

USING

LIFE CYCLE

AWARENESS

TOOLS

REAL GENEROSITY  
TOWARD THE FUTURE  
LIES IN GIVING ALL  
TO THE PRESENT.

*Albert Camus*

Consider this an invitation to give sustainable design thinking a try. This book introduces a set of tools we are using at IDEO to help us design more sustainable solutions for our clients.



PURCHASES ARE NO LONGER BASED SOLELY ON FUNCTION AND APPEARANCE, BUT NOW INCLUDE QUESTIONS LIKE "WHERE DOES THIS PRODUCT GO WHEN I DISPOSE OF IT?" THIS CHANGE IN ATTITUDE IS CREATING NEW CHALLENGES AND OPPORTUNITIES FOR COMPANIES TO DEVELOP PRODUCTS THAT ADDRESS THE ENVIRONMENTAL CONCERNS OF THEIR CUSTOMERS.

Jeanne Isaacs







THE MOST SURPRISING PART OF THE PROJECT WAS THAT ALL OF THE STAKEHOLDERS WERE OPEN TO THE POSSIBILITY OF SUSTAINABLE SOLUTIONS, BUT NONE FELT DIRECTLY RESPONSIBLE TO MAKE IT HAPPEN. CONSUMERS FELT THAT THE PRODUCTS MUST BE GOOD OTHERWISE THEY WOULDN'T BE SOLD, WHILE MANUFACTURERS CLAIMED THAT THE PRODUCT MUST BE GOOD OTHERWISE PEOPLE WOULDN'T BE BUYING IT. THE RESPONSIBILITY ULTIMATELY CAME DOWN TO THE DESIGNER WHO WAS SPECIFYING THE PRODUCTS.

*Aaron Sklar*

# Sustainability demystified.

Okay. Deep breath. We're going to take a stab at defining sustainability. Not in the textbook way that makes everyone's eyes glaze over, but rather in the IDEO way.

In the big sense, sustainability is about the ongoing health of the earth, the living things on it (including people), and the natural systems that support them. One step further in, it is about solving problems in a way that balances the needs of people, the environment and commerce to create long-term viability for all. Immediately, for us at IDEO, sustainability means beginning to broaden our view of the reach we have as designers and the importance of the decisions that we make on a daily basis. Sustainability means doing what we already do well, but doing it in an enhanced framework of understanding and asking some new questions—or asking old questions in a new way.

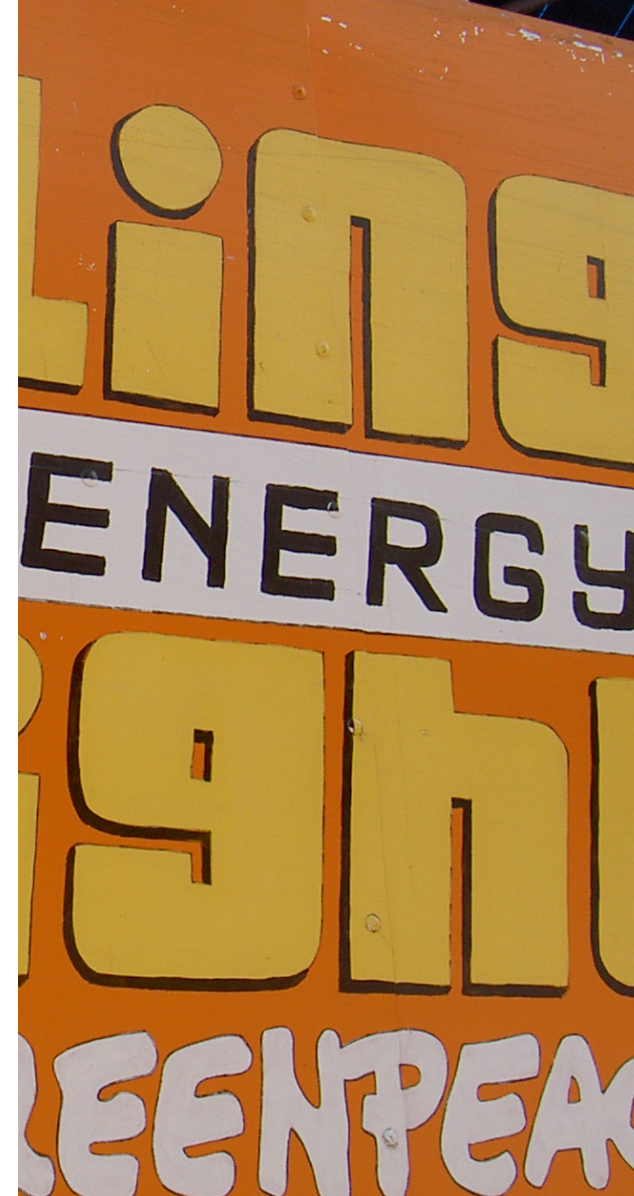
Sustainability is a target we aim for, but it isn't an action we can take. Sustainable development is the process by which we pursue sustainability. Sustainable design is an essential, enabling part of sustainable development.

