1
Finding the conceptual center

MODELS AND FRAMEWORKS

BUILD-TO-THINK PROTOTYPES

LISTS AND OPEN-ENDED WRITING

Externalize thinking.

Achieve clarity around what's known, what's desired, and what's proposed.

Build alignment and shared meaning among team members.

We have a condition, when creating The New, of needing to process the mess of inputs we have gathered. We have quantitative data, qualitative data, industry reports, trend reports, rumors, stories, our own experiences. We've read it all. We may have lived it through direct experience with users and their lives. Now we must make sense of the soup. And we must make meaning from it. How do we decide which of all the things we have lived, read, and seen really matter most to the challenge at hand?

HOW TO "KNOW WHAT YOU KNOW"

Neuroscientists tell us 95 percent of brain activity is unconscious. For the sake of argument, let's say most of that activity is not worth conscious thought—digestion, walking, and cell division likely work better without our input. But while our brain's ability to operate and store information unconsciously makes us efficient, it may also be a problem: What if we need some of that 95 percent? What if some of what we have sublimated is important to the challenge at hand? An important first step in creating The New is finding a way to surface and organize the massive number of inputs our brains have so efficiently and automatically stored. We need to make it all top of mind again.

This is where communicating The New starts: surfacing what is known and then finding and articulating the conceptual center of the work. No effective communication can take place if we don't know what we are trying to say. No effective progress can take place if a team does not have a shared conceptual model of what's important. Articulating what we mean, whether on our own or as part of team, is a critical stage in communicating The New.

The challenge of "unspeakable data"

In creating The New, we face an early-stage condition of *unspeakable data*—the data of our senses, thoughts, and emotions. This is author Peter Turchi's phrase for capturing the fiction writer's condition in his book *Maps of the Imagination: The Writer as Cartographer*. In the context of creating The New, "unspeakable data" refers to all the

rich details and information we have ingested as we framed our challenge, conducted research, and began to explore directions. Much of that experience now lives in a subconscious state that some might understand as intuition. We know our bodies take in information through our five senses at a speed and depth that we are largely unaware of, but that we are richly wired to interpret and apply with little conscious thought. This may explain why so many designers and innovators rely on field research methods to better understand the reality of their customers: Research teams go into customers' homes and workplaces and cars and coffee shops so that they may observe with their eyes and with their hands, noses, and ears the everyday context and activities of the people they are creating for. In these cases, our bodies are our field instruments as much as our field notebooks. This data becomes "unspeakable" because it is often deeply embedded in our sense memory, and it may or may not ever make it to the pages of our field notebooks. We know it, but we may not *know we know it*.

How to surface unspeakable data? Or unspoken knowing? What are effective processes for working through the mess and finding that conceptual center? In this section, we look to the fields of design, engineering, education, and journalism to identify methods for early-stage synthesis. And we go back to basics to include those often ignored ways of knowing that are part and parcel of our conceptual system. On the basis of my research, I cluster these methods into three basic categories:

- **MODELS AND FRAMEWORKS**

- **BUILD-TO-THINK PROTOTYPES**

- **LISTS AND OPEN-ENDED WRITING**

The ROI and PFP (Pain for Progress) of these approaches

Although helping individuals and teams align on what they know is a critical milestone, it's actually not that hard to do. Years of professional practice and teaching tell me this: For all the confusion and mess, people in the early stages of projects know more than they give themselves credit for. We are, after all, sense-making machines driven toward answers. But self-doubt, piles of facts, and a fair bit of ambiguity can impair a team's vision and clarity in ways that are uncomfortable and time-consuming. Too often, getting to conceptual clarity is where the team collides with the uncompromising requirements imposed by the project's Gantt chart.

If thirty minutes of open-ended writing (one of my favorite accelerants) or two hours of rough prototyping could save a team days of unfocused meetings and group gropes, would that merit stepping out of the Gantt chart? In the pages that follow, I propose no method or approach that I have not used myself. These require no specialized knowledge, equipment, or software. They work on the train ride in, or at the lunch table. They work for individuals and for teams.

What they require is a willingness to ask an open-ended question, "What do we know?" and to proceed from there as if the answer is within reach. Because it is.

MODELS AND FRAMEWORKS:
Thinking with our eyes

All models are wrong, but some are useful.

—George P. Box, statistician and author of *Empirical Model-Building and Response Surfaces*

WHAT CAN MODELS DO FOR US?

Models or frameworks are abstract, diagrammatic representations of information or observations. Models represent a particular view of reality, and so can be partial and subject to change, and may even represent incorrect interpretations. What makes models useful is their ability to abstract and simplify complex content.

Models are particularly useful in the early stages of creating The New, when a team may find itself awash in data and in search of meaning. Models are effective at this stage because they remove distracting detail and anecdotal content to reveal an underlying structure or pattern in the information. Models install boundaries on the system of ideas, telling us where the conceptual space begins and ends. All this de-cluttering and distillation fosters clarity. It builds consensus (or at least supports conversations that can lead to consensus) and opens up questions about what could exist in the future. This may explain why so many practitioners who favor models say that the process of making models may be more useful than the model itself: Model creation requires reflection, editing, negotiation, and storytelling. These are all excellent activities for individuals or teams in search of synthesis and convergence.

Because they are visual expressions of thought, models do something that text cannot: To borrow a phrase from quantitative visualization guru

Stephen Few, models allow us to "*think with our eyes.*" Our eye/brain hardware has optimized over thousands of years to process the visual world for patterns and meaning, and we can do so in a fraction of the time it takes to read and translate that meaning from text. This intelligence is not only faster, it's higher bandwidth: We can process much more visual data simultaneously than we can textual data, which demands a linear process. Thinking with our eyes provides a different channel into a conceptual space: one that is highly complementary to verbal methods, such as writing or talking, but uniquely able to compress a sprawling problem into a compact space and to support conceptual play with its parts and pieces. Using a model, a team can see the whole conceptual space at once, and then dive into a specific portion of the space without losing sight of the whole.

Let's look at three examples of how models can help teams find the conceptual center:

- **MODELS FOR MANAGING COMPLEXITY**
- **MODELS FOR BUILDING A SHARED BASIS OF JUDGMENT**
- **MODELS FOR CREATING ALIGNMENT**

MODELS FOR MANAGING COMPLEXITY

How does Internet search work, anyway?
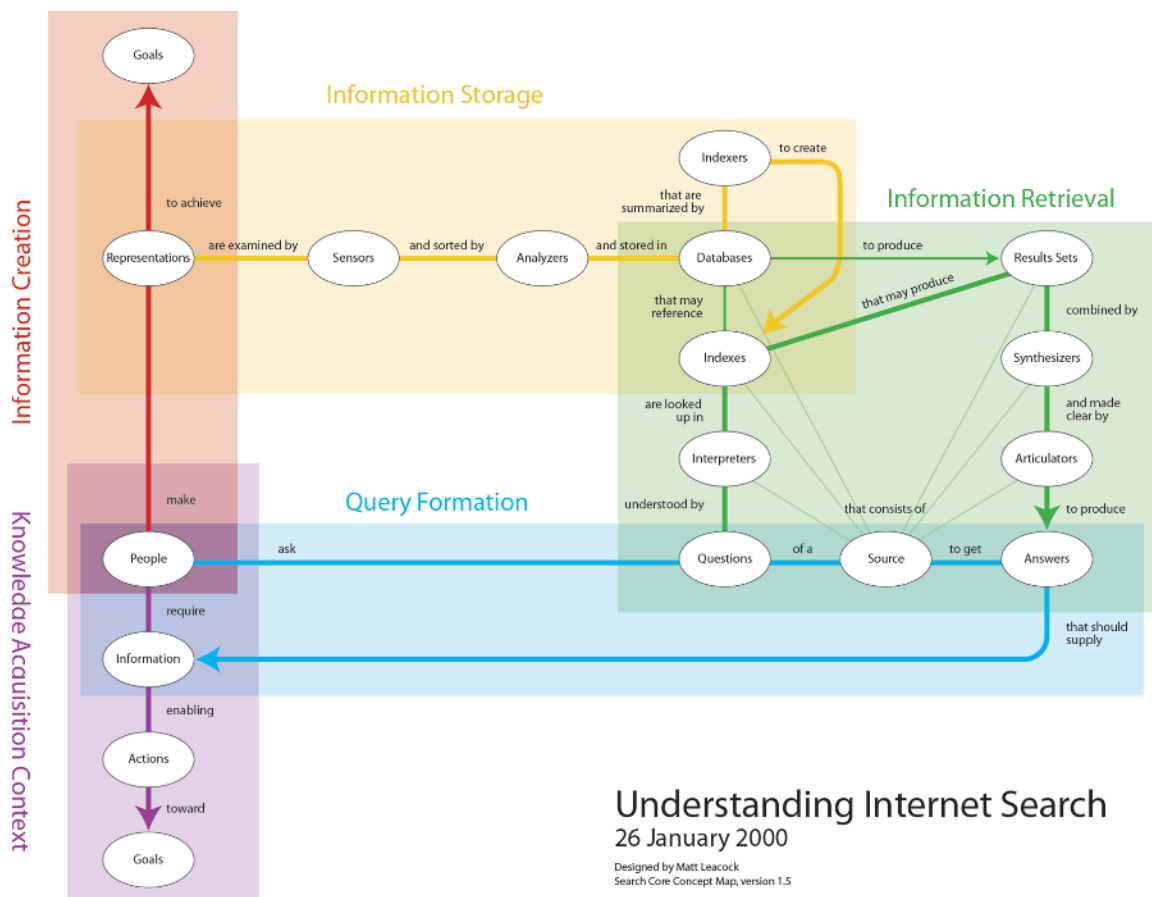
Understanding Internet Search
26 January 2000
Designed by Matt Leacock
Search Core Concept Map, version 1.5

© Matt Leacock

In 1999, it was still the Dark Ages of Internet search. Industry leader Netscape had just acquired a small startup with an expertise in search.

Netscape was still in the process of folding this new capability into its search services when the VP of products approached design lead Hugh Dubberly, and asked him to manage a redesign of the search interface. Hugh assigned promising young designer Matt Leacock to the team, a group composed of "fairly aggressive, opinionated engineers," in Matt's words. The first meeting didn't go well. "He'd been basically almost kicked out," says Hugh, "they didn't know why he was there."

To state the obvious, Internet search was an amorphous and complex topic to someone outside the field. Hugh handed Matt a vintage copy of Gowin and Novak's *Learning How to*

Learn, which outlines in detail how to create concept maps as a tool for managing unfamiliar, complex subjects. Matt followed the protocol: He interviewed the engineers, project leader, and an external subject expert or two. He drafted his model, which Hugh reviewed and liked, and went into the next meeting to present it.

"He comes back after the meeting, and he's kind of all hangdog," as Hugh tells it. "I asked him what happened, as I thought the map was fine and that everyone had bought into it. He said, 'Yeah, you wouldn't believe it, though, a fight broke out.' Matt's map had brought to the surface the fact that the mental models among various engineers for what was happening were not consistent." As Matt recalls, "There was a lot of contention around how to differentiate the search engine and where to drive user interaction with the product— the search page or the directory." Through the model, the team had discovered something very important—they were working to code a system they didn't agree on.

