments too. (#98, 99)

87

Direct manipulation, drag and drop tools on the web are increasingly prevalent.

R

More and more portable devices allow file management and employ some sort of data-synching.

G

Provide an HTML drag and drop tool that looks like an application.

Allow it to run when disconnected from the server, and provide a clear and cohesive mechanism for synching (and for displaying when things are out of synch).

87-R-G-1

I saw this + I know this = Insight + Design Pattern = Design Idea

Data gathered through ethnography, contextual inquiry, questionnaires, and interviews

Guided by ethics & morals, intellectual prowess, and the accumulation of world view and breadth of experience

Clear, deep, meaningful perception into human behavior in a particular design context

A trending paradigm that describes invariant qualities, referencing history and similar solutions

A new, creative concept, somewhat facilitated by existing design paradigms

This method takes time, and more importantly, takes emotional energy and focus.

1. Begin to identify insights in the data you've gathered by combining an observation (I saw this) with your knowledge (I know this); write the insights on yellow post-it notes. Reference the line numbers from any applicable transcripts, and give each yellow post-it note a unique numeric ID. (10+ hours)

2. Identify design patterns that are relevant to the discipline you are designing for. Ideally, you begin to keep a design pattern library. Write the patterns on blue post-it notes. Give each blue post-it note a unique letter ID. (2+ hours)

3. Start to combine insights and design patterns to create design ideas by mingling the blue and yellow post-its, moving them around physically, and actively reflecting on potential combinations. When a combination makes sense and generates a design idea, write it in a green post-it note. Give each green post-it note a unique design idea ID (referencing both the yellow and blue notes above). (40+ hours)

4. Once you are almost "done" (usually when you've nearly run out of time and money), log the entire set into a spreadsheet. (3 hours)

5. Finally, pick the top ideas and start to sketch them. (3 hours)

Now, you can always trace any design idea back to an insight, and ultimately, back to a nugget of user data.

Perform an insight combination.

1. Read the insights Melvin has gathered (yellow notes).
2. Quickly free-associate 10 patterns, based on trends in culture (blue notes).
3. Combine an insight – at random – with a pattern – at random, to create a new design idea.
4. Draw or write the design idea on a green card.
5. Repeat.

Reframing

ac4d

A frame is a perspective or viewpoint:

"Even though frames define what count as data, they themselves actually shape the data (for example, a house fire will be perceived differently by the homeowner, the fire fighters, and the arson investigator)."

Klein, Moon & Hoffman

Reframing is a method of shifting semantic perspective in order to see things in a new way.

1. "Re-embeds" a product, system or service in a new (and not necessarily logical) context
2. Explores associations and hidden links to and from the center of focus
3. Posits a "what if" scenario implicitly
4. Is primarily semantic (a tool for cognition)
5. Encourages empathy
6. Forces understanding of the various touchpoints
7. Identifies implications and insights

Consider a toothbrush …

environment

in the bathroom

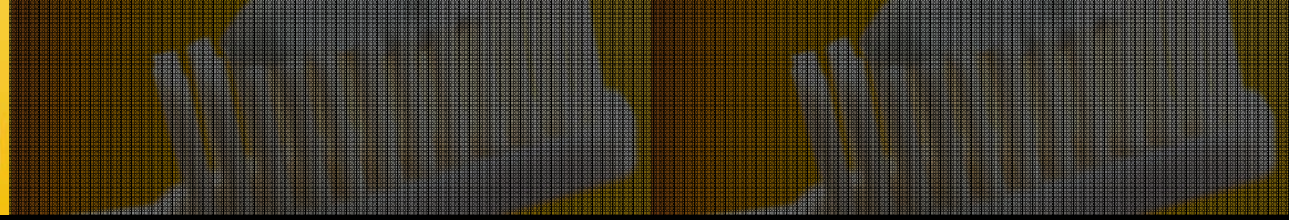
perspective

consumer

embodiment

object

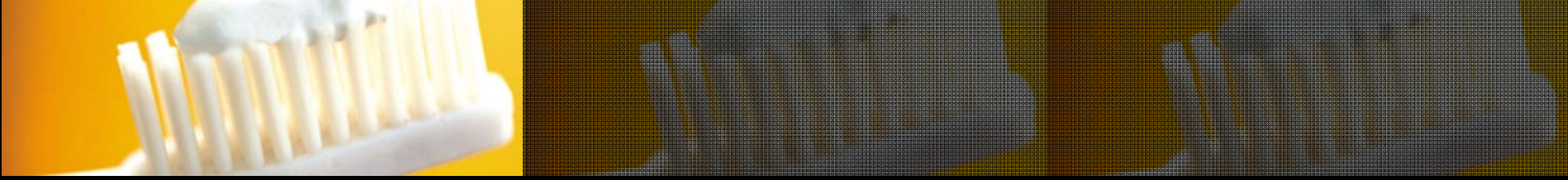
ac4d



environment	perspective	embodiment
in the bathroom	consumer	object

reframed in a new environment:	primary user goal:	implications and insights:

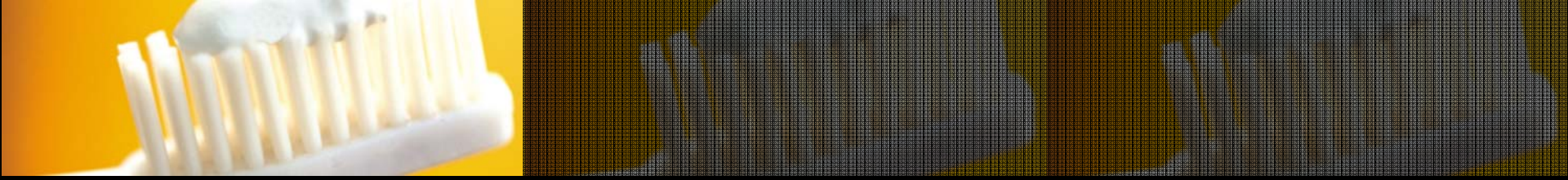
ac4d



environment	perspective	embodiment
in the bathroom	consumer	object

reframed in a new environment:	primary user goal:	implications and insights:
In the kitchen		
In an airplane		
At a conference		

ac4d



environment	perspective	embodiment
in the bathroom	consumer	object
reframed in a new environment:	primary user goal:	implications and insights:
In the kitchen	Remove food	Teeth cleaning should allow for a way to quickly get pieces out of hard to reach places, and shouldn't require a mirror
In an airplane	Remove smells	Provide a way to quickly and nonchalantly freshen breath in close quarters and without being offensive to other passengers
At a conference	Remove lettuce before giving a talk	Teeth cleaning should include some form of sharp picking object, and should clearly indicate when you missed a chunk

ac4d

environment	perspective	embodiment
in the bathroom	consumer	object

reframed from a new perspective:	primary user goal:	implications and insights:

ac4d

environment	perspective	embodiment
in the bathroom	consumer	object

reframed from a new perspective:	primary user goal:	implications and insights:
dentist		
hotel housekeeper		
Blind date		

ac4d

environment

in the bathroom

perspective

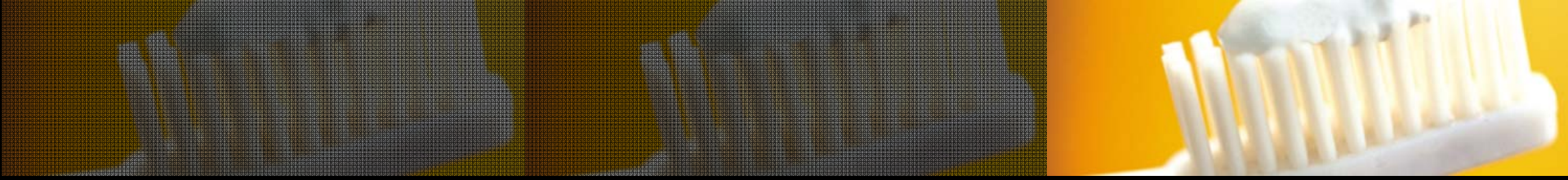
consumer

embodiment

object

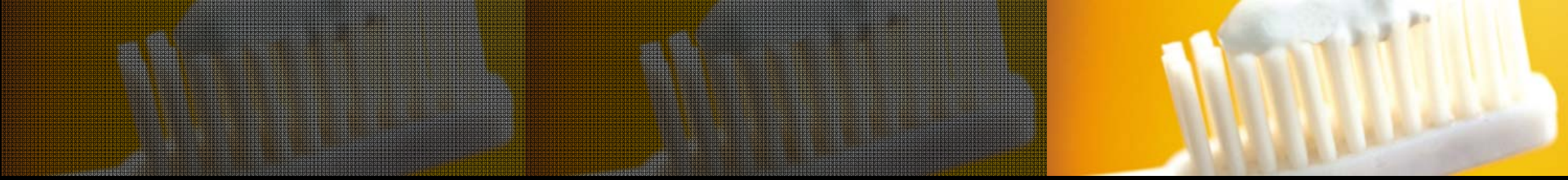
reframed from a new perspective:	primary user goal:	implications and insights:
dentist	Clean teeth & prevent future problems	Teeth cleaning should be as rigorous as possible, and should be “future proof” for some period of time
hotel housekeeper	Clean the hotel room	Teeth cleaning should have as small a disposal footprint as possible, and shouldn’t generate any extra work, trash, or waste
Blind date	Look attractive	There should be a way to casually alert the date that they have something nasty in their teeth.