Sustainability is about taking a systems-level perspective when solving problems. From a systems view looking at our planet, if we don't provide adequately for the basic needs of people around the world, we create imbalance, and with it an inability to address the mounting pressures upon natural systems. When we take more out of the earth than naturally goes back into it, we create problems. And when we introduce more man-made substances into the ecosphere than are naturally removed from it, we create problems. When we degrade biological systems, like forests and oceans, we create problems by decreasing their ability to give us the things we need, such as clean air, clean water, biodiversity, and so on.

As designers, we can't change the infrastructure of our society immediately, and we wouldn't want to. But we can start heading down the path to improving it right away. One designer has defined sustainable design at IDEO simply as "guilt-free" design. Thinking sustainably can readily become an integral part of the designer's process—it is just one more filter through which decisions can be evaluated.

THANKS TO GEORGE BASILE AND THE NATURAL STEP FOR INSPIRATION AND ILLUMINATION OF THE SYSTEMS-LEVEL APPROACH TO SUSTAINABILITY THAT LED TO THE CREATION OF THIS TOOL SET.

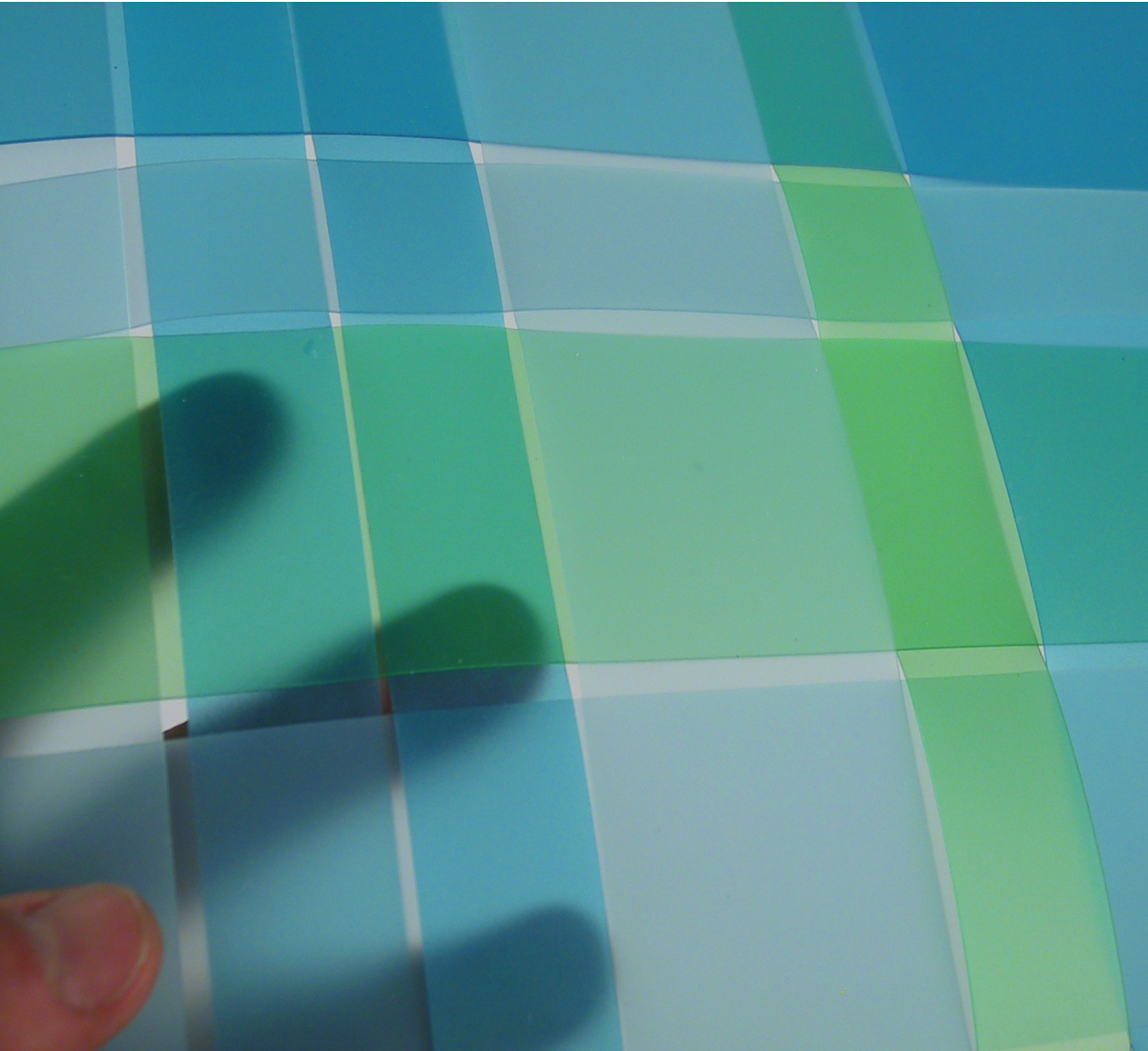




By believing passionately in something that still does not exist, we create it. The nonexistent is whatever we have not sufficiently desired.