And so Matt was able to go on and be a productive member of the team and earn their respect. "He went from being an outsider who didn't really know anything in this process to being a person in the room who had the best view of the whole thing. He wasn't a deeper subject expert in any particular part of the domain, but nobody else had the whole domain," observes Hugh.

Matt suspects the process of creating the model was more critical to his success than the artifact. "The model was a tool for individual understanding and to get everyone on the team on the same page with same language. But my interviewing the team showed interest in them. It built credibility, and created a history of agreement when there was no history of trust. It also helped them understand what I did."

For Hugh, concept mapping at various levels of abstraction has become a regular tool in the development of software and services. Matt took the lesson, too. He has continued to make maps in his professional progression through Netscape, Yahoo, and then startup Sococo. He likes them for their ability to communicate how a complex system operates, but he cautions: "At the end of a day, a model is just the description of the system, and what you really need is a reason to be making the system at all."

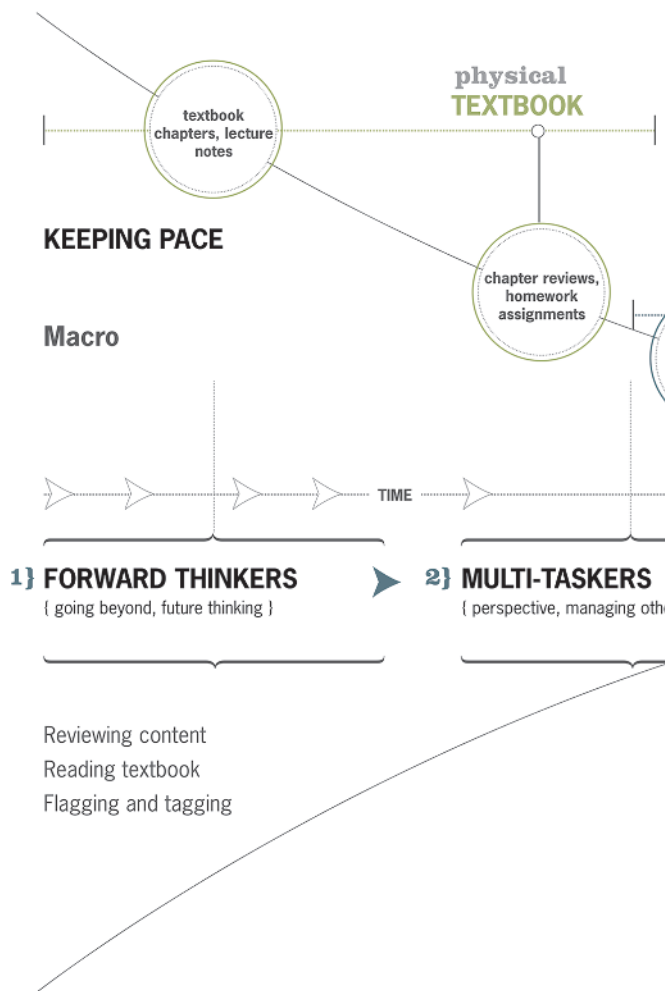## MODELS FOR BUILDING A SHARED BASIS OF JUDGMENT
How to reinvent the college textbook?

For its textbook publisher client, Conifer Research went back to school to observe in person how and when college students use textbooks to prepare for papers and exams. Using ethnographic field methods, Conifer tracked and compiled data on study behaviors, time management, and any study tools used by students. What they discovered contained some challenging news for the client about the role and value of textbooks: Textbooks are abandoned at test time, and some students don't use the textbook at all.
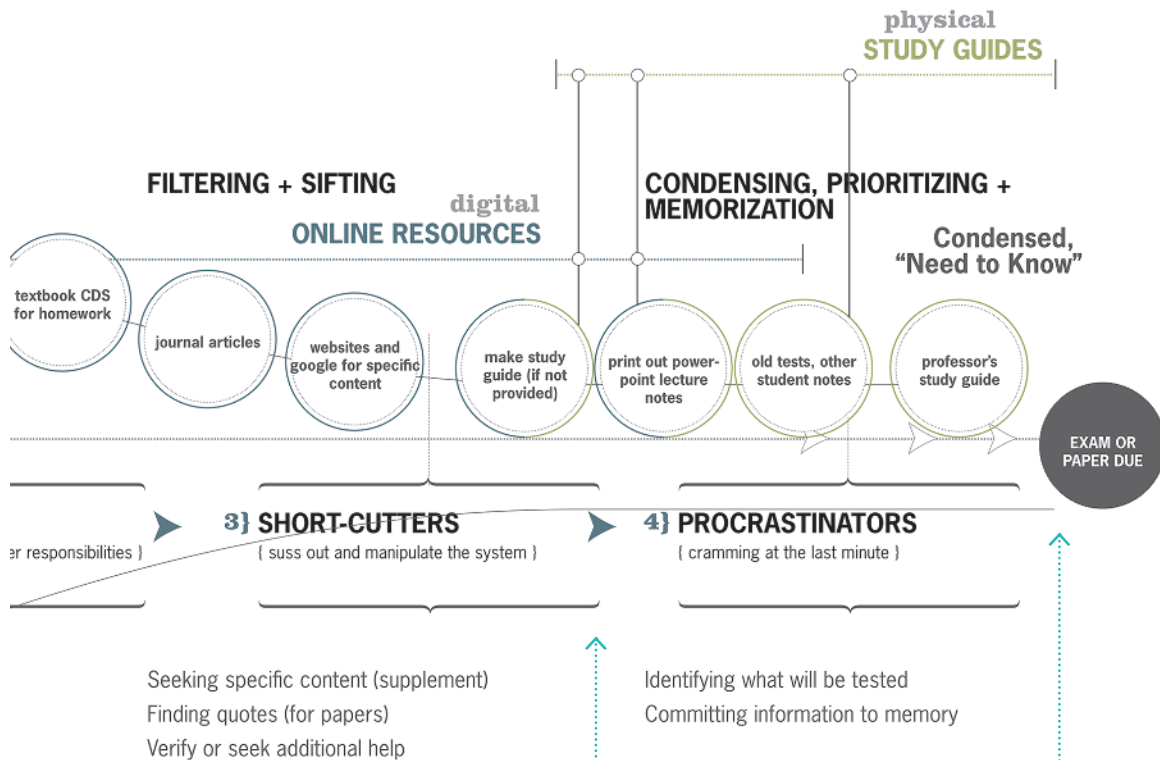
When the news is hard to hear, building organizational belief can be particularly difficult. Like many established industries, textbook publishers have long-standing assumptions and conventions about what their product should be. This client would need a big dose of belief and a shared basis of judgment in order to mount a robust and coherent response to the findings about their core business.

It was the user experience model that opened up those assumptions and conventions for discussion. Conifer's Megan Fath has built a reputation for her deftly executed user experience models. In the textbook case, her time-based model visualized two key discoveries: First, at test time, students abandon the textbook; second, not all students even use the textbook. Some students began preparation earlier, utilizing the textbook, while others skipped the textbook altogether in favor of abbreviated and mobile materials.

This difficult news was not "delivered" to the client; it emerged from collaborative efforts with the client. Fath and the client evolved the experience model together, exchanging

physical **TEXTBOOK**

textbook chapters, lecture notes

chapter reviews, homework assignments

KEEPING PACE

Macro

TIME

1} FORWARD THINKERS
{ going beyond, future thinking }

2} MULTI-TASKERS
{ perspective, managing oth...

Reviewing content
Reading textbook
Flagging and tagging

Work by Megan Fath and Conifer Research

physical
STUDY GUIDES

FILTERING + SIFTING
digital
ONLINE RESOURCES

**CONDENSING, PRIORITIZING +
MEMORIZATION**

Condensed,
"Need to Know"

textbook CDS
for homework

journal articles

websites and
google for specific
content

make study
guide (if not
provided)

print out power-
point lecture
notes

old tests, other
student notes

professor's
study guide

EXAM OR
PAPER DUE

er responsibilities }

3} SHORT-CUTTERS
{ suss out and manipulate the system }

4} PROCRASTINATORS
{ cramming at the last minute }

Seeking specific content (supplement)
Finding quotes (for papers)
Verify or seek additional help

Identifying what will be tested
Committing information to memory

For the client, the experience
model informed a new way to
segment users.

The horizontal axis is a timeline of
student activities, starting with
initial studying activities and tools
and ending with exam day or paper
due date.

stories around data and building a shared understanding of what the team was learning. Megan underscores that "co-creating models with our clients is essential. It not only builds shared understanding, it ensures that the visualization will be utilized as a communication tool after our collaboration ends."

The final version of the model was printed out in large format and ultimately became the platform for multiple team events and development efforts. As Megan tells it, "We used this final visualization in the client workshop to anchor ideation and navigate discussions of key insights. The ideation verified that we were effective in communicating the need to reframe the textbook and to reexamine several of their established textbook conventions. To extend the value of the learning, the client printed out several more copies of the poster to use in team collaborations moving forward." The model became a unifying force across different teams and product development efforts. It ensured that new concepts, whether developed by different teams or over time, would spring from a shared conceptual root.
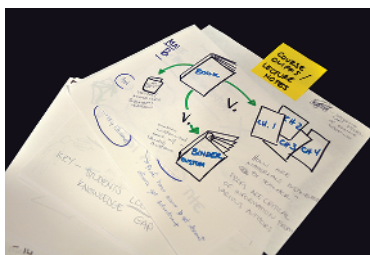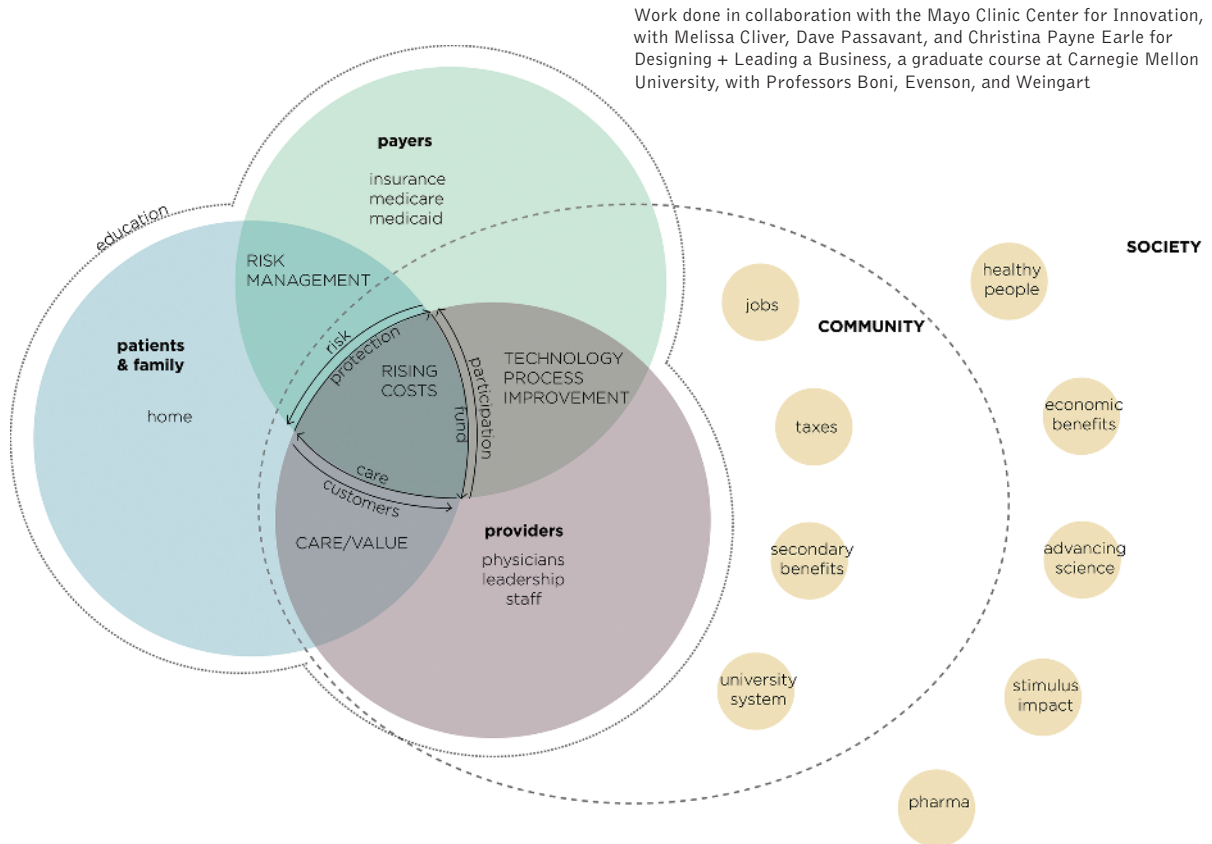