ac4d



environment	perspective	embodiment
in the bathroom	consumer	object
reframed as a new embodiment:	primary user goal:	implications and insights:

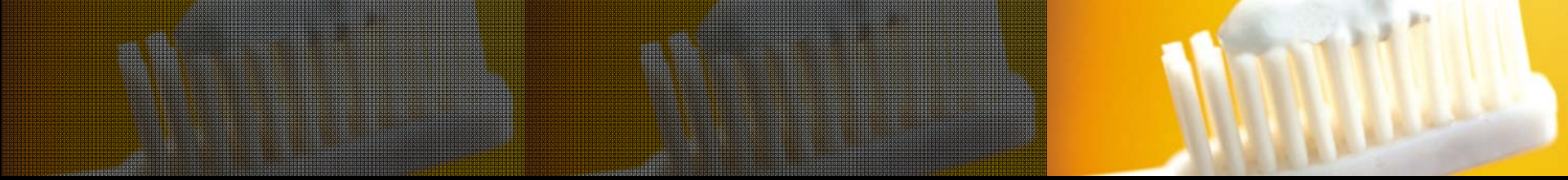
ac4d



environment	perspective	embodiment
in the bathroom	consumer	object

reframed as a new embodiment:	primary user goal:	implications and insights:
A Plant		
A Spray		
A Service		

ac4d



environment	perspective	embodiment
in the bathroom	consumer	object
reframed as a new embodiment:	primary user goal:	implications and insights:
A Plant	Clean teeth while feeling closer to nature	There should be a plant with teeth cleaning properties, that can live peacefully in one of the aforementioned environments
A Spray	Clean teeth quickly without friction	A portable spray should freshen breath but should also clean teeth; instant or quick acting timeframe, through a fine mist.
A Service	Gain “dentist visit” cleanliness in between visits	Provide a quick-stop for interim dentist appointments – at the mall. Should be trustworthy and clean; legal implications…

ac4d

Reframing is easy, and easier in teams – but requires that you perform an abduction

1. Identify the product, service or system that is being reframed. It's not always what your client asked for. (1+ hour)

2. Create blank reframing charts on paper, one each for environments, users, and embodiments. (5 minutes)

3. Free associate new items for the left column of each chart; work on all three charts at once. There are no bad ideas: criticism is completely suspended. (1+ hour)

4. Begin to fill in Primary Goal for all items in all charts. Try to paint a picture of a credible story; judge responses and add criticism as appropriate, but only in relationship to the primary goal column. (2 hours)

5. Begin to fill in the Implications and Insights column in all charts. There are no bad ideas; criticism is completely suspended. An item can generate more than one implication or insight; if it does, create a new row to capture it. Try to generate thirty-fifty items for each list. (4 hours)

6. Extract implications and insights that are relevant based on the specific constraints of your project, and list them: these can then be integrated with the rest of your design criteria. (1 hour)

7. Select the best ideas, and sketch them. (3 hours)

Reframe.

1. Create 3 blank reframing charts, one each for environment, perspective, and embodiment.

2. Starting with environment:
    A. Free-associate new items for the left column.
    B. Fill in the users' primary goal, based on the left column.
    C. Fill in new design insights, based on the left column.

3. Repeat with perspective.

4. Repeat with embodiment.

Summary

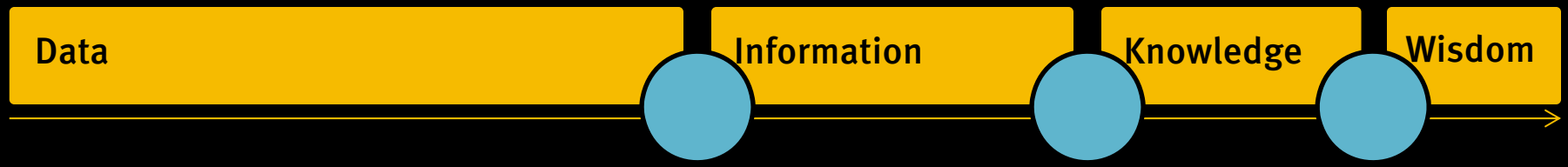
Ethnography

Synthesis

Prototyping

Synthesis is the process of making meaning through inference-based sensemaking.

ac4d



Making Meaning out of Data

Methods:

affinity diagramming
hierarchy creation
flow diagramming
scenario development

Experience Frameworking

Methods:

concept mapping
temporal zoom
semantic zoom
storyboarding

Gaining Empathy

Methods:

reframing
insight combination
participatory design

ac4d


EXPOSING
THE
MAGIC
OF
DESIGN
A Practitioner's Guide to the
Methods & Theory of Synthesis
Jon Kolko
With contributions from Beth Johnson, Gianna Marzilli Ericson, Paul Gould,
Colleen Murray, Hugh Dubberly, Lauren Serota, and Rachel Hinman
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