Franz Kafka





THE METHOD OF DESIGNING WITH SUSTAINABILITY IN MIND IS KIND OF A PARADOX. RATHER THAN WORKING WITHIN THE DESIGNER'S BUBBLE, FROM START TO FINISH, IT FORCES YOU TO WORK BACKWARDS, WITH THE END OF THE LIFE CYCLE AS THE POINT OF INSPIRATION. MATERIALS AND SYSTEMS COME FIRST – YOU ASK YOURSELF WHAT MATERIALS ARE SUSTAINABLE AND THEN (TAKING A BACK SEAT) WHAT DESIGN WOULD BE COMPATIBLE WITH THOSE MATERIAL PROPERTIES.

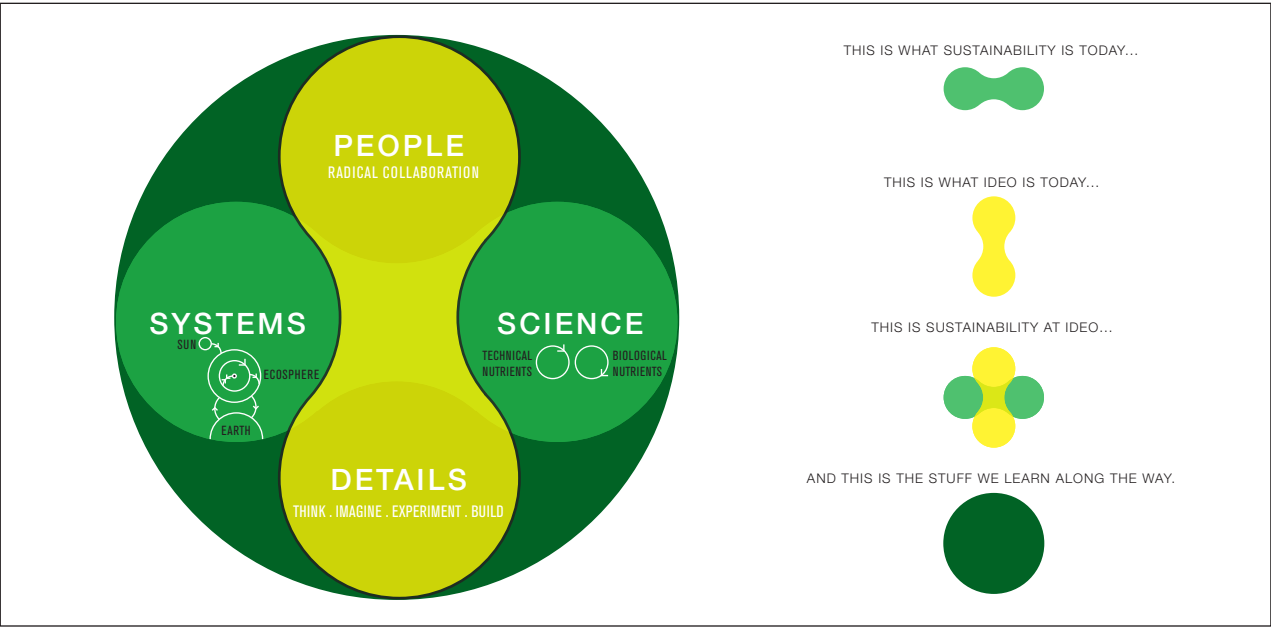
*Lisa Hsiao*



# Sustainability as it relates to IDEO.

We are all designers. No matter what our area of expertise happens to be, we are here because we are passionate about designing things better, be it a product, a place, a piece of technology, an experience, a service. Sustainability is a big, huge, honking topic. One that has the potential to improve pretty much everything, one way or another. We don't begin to pretend we are able to tackle sustainability as a whole. But we are intrigued and inspired by the opportunity to make meaningful strides in the context of design. Hence, this book: a starting point for us to learn more about, grow from, and contribute to sustainable design.

Think of it as another lens. A brainstorming tool. **New questions to ask.** A different perspective to take. **Another avenue to explore.** It's a truly postdisciplinary topic. **It applies to everyone** in the work they do at IDEO, no matter what their area of expertise happens to be.



THE WORLD OF SUSTAINABILITY HAS TRADITIONALLY FOCUSED ON SYSTEMS AND SCIENCE. IDEO BRINGS EMPATHY AND ACTIVATION TO THE MIX.

*Kara Johnson*



Bringing clients with you on this journey  
can be informative and inspiring.



## Sustainability as it relates to clients.

So far we've used this set of tools in kickoff meetings with clients as a way to broach the subject of sustainability, start the conversation, get a sense of their knowledge and their willingness — or lack thereof — to learn more. Though they may not choose to pursue it further, sometimes simply going through the process is another tool for invention and innovation that may ultimately take you places you wouldn't normally go. It's rarely a bad thing to be stretched outside the perimeter of our process. At best, it will provide inspiration. At the least, it's a lens for rethinking.