The model became the shared basis for multiple ideation sessions across stakeholder groups.

New concepts with stakeholders all began with a first page that said, "We listened."

MODELS FOR CREATING ALIGNMENT

Which factors matter most in patient care for seniors?

Since the mid-1990s, designer and strategist Shelley Evenson has been championing collaborative creation processes. She and her late husband and frequent collaborator, John Rheinfrank, were ahead of their time in this; conventional practices presumed closed creative processes that delivered finished work at the end, with little input from clients. Shelley's professional trajectory, however—from Fitch to Doblin, Scient, Continuum, Microsoft, and

Graduate students of Carnegie Melon University kicked off a project with the Mayo Clinic's Center for Innovation by jointly creating a Territory Map to define the scope, theme, and relevant constituents to be considered. The objective of the project was to design a disruptive business model that would decrease costs and improve efficiency and quality of care.

Territory maps are useful to early-stage project definition because they:

- Draw out existing preconceptions and knowledge

- Create a shared language

- Visualize the problem statement

- Help bound later research activities

- Create a shared vision of the project by team members

Facebook—provided her with strong evidence that collaborative construction is key to creating The New. "Organizations are doing a better job of breaking down silos, but the silos are still there. Working across different committees and different domains, and understanding how everyone can be successful in those efforts, is still the crux."

A notable trouble spot in interdisciplinary, collaborative work is the kickoff meeting, where project scope is defined and expectations are set. To succeed, everyone needs a shared "north star" to guide their actions and unify their efforts. But team members from different domains have their own culture and ways of thinking, and often speak in their own language, with differences in meaning that are not always apparent until later. Dialogue around project scope also typically includes high-level, abstract terms such as "innovation" or "research" or "transformative" that, at a practical level (and often at the end of a project), turn out to have a spectrum of interpretations. As a result, project funders, team members, and important stakeholders are often out of alignment from day one.

Shelley, in collaboration with Hugh Dubberly, has developed a tool called a Territory Map as a first step to create early-stage alignment. Territory Maps visually capture the territory the team thinks it is tackling together. Territory Maps are collaborative efforts built by project participants in a work session. The maps factor in all the constituents who will likely be impacted, and can even propose a rough stab at the future vision that is shared by team members.

As Shelley tells it, "I knew there was something to it when we were working on a project for a client of Scient, an Internet consultancy, in the early 2000s. At the kickoff meeting, we had the designers, coders, and client-side team, including the CEO of the client organization, go through the process of creating a Territory Map. Later in the project, the CEO was reviewing things and asked, 'Is that in our map? If it's not in our map, I really want to understand why we are going to increase that. We agreed on the set of attributes that mattered.' So the map also became a way to have a conversation about what was in and out of scope, which is always really difficult as projects go forward."

"What's key," notes Shelley, "is that the map is co-constructed with relevant stakeholders and senior-level executives. Because it's collaboratively created, it builds cohesion and shared vision. Of course, the things you put in the map can change over the duration of the process, but creating a map gets everyone to a common starting point and a common story, and gives them a shared language for talking about it. And because project definition is built from the ground up by the people involved, there's no need to convert others in the room to a way of thinking or to impose a point of view on others. *Territory maps work because they are negotiated, not imposed.*"

HOW TO MAKE MODELS WORK
How might we use the mighty model to find the conceptual center of our work?

Models are excellent tools at this stage if we keep in mind two important principles:

Models are not about being right

"There's this perception or belief that a single framework emerges from the work—that there is a *right* answer, a *right* model. And there isn't." These are the words of SapientNitro's John Cain, but he speaks for many experienced practitioners when he stresses that models are a means to an end: "There are a lot of possible models for any given project. When I take students through the six or eight constructs we created for a case, and I ask which one's *the* framework, I get a bunch of blank stares. And this is the problem: We can learn a lot of stuff [from consumers] about cleaning or getting a cold, but there is no 'truth for all time' framework that is going to emerge from this research process. There are just ways of constructing different ideas to serve some sort of purpose in the project."

In other words, models at this stage are *provisional*. They are a means to multiple end states. As a thinking tool, the value of models comes through variation and the multiple stories they allow us to tell of the same problem space. This brings us to the second principle. . .

More models are better than one

Models express a way of thinking about a problem, but often the most relevant way to express a problem isn't obvious at the outset. Creating a series of models in response to questions—What if we model it by time? What if we look at structural relationships?—generates a productive progression in thinking that can help teams triangulate around what's relevant. Social scientists use the expression "interrogating the data"—asking questions of the data to discover meaning and pattern. Through creating multiple models, teams can interrogate their own knowledge and prototype their thinking. The advice, then, is not to make a model, but to make *many* models: Vary the questions, vary the visual forms, and see what surfaces.

THE USE SCENARIO FOR MODELS

Managing, not eliminating, complexity

Creators of The New embrace complexity because they know the answer to "what's next" lies in it. Businesspeople recoil from complexity because it's hard to manage and creates inefficiencies in their processes. Their answer to managing complexity is to manage it down, to get rid of as much of it as possible. This, however, is not an option for creative teams, who must cultivate a messy, multidimensional problem space to produce novel, timely, and relevant output. As a result, in the early stages of creating The New, complexity, ambiguity, and confusion are pretty much the norm.

Models and mapping are particularly well-suited to managing early-stage complexity. For example, says Kathleen Brandenburg, "at IA Collaborative we use frameworks both for top-down and bottom-up understanding of complex information. Frameworks provide a sense of confidence— especially with topics as large and complex as redesigning airline travel, or uncovering needs in an emerging market, or how technology might best be utilized in healthcare. For example,

taking time to list and see that the activities and interactions of users are, in fact, *finite* can provide a great sense of clarity and direction for a project." Whether it's a user experience model or a concept map or a mind map, models provide an alternative to reductionist thinking that would have us manage valuable complexity by getting rid of it.

Creating critical conceptual alignment to hold the mission together

When The New is in the "still fuzzy" stage, building a shared vision of the concept with collaborators is hard because the thing itself is still emerging. For entrepreneurs such as Judd Morgenstern, working with the still-emerging is the natural state for startups. This has predictable problems: "We recently did a user experience evaluation with a startup product, and the user was really confused on whether or not you could do a certain action, like follow a person. As we started talking about that, it turned out the two co-founders strongly disagreed on whether or not a user could follow a person, and whether or not the user should be allowed to follow a person. Well, I'm not surprised that the user experience is totally confusing because the two founders don't even agree on how it should work."

In reality, ideas always do and must change. They are affected by data, by interaction, even by the act of communication. Until the ideas are fixed, alignment of stakeholders needs to come from someplace deeper, from a larger conceptual framework that stays stable even as the ideas themselves evolve. Models are useful here, too, because they can map out important conceptual territory that holds the mission together.

Building a shared basis of judgment to stay true to the work

Models can anchor for people a way of thinking about the problem. This provides a common platform for development and decision making, for collaborators who may need to work in different locations or on different parts of the problem simultaneously. A model that has been collaboratively built is understood by all participants, and so can provide cohesion and integrity to work developed across groups. The fact that models are compact and visual is also an asset: It is easier to carry and reference a model than it is to work with a slide deck in which key information is distributed over many pages.

HOW TO GET STARTED

Some models emerge naturally from data; others require coaxing. On the following pages, I borrow questions and structures from the field of information design to inform a simple process for extracting models from data.

Information designers know that different visualizations of the same data can direct your attention in meaningfully different ways. Data organized sequentially yields a different picture than that same data will yield when organized by importance or by theme. What information designers also know is that discovering the most useful forms for any given data set requires experimentation and iteration. The process of creating variations itself is often revealing, because it requires you to touch all the data multiple times.

HOW TO MAKE MODELS WORK
Structuring the Mess

What kind of questions help drive discovery? The number of possible questions is open-ended. But here are five that will advance your thinking:

1. Does time or sequence matter?

2. Are some aspects more important than others?

3. What is the relative impact of any part to the whole?

4. Is there an underlying system at work?

5. Is there a central concept anchoring the topic?

On the following pages, we'll see how to use these questions to drive visual variations and reveal different perspectives on the data.

Most "messes" start with a pile of information or insights. As an example, let's look at a relatively simple and accessible pile of information—an in-home study of how children brush their teeth. Using individual pieces of information, we can build a lengthy list of insights. But to advance our understanding more deeply, we can model this information in multiple ways, using different questions to drive visual variations.

Waaaa! It must be toothbrush time. Getting kids to get started is half the battle.

The "fountain slurp" is a common rinse tactic.

Some kids have two brushes: one for them, one for the parent.

Brushing with brother makes her feel like a "big girl."

Motorized brushes add fun, complexity.

Older kids get more freedom.

Whose job is it really? Parent involvement is high with young kids.

HOW TO MAKE MODELS WORK
1: Does time or sequence matter?

THE TOOTHBRUSHING PROCESS

LOCATING BRUSH + PASTE → OPENING TOOTHPASTE → PORTIONING + DISPENSING → TURNING BRUSH ON → BRUSHING

Some kids have motorized toothbrushes, which can make managing toothpaste harder once turned on.

Look how many steps before any actual toothbrushing happens!
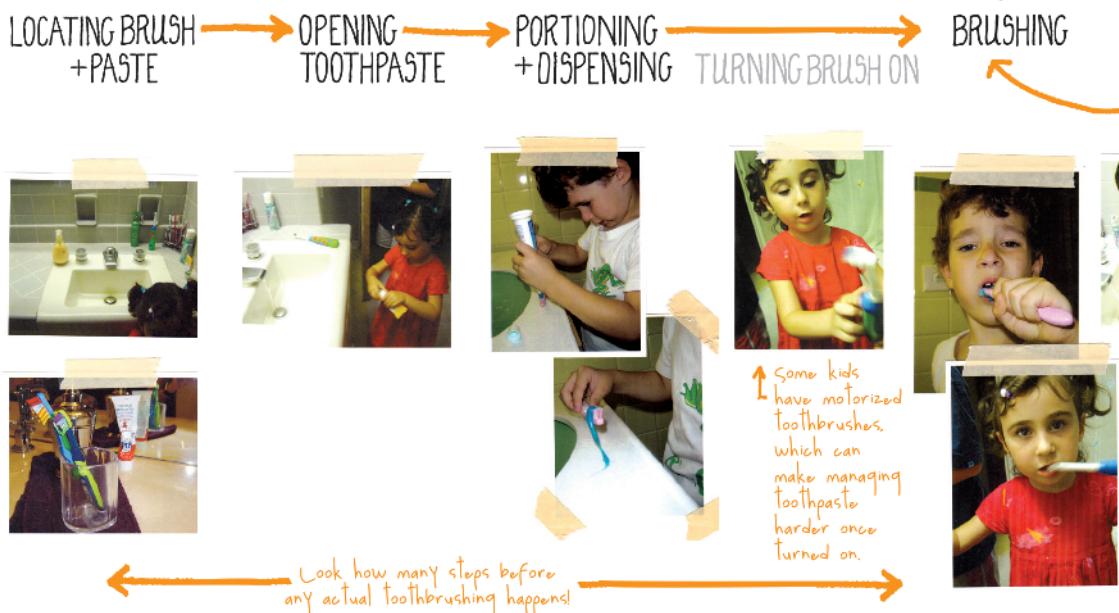
Most of us intuitively start with time-based or process-oriented models. This makes sense; we are creatures bound in time and space, and so these are natural organizing principles to apply when trying to sort out information. When I give these toothbrush images to teams to sort, nine out of ten times the organizing structure is sequence. It needn't be—in the case of kids brushing their teeth, it would be just as productive to sort the images by object usage or spatial issues—but most teams go for a linear process breakdown. Time-based sequences feel natural, familiar, and so are a great place to start.

Sequence models are useful because they direct our eyes to:

- Stages and handoffs: The visual form can draw attention to gaps in the process that are not well understood or supported.

hmmm. Kids don't seem to do much "storing."

SPITTING → RINSING → CHECKING → STORING

Brushing and spitting cycle occurs multiple times, making a mess of the sink, mirror and fixtures.

- Progression: Sometimes the number of elements in a sequence tells its own story about the complexity of the subject. If a customer experience has 14 stages, that's courting trouble!

- Variations: Charting a sequence can surface important variations in flow, helping teams understand differences between the ideal process and the actual experience.

- Boundaries: Deciding where a subject starts and ends, for instance, can help teams commit to what is in or out of project scope.

2: Are some aspects more important than others?

THE TOOTHBRUSHING HOTSPOTS

LOCATING BRUSH + PASTE → OPENING TOOTHPASTE → PORTIONING + DISPENSING → TURNING BRUSH ON → BRUSHING

Kids can't always reach where supplies are stored, which takes the process out of their hands from the start.

Portioning and dispensing toothpaste is a bigger challenge for little hands. Smallest kids delight in the mess.

The brushing and ___ stages are not pa___ eventful, even th___ they are the foc___ of adult coaching

Sequence and time-based models are useful because they offer a complete view and establish firm boundaries of a process. But sometimes this flat visual form obscures the fact that some aspects matter more than others—they happen in quantity or with intensity. We can call attention to factors that have particular relevance by adding size or color to parts of a model, giving them prominence on the page so that our eyes find them quickly.

Priority models that call out what's important or intense are useful because they direct our eyes to:

- Quantitative factors: These draw attention to high-frequency events or high-cost issues.

Much of the toothpaste comes
out with the first spit

SPITTING → RINSING → **CHECKING** → STORING

rinsing
rticularly
ough
l point

Rinsing can
be the sole
contribution
for the
younger kids.

Getting "checked" by
adults is frustrating
for kids, especially if
they don't pass
inspection.
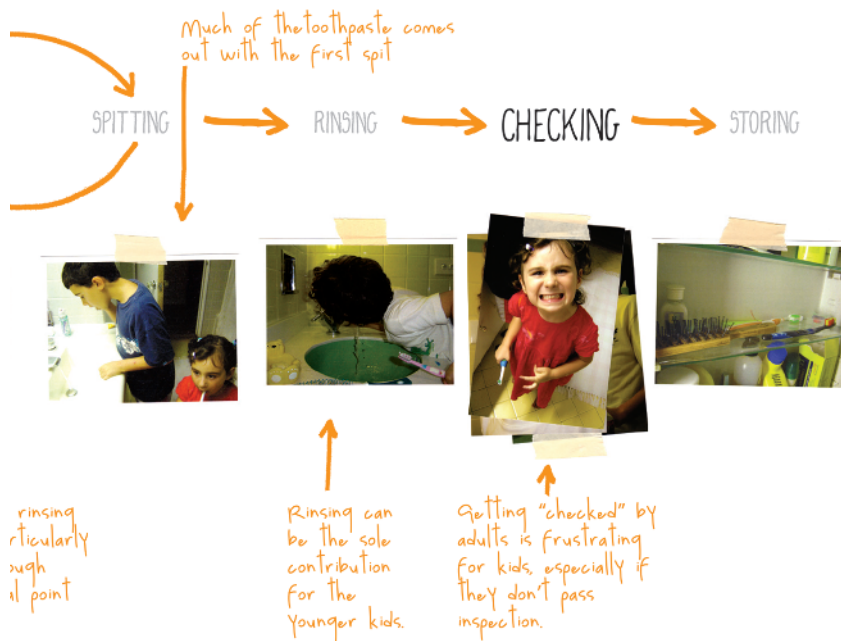
- Emotional factors: These layer observed human responses, such as frustration or delight, onto otherwise functionally-driven models.
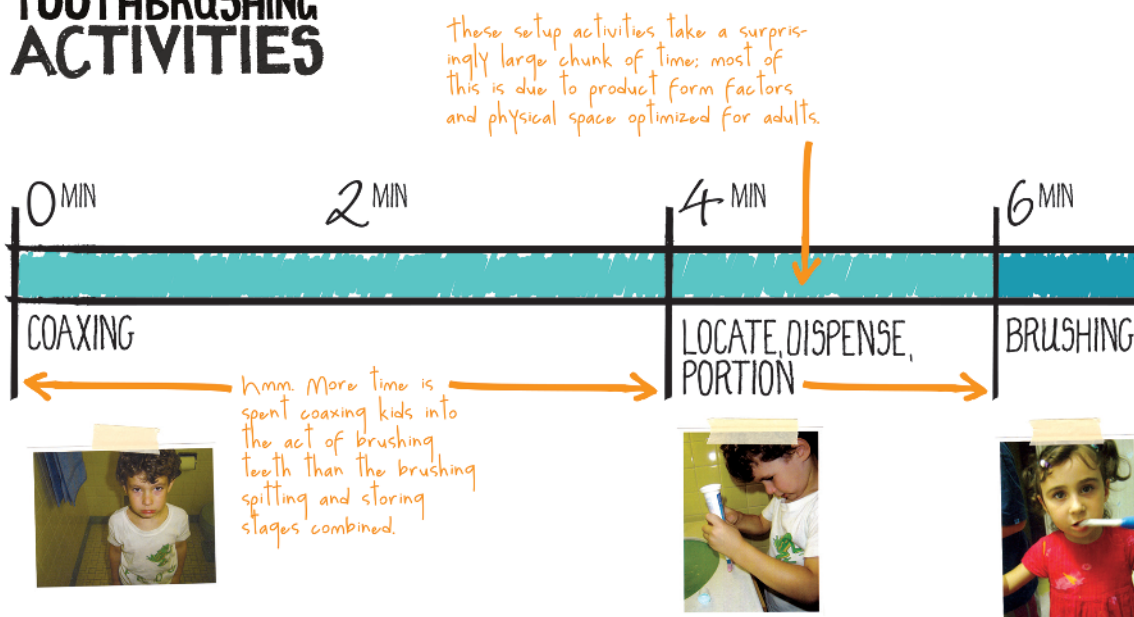
- Opportunities: These draw attention to elements that appear particularly problematic, out of step, or ready for reinvention.

3: What is the relative impact of any part to the whole?

DISTRIBUTION OF TOOTHBRUSHING ACTIVITIES

these setup activities take a surprisingly large chunk of time; most of this is due to product form factors and physical space optimized for adults.

0 MIN   2 MIN   4 MIN   6 MIN

COAXING   LOCATE, DISPENSE, PORTION   BRUSHING

hmm. More time is spent coaxing kids into the act of brushing teeth than the brushing spitting and storing stages combined.

Breaking large topics into smaller parts and pieces is essential to careful analysis, clear thinking, and to ensuring coverage of a topic. But sometimes we need to put those discrete parts back together to remind ourselves of their relationship to the larger topic. Pie charts and segmented bar charts are both visual forms that attempt to clarify how much a given part contributes to the whole. Often times these representations add more value when created after conventional tagging and sorting of data is done, as they force us to step out of the details and reassess the topic from a holistic perspective again.

Impact models that highlight the relationship between parts and whole can help us:

- Correct our assumptions: Preconceived ideas about what's important can fall away when we

the end of the process is heavily adult-driven; how might kids keep their role?