We've found these tools help clients understand their place from a systems perspective: how the making, manufacturing, use, end-of-life, and disposal of their products affects the big picture — the world we live in and all that encompasses. It's also a way for IDEO to help clients realize savings, improvements, and other valuable opportunities for their businesses.

Typically, these activities help the client realize they know very little about the implications of their products' impact on the world.

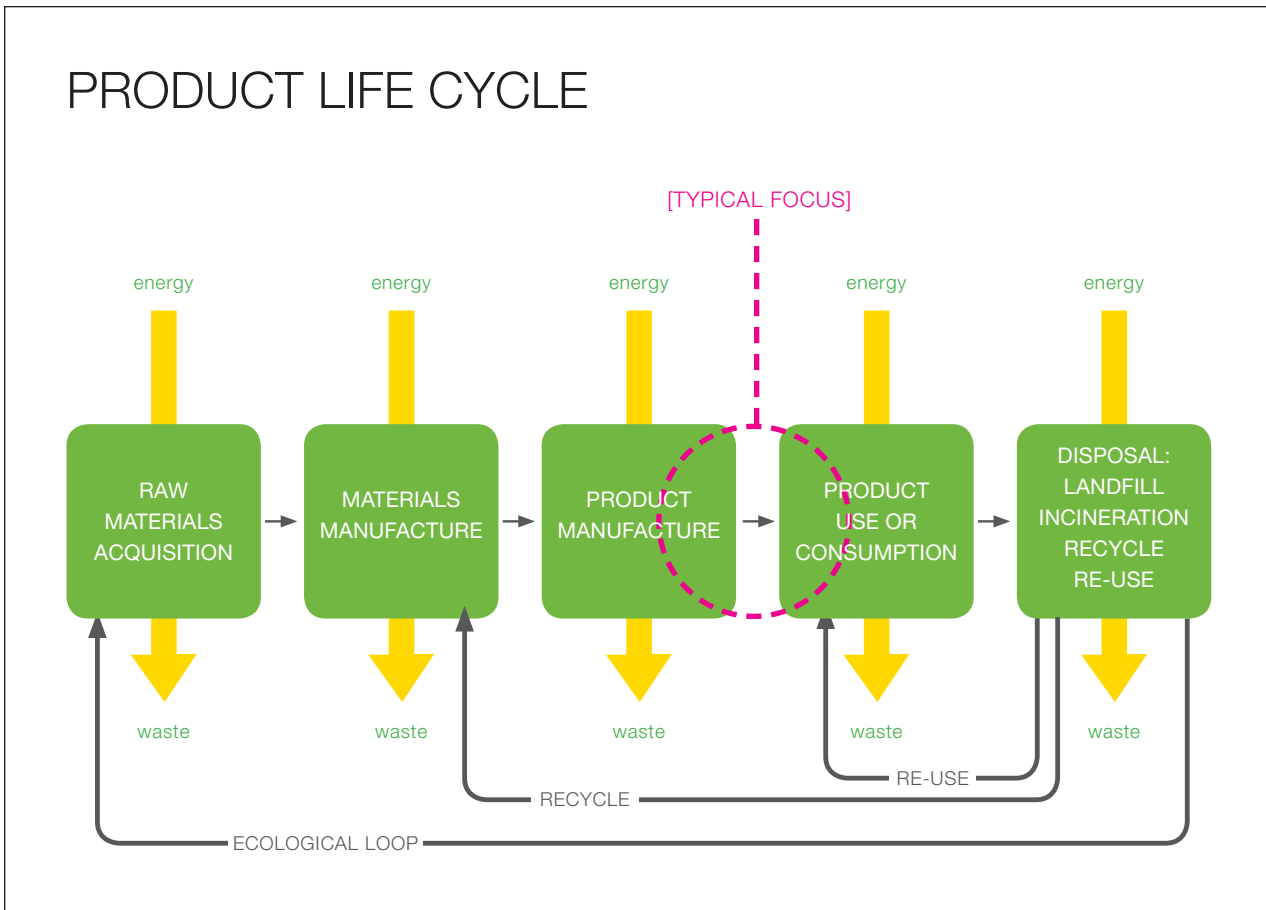
Let's not forget ourselves here. This is also a valuable toolkit to use internally, to help project teams understand the possibilities for creating more sustainable solutions. Or, at the very least, to understand the larger systems implications of our design choices. It's also a great way to begin educating ourselves about sustainable design.



We must look to the big picture to understand all of the opportunities. If we only focus on one small section of the life cycle (the larger whole), we can't contribute to it as meaningfully as we could if we broadened our horizons to look at the larger context of how we do the work we do. And we must understand the implications of those decisions, both for quality of life and quality of product. As soon as we ask ourselves "Where does it come from and where does it go?", the product life cycle becomes an option, an opportunity, and a design inspiration.