8 MIN

10 MIN

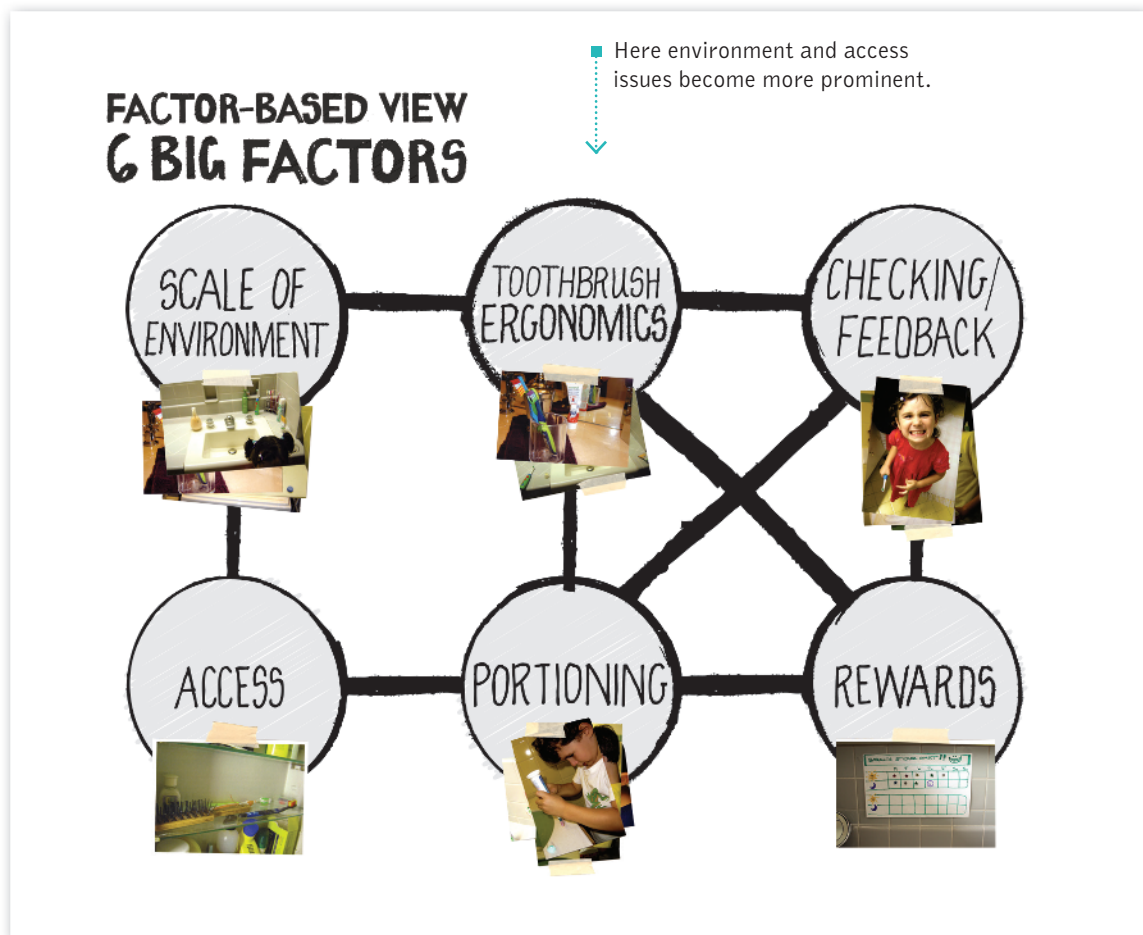| SPITTING + RINSING | FEEDBACK | STORING | REWARDS |

can see more accurately the role of a part in the larger context of the whole.

- Resist undue influence: It's easy to undervalue or overweight some factors, such as physical discomfort or emotional distress, until they are recontextualized in the larger picture, where their impact becomes more obvious.

FACTOR-BASED VIEW
6 BIG FACTORS

■ Here environment and access issues become more prominent.

SCALE OF ENVIRONMENT — TOOTHBRUSH ERGONOMICS — CHECKING/FEEDBACK

ACCESS — PORTIONING — REWARDS

Models that focus our attention on variables and clusters can blind us to larger, less evident forces that might be influencing the topic in question. This includes cultural, environmental, and other latent factors that we take for granted and therefore fail to see. In systems design, engineers engage in "factor analysis," which aims to identify any underlying structure that might organize a large number of variables, and then models the relationship between those factors.

Systems models are useful because they direct our thinking to:

FACTOR-BASED VIEW
3 SUBSYSTEMS

Three subsystems can help us task and focus our team, while keeping our work connected.

SCALE OF ENVIRONMENT

TOOTHBRUSH ERGONOMICS

CHECKING/ FEEDBACK

ACCESS

PORTIONING

REWARDS

ENVIRONMENT

ERGONOMICS

EMOTIONAL
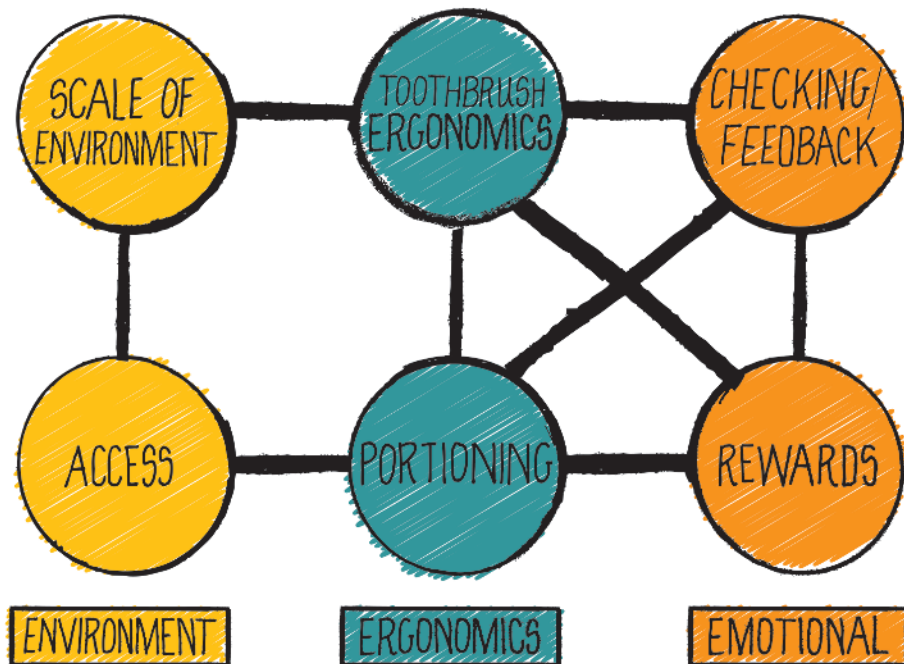
- Latent factors that are hard to see: A systems model is high-level and exhaustive, making it easier to spot logic gaps or spy important concept that are missing.

- A reduced number of elements: The visual form combines multiple factors into smaller groups.

The smaller set is easier to remember and creates focus.

- Factors that interrelate: Identifying relationships between elements highlights factors that influence each other, and therefore should be evaluated and possibly resolved together.

5: Is there a central concept anchoring the topic?

TOOTHBRUSHING
MOTIVATIONS + NEEDS

how can we design for encouragement?
this could be interesting!

GOOD HABITS

EFFECTIVE

SELF-INITIATED

ROUTINES

ENCOURAGEMENT

FEEDBACK

REWARDS

IDENTITY

toothbrushing is one step on
a larger parent-child journey,
more of a rite of passage and
a teaching moment

BECOMING
INDEPENDENT
"ALL BY MYSELF"

TOOTHPASTE

TOOTHBRUSH

RINSING

USABLE
TOOLS

ACCESS

REACH TOOTHBRUSH

IDENTIFY OWN
TOOTHBRUSH

SEE SELF

REACH FAUCET
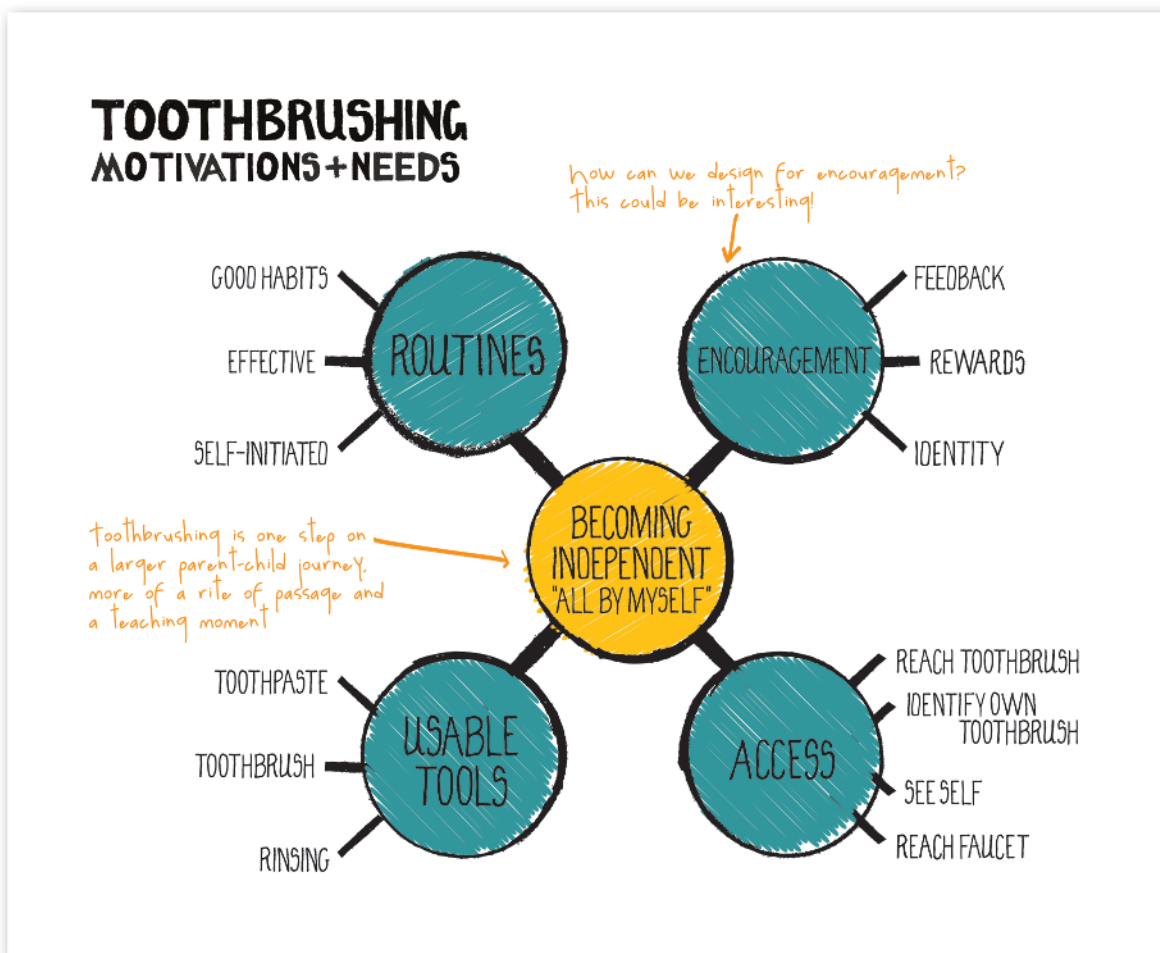
Step back from the data and ask yourself: Is there a linchpin issue? Among all the important facts and observations, is there one key concept at the center of it all? Mind maps are one of the most common visual forms for organizing variables so as to identify dependencies and, most importantly, to surface meaning. Identifying the center node of a map is often a point of discovery, surfacing the unstated or tacit driver of the topic. To be effective, then, the center node needs to articulate clearly the "why" that explains the existence of all the other nodes in the network.

A mind map can be revealing when we use its form to drive:

- Order: To see the various elements grouped into a hierarchy brings order to the smaller details observed along the way.

- Synthesis: To edit is to decide—mind maps drive negotiation and editing for relevance.

- Priority: The center node is the conceptual center, which in turn influences how all other factors on the page are interpreted.