WHERE DOES IT COME  
FROM AND WHERE  
DOES IT GO?

Right now IDEO's focus lies mainly within use and manufacturing. However, widening our view to include the entire product life cycle will allow us to contribute more holistically to the big picture. When we pull back, that's when we can truly understand and observe the implications of and possibilities for the things we design. We can see cyclical paths for products that we might not have seen before.







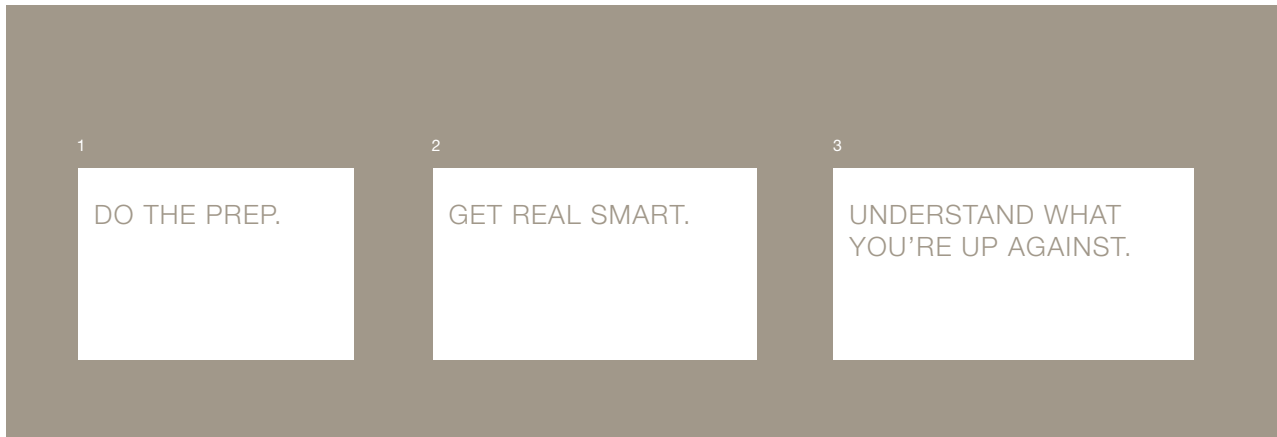
THERE IS NO SINGLE CORRECT SOLUTION TO SUSTAINABLE DESIGN. ALL DESIGN SOLUTIONS WILL HAVE COMPROMISES. THE GOAL ISN'T TO AVOID COMPROMISES, BUT RATHER TO MINIMIZE THEM. EACH ITERATION OF A DESIGN SHOULD TAKE US ONE STEP CLOSER TO SUSTAINABILITY.  
*Opher Yom-Tov*

# A 4-STEP TOOLKIT

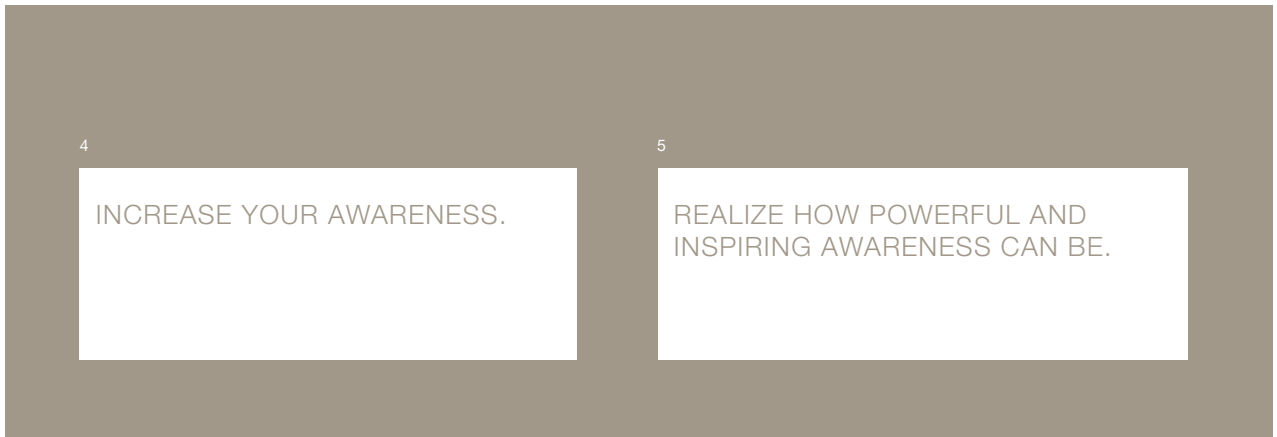
No one starts out as an expert. Like most things, it takes time, trial and error, and repetition to begin feeling comfortable with the process. The more we learn, the more we realize what an amazing opportunity sustainability is in so many ways. Not only can we make more sustainable contributions to the planet, but as a result our clients can, too. Just imagine what kind of change we can create together.

**Where to start?** With some good old-fashioned homework. Before using the tools in this book at a client kickoff or even internally, give this a try: do a little life cycle homework, and/or assign it to the client to gather some research about the product they have come to us to help design or improve. Spend a few hours developing knowledge and expertise about how it's made, where it's made, what it's made of, how it's manufactured, how it eventually breaks down—or not, etc. This will likely make the workshop discussion even richer. Feel free to call the contacts in the back of this book who have used these tools to chat about their experiences and suggestions. (Workshop leaders, see page 37–39 for more detailed instructions.)

**What's next?** Well, first things first. Learning is a process. Don't feel compelled to fill out the following charts completely. The areas you leave empty are as telling as the ones you can fill out. Allow yourself the room to take a step back, see the areas of greatest density, and understand what you know and how you can make a difference.



**Super-size it.** Plot and print out the charts on the following pages, and pin them up for the kickoff/workshop. This will enable everyone in the room to contribute to the discussion collectively, rather than individually as they might if you passed around handouts. We have found the group dynamic and collective knowledge of the attendees to be powerful. Consider this an early-in-the-process, pre-strategic inspiration tool. The workshop should be fun and lively and reflect the spirit of a brainstorm.





1

## AWARENESS

Understanding your product  
from a systems perspective

3

## OPPORTUNITIES

Imagining what's possible

2

## UNDERSTANDING

Understanding the impact of  
the choices we make

4

## GETTING TRACTION

Identifying areas where IDEO  
can make a difference





# 2

## UNDERSTANDING

Understanding the impact of the choices we make

### Putting things in context.

Once you have an idea of where things come from and where they go, map them out in the context of what we know about how they interact with people and the planet. We can look at a product throughout its life to identify hot spots that may be problematic for the producer, the user, or others who encounter it at various points along its journey. Here we simply try to understand the potential impacts of a design that we envision. We look at four things that we have some intuition about as designers: materials, energy, toxicity, and people.

The following are straightforward design questions, but they are asked through a lens with a somewhat broader focus than we may be used to. When you have finished the mapping process, step back from the chart and squint at it. You will see clusters where you have a lot of knowledge, and empty spaces where you know very little. This is okay. It gives you some guidance about where to focus your energy, and where you can learn more.

Does your product depend upon resources that are limited, or not renewable? When? Where?  
Does your product require more energy than necessary to fulfill its function? What kinds of energy? When? Why?  
Does your product depend upon, or produce, substances that endanger human health, or the health of ecosystems on Earth? What? When?  
Are there behaviors that your product encourages that are harmful to individuals, or to society at large?