BUILD-TO-THINK PROTOTYPES:
Thinking with Our Hands

"You learn things from building," says Marty Thaler, "maybe especially when building before ideas are fully developed." Marty is a respected product designer who has worked for IDEO and whose work is displayed at the Art Institute of Chicago. Early stage prototyping, or building models of ideas that are underdeveloped and unfinished, is, in effect, thinking with your hands. Using your hands to build still-emerging ideas forces decisions, reflection, and synthesis. Marty calls it "build to think."

Most of us have been socialized to believe that making things, whether sketches or models, is for creative people (not us), people with talent and hand skills (again, not us) and who understand the mysteries of color and proportion and form. This is a discouraging, art-based paradigm in which the value of the work is perceived to be in the output and its aesthetic properties.

There is a more productive and encouraging paradigm for making artifacts that focuses on discovery, rather than outcome. Let's call it a learning-based paradigm, in which the value of building is in the process of experimenting and surfacing of meaning. "Build to think" is a low-cost, high-impact method for helping teams find the conceptual center of their work.

On the following pages we look at three ways prototypes can help us find the conceptual center:

- **PAPER PROTOTYPES TO ASK "WHAT IF?"**
- **"FRANKENPROTOTYPES" TO EXPLORE AND ALIGN**
- **MODULAR PROTOTYPES TO CONFIGURE AND CONVERSE**

BUILD-TO-THINK AS A PATH TO KNOWING

In their courses on early-stage prototyping at the Institute of Design, Marty Thaler and Anijo Mathew introduce an important distinction between fidelity and resolution. Fidelity refers to the level of similarity to the actual experience you would like to convey. Resolution is the level of detail needed to convey it. Prototypes can vary in both fidelity and resolution. And practitioners, say Marty and Anijo, need to choose the right level of both to achieve their goals at any given point in the process.

Most people are familiar with late-stage prototypes—detailed physical models that articulate a product, environment, or brand before it heads into production. They tend to be produced when concepts are well defined and need to be communicated to decision makers, funders, and implementers. Marty calls these "build to decide" prototypes.

The distinction between "build to think" and "build to decide" is important: Late-stage, "build to decide" prototypes require high-resolution execution, because the job is to fully convey the potential of the concept or business. They allow teams to test the concept for various forms of consumer "fit" (cognitive, physical, contextual). They allow the team to socialize ideas in a concrete way with important stakeholders. High-fidelity, beautifully executed prototypes are also a point of pride: They attract attention, build excitement, and advance careers.

In a "build to think" prototype, the target is low resolution and low fidelity—just enough experience to imagine the concept, without

distracting detail and quality craftsmanship that signal a more developed idea. The role of a "build to think" prototype is not to be pretty or complete or accurate; it's to help the team learn, experiment, and develop unfinished ideas using tangible objects to imagine a future state.

"Build to think" prototypes are useful because they are never intended to be right. Their job is to inform the problem. Building to think helps teams externalize assumptions, biases, and gaps in the team's knowledge base. It surfaces weak, timid, and close-in thinking. Building to think can quickly flush these routine impulses from the team's system, opening up the conceptual space for more nuanced and interesting ideas. Building to think can rule out directions, too, illuminating stronger directions by having raised and made evident the weakness of other directions. At this stage, there should be no stake in final outcome, only the decision-making and resulting conversation that comes from having an artifact to review.

How to spend your building time wisely

When teams work in low resolution, stakeholders need to be prepared for the rough-hewn, provisional nature of the prototype. Once those expectations have been set, limit the amount of investment in the visual to hit this note: just enough refinement to make the proposition self-evident, not so much as to make it look finished. Heather Reavey calls it "credible but sketchy":

I'm a big advocate, especially in the messy phase, of making sure that things aren't too finished. It used to be I'd do a sketch of something, and then use Illustrator and add nice colors to make it art. At one point one of my clients, with whom we were collaborating heavily, said, 'Why are you doing that? Because where I come from the fact that you have all these sketches is like magic. We see the computer stuff all the time.' That made me realize that people are so much more open to things that don't look finished in this mess stage. And when you do make it look good, it can look too done. And then they start thinking about why it's wrong. Or maybe they start thinking about how they might actually have to implement it, and they get scared. So it's really important in the early stages to make sure things still look sketchy . . . credible but sketchy.

Build-to-think prototypes serve several important functions:

1. They allow teams to experiment with multiple "right" answers at little cost or commitment.

2. They accelerate learning, helping to surface opportunities and limitations early on.

3. They take the abstract and make it tangible and touchable, and therefore open to review by stakeholders both on the team and outside of it.

4. They change the conversation around the table and create that all-important alignment teams need to proceed in concert.

There is almost no downside to building to think. Even provisional prototypes can change the conversation in a room in important and surprising ways, cutting through the false concreteness of words to reveal ambition levels, tolerance for change, political no-no's, sweet spots, and other hard-to-identify factors that cause teams to slap their foreheads and groan three months later: "If we'd only known." You can know it: Build early and discover.

PAPER PROTOTYPES TO ASK "WHAT IF?"

How to impact global food loss?

Two hours. Three colored markers. One carefully cut piece of cardboard. With a simple set of resources, one Institute of Design planning team imagined what the world might be like if farmer-innovators in developing countries could collect and diffuse food-saving innovations to other farmers who need them.

Working with Danielle Nierenberg, director of the Worldwatch Institute's *Nourishing the Planet* project, the planning team was challenged to look

at global food loss issues in India and Western Africa to imagine how to diffuse crop-saving inventions among farmers within and across a region. In their research, the team had expected to discover a scarcity of solutions to post-harvest food loss problems. Instead, they learned there is no shortage of low-cost, easy-to-implement ideas. But these solutions were locked up in dense public policy reports, often inaccessible to on-the-ground organizations in contact with the farmers.

What if those innovations could be seen by everyone? What if anyone who had a good solution could share it? The team envisioned an online site that would aggregate the stories and solutions of on-the-ground farmers that are technically and culturally appropriate for their regions. When the team met with Dani, they walked her through a paper prototype of their concept, inserting hand-markered pages into a cardboard "screen" to demonstrate use scenarios. For Dani, it was an epiphany.

"I love that paper prototype. I had been thinking of an innovations database since the Nourishing the Planet project started in 2009, after we got funding from the Gates Foundation. I had this amorphous idea, but couldn't grasp exactly what I wanted. When I saw the prototype, it was like opening a gift up on Christmas morning. It crystallized what it should look like in a way that I couldn't conceptualize on my own."

The low-resolution paper approach added value: "I expected them to have some sort of computer program or a slide show. But this was a nice surprise because paper is *hands-on*: You can flip through the pages and then spread them out and then put them back together. That means of being able to handle it and look at it all laid out on the table is very different than looking at something on a computer screen. It wasn't just another thing I was viewing on my laptop. It was something I could feel and visualize in a very different way."

Even in rough form, the prototype opened up important conversations: "Looking at it, everything clicked for me in a different way. Now I can describe it to a funder, a farmer, a researcher. I can describe how it might work and what it might do and can say to stakeholders, 'Hopefully this is the advantage we will all get from it.' It gave me confidence when describing it and trying to get funding for it. I think I had doubts before about whether it would actually work or whether we could actually use it. But having it together in that cardboard bundle made me think, 'Of course we can do this, and we can do this easily.'"

Work done by Institute of Design master's degree students Helen Wills, Alisa Weinstein, and Russell Flench for Danielle Nierenberg and Worldwatch Institute; photographs by Russell Flench and Helen Wills.

Imagining a wireless device in 1989: The top half was an LCD screen (with spreadsheet—of course!) and windows for multitasking. The lower half imagined multiple input devices—trackball, function and character keys—with a microphone and speaker zone for telephony and multimedia. ■

"FRANKENPROTOTYPES" TO EXPLORE AND ALIGN

How to envision a wireless world?

Build-to-think prototypes are useful because they surface important questions about objectives that the entire team needs to align around: Why build this at all? Is this a productive direction? What would it need to really work? But not every team has a band saw, lathe, or router in their office to prototype new products. How to prototype early-stage ideas in a resource-constrained setting?

Marty Thaler and Anijo Mathew advocate the "Frankenprototype" to quickly mock up 3-D ideas with found objects or easy-to-use parts. As the name implies, craft skills are not required or even of value in making Frankenprototypes—the objective is a low level of detail to support a low-fidelity but still clear experience. Frankenprototypes are a low-cost way to get to learning faster. And they work in ways that allow others to contribute and participate because the prototype is so obviously unfinished.

It was the autumn of 1989 when Tom MacTavish and his colleagues made their first Frankenprototype. He was director of engineering at NCR's Wireless Communications and Networking Division near Utrecht, The Netherlands. He needed some way to inspire engineers and product managers to envision and discuss a future in which wirelessly-connected devices would be common. "The block of wood prototype was created by our Director of Product Management, John Buswell, as a result of a late afternoon dialogue between us: What would wireless devices look like? What would they be used for? Where could we identify opportunities for our core competencies in radio frequency communications and chipset design? John and I wanted to inspire focused thinking by using tangible artifacts, rather than sketches on an overhead projector." The block of wood prototype was born that night.

It was an open question at the time as to how mobile, wireless devices should behave and what they would provide to users on the go. The prototype helped teams imagine mobile computing—no wires, no desks—and proposed features that might leverage application-specific, integrated circuits for dedicated processing to manage costs. For example, there is a small zone on the tablet for entering handwritten characters that could be recognized by the computer and instantly shown on the display. Touch screen technology was prohibitively expensive at the time, and the prototype's reduced size addressed this issue. Its ugliness was key to its success.

"We used the prototype as part of a daylong strategy discussion with senior executives from NCR Headquarters. Then we used it for local team discussions for the next few weeks. Then, we circulated the prototype among the sixty local employees, from desk to desk. Finally, we placed it in the lobby in a glass showcase with recently-produced products to suggest that it might be part of a continuum of successful products. After that, I hung it on the wall of my office, so that I could use it as an example of rapid prototyping and learning. Ultimately it ended up in my home as a treasured memento."

MODULAR PROTOTYPES TO CONFIGURE AND CONVERSE
How to think about customer-led store design?

Photo courtesy of Gravity Tank

Sometimes it's more effective to turn the prototyping over to stakeholders, to allow them to build insight into the problem and conviction around opportunities. Gravity Tank has been creating modular store prototyping kits for use with retail clients for years, after early experiments proved effective in getting clients to engage in focused conversations.

"People are much better 3D thinkers than 2D thinkers," says Michael Winnick, "so if you're trying to build a new store, people can argue about it forever, about something even as basic as where the accessories should go. So, we give them store dioramas and all the tools for deciding what's supposed to go in there. And we ask them to build a store. Using the dioramas, they work

with each decision, understand the trade-offs and think about the effects of that decision on the real estate, on the product placement, on accessory placement, on the service staff, on the checkout stations, on the customer flow through the store—all of that has to play out in a box that's not that big."