Earlier prototype in use



# 3 OPPORTUNITIES

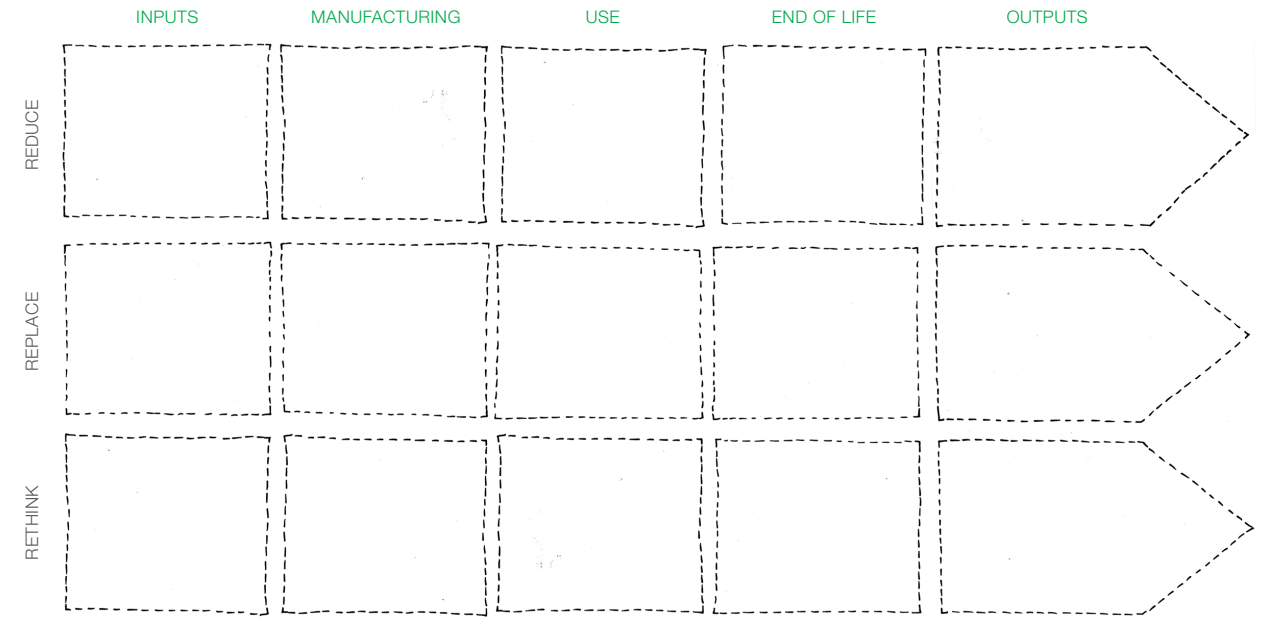
## Imagining what's possible

### Identifying opportunities for change.

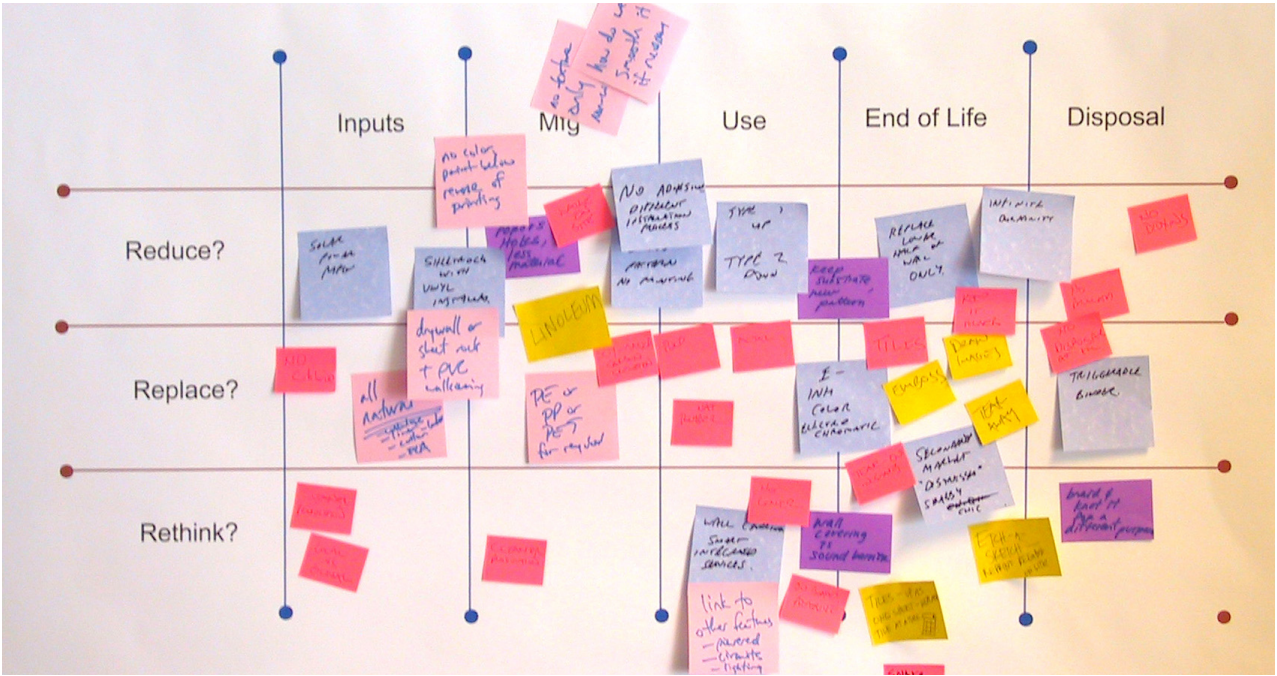
Now we begin to look for design inspiration. Are there ways that we can reduce or negate the potential effects that we have mapped out?

Try not to narrow the field at this point. In fact, do the opposite. Consider this a brainstorming tool to inspire innovation and possibility. With each question you ask about the product and its life, an opportunity for innovation presents itself.

- Reduce? Replace? Rethink?
- Can you reduce energy consumption or material use at any stage of the product's life?
- Can you do more with less?
- Can you replace a toxic substance with one that is less so?
- Can you completely eliminate the use of a problematic process by radically rethinking the solution, negating the need for the process entirely?