When stake-holders are engaged in prototyping, they develop a different relationship to the problem space and to what's possible. Michael explains, "By giving them stuff that's not formed, and letting them do the forming, you're putting them in a position to gain a deeper understanding of the problem and also to take more ownership of the solutions. It can be a little awkward at first to get people to try to do something like this. You force people to create first, as opposed to being stuck in framing or analytical problem solving, which is where their comfort zone is. But in my experience it's a relief to people to be able to work this way—it's a little bit naughty. There's a freedom to not getting so caught up in analyzing everything to death."

It's the conversations and early-stage alignment around the problem that are the real benefits: "When people walk into an exercise like that, each one has a rough but ill-formed vision in their head about what they might do with their store. Our job is probably not to get them to the one store everyone agrees on, but to get from fifteen ill-defined visions down to four more clearly articulated directions. In this sense, it's really prototyping to have a conversation—to make their conversation tangible. It's prototyping for consensus-making."

LISTS AND OPEN-ENDED WRITING:
Thinking with words

Perhaps the simplest way to "know what you know" is to just write it down. Writing is the shortest, fastest path to clarity and synthesis. It is uncomplicated and low-budget—no batteries required. And it's portable, so you can do it on the train, at lunch, or in bed. Writing is highly productive for even the most minimal time investment. In fact, all the techniques I propose here require an initial investment of only 10 minutes or less.

And yet writing is a trauma for some. When I suggest a writing task in executive education sessions, I can feel the energy leave the room. I see it in their faces: My participants are suddenly back in school, where writing was *graded* and *technical* and ultimately *depersonalized* and maybe a bit *humiliating*. Writing education has divorced many of us from a most natural mode of expression and self-learning.

Write to think, not to be right

I am proposing a different role for writing, one whereby writing is a process for thinking, not a means of producing finished work. Writing gets substantially easier and more productive in helping us find the conceptual center if we stipulate the following:

• The writing doesn't have to be right.

• The writing doesn't have to be complete.

• The writing doesn't have to be shared.

It's *your* writing. It helps organize your thinking, accelerates synthesis, and prepares you to be a productive team member. So think of writing less like mom's broccoli, and more like Popeye's spinach.

HOW DOES WRITING HELP US FIND THE CONCEPTUAL CENTER?

Writing creates room for reflection

Even in collaborative work, team members need dwell time to process what they've seen and heard. Heather Reavey believes quiet time is when things come together: "I don't believe that big ideas happen in rooms of eight people. I think that the kernels of those ideas happen when people are at their desks. In fact, when I manage these big collaborative teams, because the collaboration is so frequent, I make sure that people still have their dwell time. Even with clients onsite I'll say, 'Ok, we're going to take the next three hours and everyone's going to go to their quiet place and think and come back with something.'" Writing stirs up what's in the unconscious or subconscious mind, and allows it to come together in a new way.

Writing accelerates insight

It is my experience that teams always know more than they think they do. But that thinking is scattered across databases, sticky notes, human beings, and even geographies. Writing is a powerful synthesis tool: It pulls those pieces together and puts them in one place. When I ask people to write, they discover they "own" more of the relevant issues than they knew. And when I ask them to write in timed increments—no more than 10 minutes—they discover they can be surprisingly productive in short bursts. Writing in general is a sense-making tool; writing under constraints can kickstart nonlinear thinking, generating important transformations in perspective.

Writing is prototyping

Like sketching and building models, writing is a form of prototyping. It can bring about various outcomes depending on word choice, choice of lead, and story sequencing. We know this in practice: Executives and students alike complain that whoever touches the PowerPoint last ultimately controls the idea. Language choice is powerful. When we experiment with words, we change the idea.

Why is that? The answer lies in two theories about how words work in relation to thinking.

The "cloak" theory proposes that language simply expresses what we think. Language drapes over our thoughts, much as a cloak drapes over the body, conforming to its shape. In this conception, language takes on the shape of our thinking. Here language is passive and reflective—it merely makes our thinking visible to others.

The "mold" theory proposes a more dynamic relationship between language and thinking. In this theory, words give shape to our thinking, like pouring liquid into a mold. Language choice in this theory has great power, not just to express thoughts but to *cause* belief one way or another. When we follow the advice of pop psychologists who tell us to look in the mirror and repeat that we are worthy, we're using our language to prompt a way of thinking.

Both of these ways of looking at language can be of great use to us in communicating The New. We need language to express our ideas in ways that others can understand. But we can also vary that language to put ideas back into our own heads, to change our way of thinking. Writing is not just prototyping our expression of thought, it is prototyping our very thoughts themselves. Perhaps this more expansive conception of language and writing will be enough to help blast past the "writing to be right" orthodoxy that holds so many of us back from using writing as a means to think.

Let's look at some examples of how to use writing to think:

- **USE SIMPLE LISTS TO ELICIT INSIGHTS**

- **USE STRUCTURED LISTS TO INTEGRATE INSIGHTS**

- **USE WRITING TO PROTOTYPE**

USE SIMPLE LISTS TO ELICIT INSIGHTS
See what you know

Philipp Böhm / boehmphilipp.de

In a fact list, write everything you know about your challenge. At the bottom, list anything you don't know but wish you did.

For a hunch list, write everything you think might matter or be important (you can add qualifiers or rank items in terms of credibility later)

For the spark list, write anything that stands out, seems interesting, or just cool (it will soon become evident if these have a role to play, so reach into those "adjacent" spaces for quirky trends, technologies or startup stories that get you thinking)

It's easy to underestimate the power of the lowly list. The list is an excellent tool for externalizing what's known about a project in the early stages. One practitioner (who would prefer not to be known as the "list guy") told me he keeps open multiple lists about his projects: things he knows, things he doesn't know but should, things he thinks could be relevant to the case, things he thinks are cool but unclear in terms of relevance. He puts his lists out where he can see them, keeping the project visible and his thinking top of mind. He appraises his lists, killing and adding elements as his thinking changes. His lists are personal; he doesn't bring them to team meetings. But they prepare him for team meetings—they help him know what he knows.

Lists are useful because they allow parallel tracks of information to emerge. It's a good mental discipline to keep separate what's verifiable from what's interpreted, to keep the observed and the surmised in separate columns. Useful lists to keep include:

Fact lists call out the solid ground—what's known and can be validated. This can include anything from market facts to business conditions to direct observations of customers.

Hunch lists surface intuition and add new variables into the mix. Hunches can be the seeds of transformation, but are often fuzzy and indistinct in the early stages. They need a bit of air and time to grow. It's important to separate hunches from facts, however, since hunches are subjective and can be wrong; they should be tracked separately but in parallel with objective information.

Concerns lists track anything that weighs on you, or that needs to be revisited or resolved before project end. These can include barriers, misgivings, or even inconvenient realities, such as competitor efforts, organizational issues, or implementation challenges. These may morph into "to do" or "next step" lists later in the work.

Spark lists are for the enthusiast in you. They keep you in touch with delight factors that creators of The New know add magic and depth to concepts: What if a jewelry designer designed the phone? What if we added an accelerometer to the shopping cart? How can we leverage educated stay-at-home moms in the business model?

In my teaching experience, list making produces considerable clarity for very low time investment. When I ask executives and students to engage in 15 minutes of list making, I routinely hear *I knew more than I thought I did*. They seem surprised, but I'm not. The first step toward clarity is getting everything out and in one place. Lists are excellent channels for externalizing.

USE STRUCTURED LISTS TO INTEGRATE THINKING
Build and evolve your mental models

If simple lists are about isolating relevant, interesting, or troublesome factors, structured lists are about assigning order and priority to those elements so as to create a more complete picture of the conceptual space. In the process of structuring lists, we focus on relationships and hierarchy between list elements, creating and naming the resulting clusters.

There are many approaches to structuring lists. Some people find it intuitive to create "mind maps," in which list elements can be spatially arranged to make relationships. Some prefer the hands-on, large-format approach of using sticky notes on a wall or index cards tacked into corkboard. And some prefer more computational—but less visual—list-processing tools, such as Excel. Each of these approaches has advantages and drawbacks. All of them, however, get the job done, considering that the job is to further structure the mess and find the conceptual center.

Mind maps fit smaller endeavors and individual processes

Many people find that mind maps are a great place to start in externalizing and ordering their thoughts. Mind maps do what all visualizations do: compress a large, sprawling problem into a compact space so that it may be seen all at once, and visually differentiate types of information so that our eyes can scan and isolate distinct groups as needed. Mind maps hit a wall, however, when the number of elements nears 50. It's hard for the eye to process that many instances, no matter how carefully organized or color-coded.

This mind map sorts out the field notes from interviews with 20-something women in a "holistic" food segment.

work by Russell Flench

Keeping Healthy

Nutrition
- Organic
- Not enriched
- Except milk & oj
- Qualities of good food
  - Whole
  - Real
  - ...t & ...ful
- "Free range" is meaningless unless also "organic"
- "I don't eat milk, but I eat yogurt"
- ...d
- ...d, ...1-
- ...biotic = ...ophilus

Unhealthy
- "Fun food"
- Sometimes bought in a moment of weakness
- "Most food today"
- "Scary"
- "Frankenfood"
- "Tomatoes are being spliced with salmon genes"
- GMO's
- Takes longer for the body to process
- "Processed food feels different"
- Crackers
- In all processed foods
- B/c of part. Hydrog. Oils
  - Artificial
  - Same as trans fat
  - Cancer causing
- Food with hormones
  - Reside in fat cells
  - Causes girls to "develop" earlier
  - Girls in poor schools
- Affects surrounding ecosystem
- Fried foods
  - "Makes me feel ill"
- Farm raised fish = bad
- Contain drugs, antibiotics, like chickens
- "Items in middle aisles of groceries aren't real food"
- Foods like salt, sugar, coffee, soda, juice, tea
- Commuting by car
- Day-to-day activities feel trivial
- Diet Coke
  - Similar to formaldehyde
- Meat
  - Makes her child lethargic
- Fast pace of city life
  - Caveat: enjoys cafes
  - The social aspect of cities

Healthy = "real"
- Laughter boosts your health

Exercise
- Coordinates L & R sides of brain
- Walking ≠ treadmill
- Salsa dancing
- Yoga class
- ...es
- ...on

Medicine
- Western medicine treats symptoms, not sources
- Surgery & pills as a first treatment solution = bad
- Fish oil is better than pills
- Only men are used in research studies
- The public doesn't realize there are options to western medicine
- Uses a naturopath (herbal doc)
  - Learned about while abroad
- Docs who prescribe pill alternatives are regarded ++ favorably

Moving from the most concrete (facts or quotes) at the edges to the most abstracted synthesis in the center helps make logic explicit. ■ ················>

work by Helen Wills

"I hear that they have chickens with 5 wings on them and one foot."

"I'm supporting somebody trying to do the right thing."

goir
hea

"It's not just about food. It's about environment. It's about lifestyle."

contributing to farmer livelihood

supporting the environment

WHAT IS ITS GREATER IMPACT?

"Those were the right decisions back then and it's going to continue should we keep fostering it."

passing on values to my children

"Tastes like it looks."

food should look like food; no surprises

IS IT QUALITY?

"You find your deals. You buy your milk at Whole Foods. You buy fruit over here."

I'm willing to pay more, within reason

taste matters

"They don't need to be charging this, organic or not organic. ... I just don't like feeling ripped off..."

"Yeah, it's a gourmet thing, definitely."

CAN I TRUST MY FOOD?

AM I INFORMED?
- feeling educated
  - "If I don't know and I'm concerned I just won't eat it."
  - "I'm not educated enough to know if I can trust everything."
- having someone to explain it to me
  - "…when you go to Safeway … and it's $4.99 a pound and nobody can explain anything to you."

WHO MADE IT?
- establishing accountability with the farmer
  - "I like to see the person who is growing my food… It's like a relationship building, trust."
- personal touch and loving care
  - "you know, they really take love and care and use time-honored recipes."
- small producers vs. conglomerate
  - "Dole won't care if they lose a customer."

HOW WAS IT MADE?
- avoiding genetically modified and unnatural foods
  - "What's going to happen to me if I eat things that have been messed with too much?"
- interpreting label language
  - "'Fresh': that's a marketing tool; that's all."
  - "'Organic' I would trust."
  - "I look for words that I can pronounce and understand."

IS IT SAFE TO EAT?
- good for me
  - "And so, I can lay the foundation but in our house, it's a big problem because we're not in agreement always on what to eat."
- good for my family
  - "…going to the Farmers Market,…I feel so much more efficient as a mother, like I'm really doing my job and I'm doing it well."

The list-on-the-wall shows a sorted list at a large scale, making it useful for group elaboration. Here we see notes for interviews with consumers, printed out and clustered manually by theme. ■

Sticky note and wall-based clustering fits midsized endeavors and team-based processes

Sticky notes are iconic tools for creating The New and have been enthusiastically embraced by innovation-tasked teams everywhere. Because their use is well documented in other methods books, I will not elaborate on this approach except to offer two contrary but considered opinions from practitioners I respect. Heather Reavey first: "I'd like to put my vote in for stopping the use of Post-its® in the thinking phase. For me it's about making connections between things, so I can put Post-its® next to each other, but I need to draw a line or visually show something more than just a cluster.

I also try to teach people to be really deliberate about how they describe things. Post-its®, because they're small, breed shorthand and word choices that are close but not precise. I'm for bringing big paper back—butcher paper or whiteboards or big spaces to write on so people don't feel constrained to the two inch by two inch surface." The language issue is alive in a different way for Ben Jacobson: "I would say failure mode equals a bunch of people having a discussion that yields Post-it® Notes with scribbles on them—even sorted, clustered Post-it® Notes. The truth is that what any one person meant when they scribbled two words on that Post-it® Note can mean something quite different

to another person in the same room with them, let alone an audience that walks in an hour later to say, 'What did you guys do for three hours?'"

Sticky-note-based lists and wall-based clustering are terrific tactics for making teamwork visible and sharable. But, as Heather and Ben point out, they are tactics with limitations that directly impact how and what we think. These cautions are useful, and PowerPoint has attracted similar criticism as a format that has shaped and limited our thinking. All tools influence how we think, and so we need to be mindful of their impact when we use them.

Spreadsheets fit dense, complex data and work for individuals and small teams

The complexity involved in creating The New typically involves hundreds, often thousands, of information elements, demanding more robust processes and tools. Most practitioners I know use spreadsheets to manipulate lists for insight. The matrix structure of a spreadsheet is highly flexible, and supports the bottom-up process of evaluating data, assigning relationships, using additional columns to add insights and visual cues. Spreadsheets permit easy data entry—one idea per row. Rows can also hold identifying data, such as the interviewee names, cities, or dates that can be used to sort and structure the list further. A spreadsheet's sorting and filtering features provide for fast prototyping of clusters, making patterns in the data easy to spot. The ability to play with data and to shape and reshape lists to uncover potential meaning is a powerful path to discovery, and to the conceptual center.
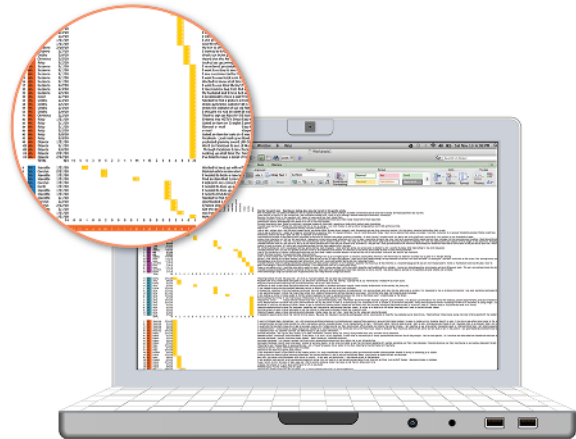
This spreadsheet contains hundreds of diary entries by working moms, who logged how and when they used the Internet to manage their homes and families. Visually coding list elements with color, font, icons can help us quickly spot issues— here the tall yellow line of entries tagged "other" is too big and needs investigation.

USE WRITING TO PROTOTYPE
Nine ways to find the lead

In creating The New, teams are constantly in the process of articulating their story. For a number of reasons, not the least of which is credibility, it is important that teams have a shared narrative about the project, its trajectory, and its potential. Oftentimes, the only thing a team knows for sure is a problem statement, the original objective that kicked off the work. And this leads to the classic rookie mistake: the linear recitation of the project when called to account. You've probably sat through this, and you've probably done it. But it is a communication mistake, and it goes something like this:

We were tasked with answering the following questions [insert business questions here]. So we did research into the topic [perfunctory process recitation goes here] and performed some analysis [show inscrutable diagram or table]. Let us show you what we've learned.

This is a mistake because the most relevant and interesting part of the work comes ten minutes into the story, when the window of attention has closed. I was once told by a genuinely kind and personable client that he might book me for an hour but I really had five minutes to grab his attention before he'd start managing his e-mail. To spend those five minutes on process and other secondary issues is to waste an opportunity. Instead, I propose we lead with knowledge.

The agony of square one

Writers and journalists know that getting the story started is often the toughest part. This problem is bigger than just the blank page syndrome that everyone has faced at one point or another. The problem is the endless number of starting points, and the potential for any one starting point to make the story relevant. Or worse, to make the story *irrelevant.*

Prototyping the project narrative, in any stage of the work, can help teams find the conceptual center of their work. Shown here are nine generic but useful formulas to help prototype that narrative and find the real news faster. You may have seen these all before—they are not new, and by no means are they my inventions. But they work, especially when struggling to clarify the conceptual center, and so I've collected them all in one place.

1 THE FACT

Is there a stark statistic that anchors the issue? Here's an astonishing fact that a student team used to great effect: 60 percent of crops in starving countries never make it to market. Facts can also be of the odd-but-true variety to add intrigue, a bit of mystery. Facts of any kind have the added benefit of suggesting that the team has done its homework and is knowledgeable about the topic area.

2 THE QUESTION

Creating The New tends to begin with a relevant question—is there a variation that might capture the current state of the work? Questions can be rhetorical ("Do we really want a world where. . . ?"), pragmatic ("How might we. . . ?"), or futuristic ("What if we could. . . ?"). The added benefit of using a question as the lead is that it invites others into the problem space with you, which encourages a participative, constructive mindset.

3 THE QUOTE

Quotes can serve multiple purposes. Not only can they convey facts and relevant opinions, but referencing others is also a good way to signal expansive thinking. Quotes can be philosophical (invoking the sage), everyman or commonsensical (Forrest Gump was good at this), or ripped from the headlines (to tie the project to something particularly relevant).

4 THE STORY

Is there a human drama at the center of the action? In the fieldwork or from personal experience, is there a short iconic story that captures the human challenge? Stories can explain complex work in accessible terms, creating an emotional connection.

5 THE MARCH OF HISTORY

Is a sense of time or context important to the project? A brief but sweeping retrospective can help tie a project to the bigger picture and put the efforts into perspective. Drawing attention to cycles and evolutions attaches the work to cycles of change, to things in flux, or establishes it as being set on the precipice of an emerging and important change.

6 THE SITUATION

Oftentimes in creating The New, it is important to establish a context by summing up the current condition or the state of our knowledge. For example, "In eight years we have gone from industry leader to industry follower, from pioneer to laggard. We don't own a single capability in the hottest tech sectors. We are dangerously behind." This becomes the setting against which the project's importance and contributions become more relevant and timely. When starting with the current condition, the team is setting the stage for a transformation.

7 THE SCENARIO

"Picture this" is a tried and true way to heighten the vividness or potential of The New. In this approach, you might start softly with "Imagine yourself here. . ." and bridge to the work. Or lead more directly with "It's the future, and here's what's happening. . ." As is the case when leading with a question, sketching out a scenario invites participants into the future with you.

8 THE THESIS STATEMENT

The thesis or problem statement can be the simplest way into the premise of the work. In creating The New, this has the added advantage of being easy to evolve over time. Thesis statements don't have to be dry; they can be bold or shocking statements that position the work as maverick and edgy ("We are learning how to lie with visualizations."), or outrageous ("We are reinventing motherhood.").

9 CONVENTIONAL WISDOM (IS WRONG)

Is there an industry or organizational orthodoxy that the work is up against? If so, starting with "Most people think X, but we've discovered Y" creates a clean, focused conception of the work that has the added advantage of sounding like an important contribution.

THE TAKEAWAY
Five big ideas for finding the conceptual center

This section proposed a number of methods and tactics for advancing the thinking of individuals and teams. Which method is the best for you? That depends on your time frame, your collaborators, and the nature of your New. Communication is not a formula. Whatever method you choose, and however you tailor it to your circumstances, the general principles are the same:

1. Don't just think. Make.

The act of creating forces decision making that shapes our thinking. This is important: To create is to commit to a new reality, however provisionally, that we can assess. We can step back and squint and ask, "Is this what we know? Does it feel real, promising, important? Do we feel conviction around this?" Building belief starts here.

2. Don't make one. Make many.

Creative fields know that when a person or team builds a single instance of a concept, they become emotionally involved in that creation. The learning stops because they have too much invested. This is why creative fields thrive on rapid prototyping, creating many variations that allow teams to experiment with multiple entry points, multiple perspectives on the problem at hand. Because writing, building, and structuring models are all creative acts, expect to make several variations to better see which of the possible expressions of the future is best suited to your project.

3. Don't be "right." Be curious.

What if there isn't a right answer? Or what if there are multiple right answers? Our job is to find a future state that matters, that is significant and worth the life energy it takes to bring it into being. This requires a different mindset than being right: We need to cultivate curiosity, openness, and a willingness to experiment. "Right" and "best" are not the same thing, and the mindset to get to either is not the same, either.

4. Build in time to reflect.

Collaborative processes are important but are more productive if balanced out with individual dwell time. So build in time to reflect, and experiment with synthesis methods that presume a reflective mode, to better prepare collaborators to come together with new energy.

5. Create room to engage.

Building belief really does start here. So find a mix of methods to engage others and help them experience, if not build, the work. This includes making work visible (so stakeholders can see it), visual (so informal participants don't have to engage in the manual labor of reading), and sharable (so others can stay in touch and contribute).