Earlier prototype in use





# 4

## GETTING TRACTION

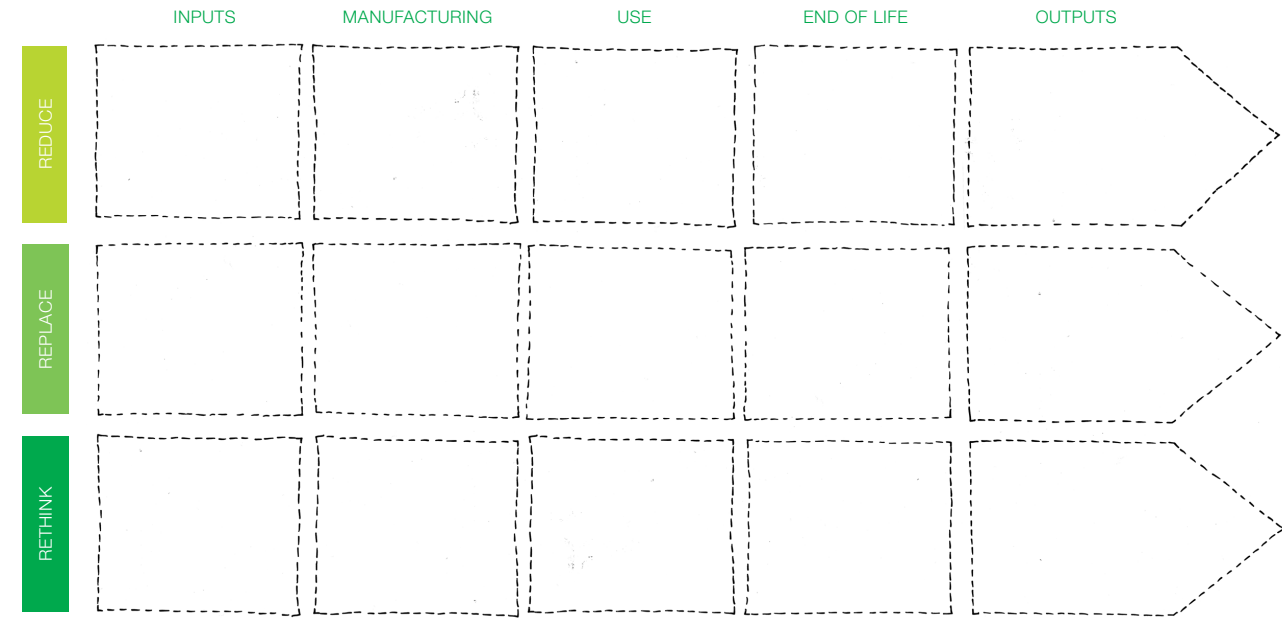
Identifying areas where IDEO can make a difference

### Where do we focus?

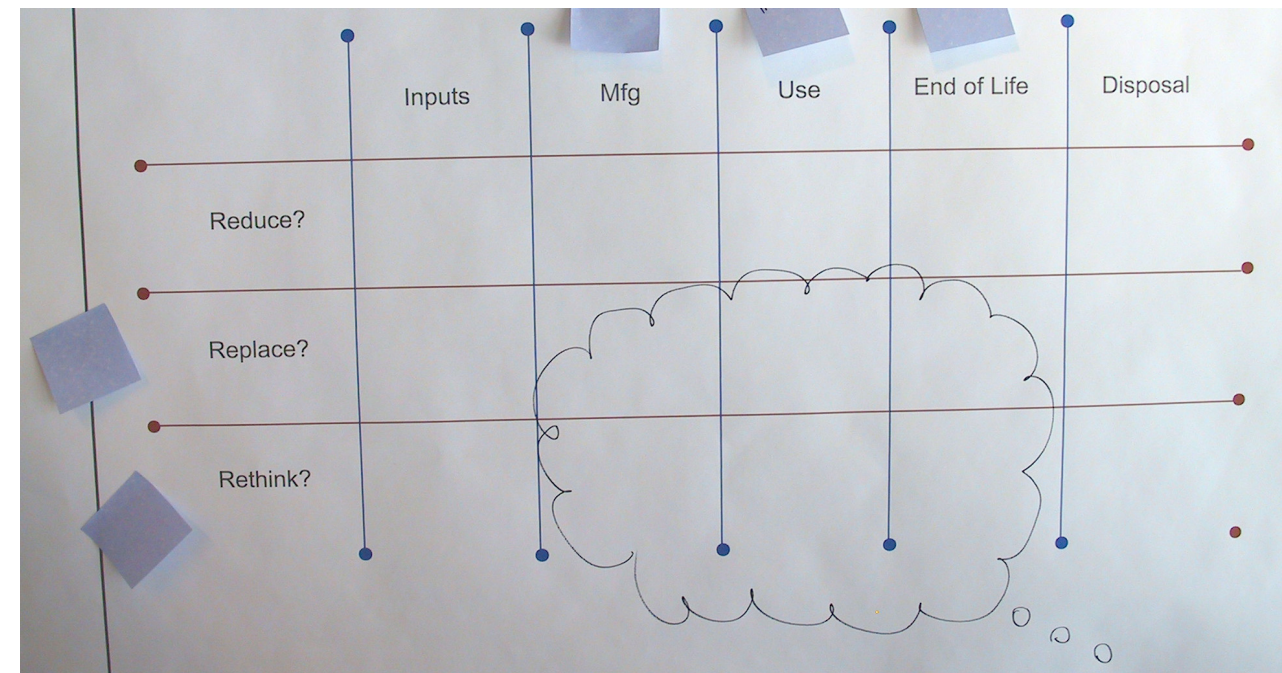
Now imagine the “sweet spot.” We can’t realistically take on the whole world (at least not right away), but there are areas in which we, as IDEO designers, have a great deal of leverage. Look at your results from Step 3, and think about where you want to focus your energy. By constraining the space to a limited area where you think you can make a difference, you create an environment in which you can innovate, and a better likelihood of success.

This step also helps scope the trajectory of a project with your client. Very early on, you can create a common understanding together of where interest may lie in a potential solution.

Where can we make a difference?

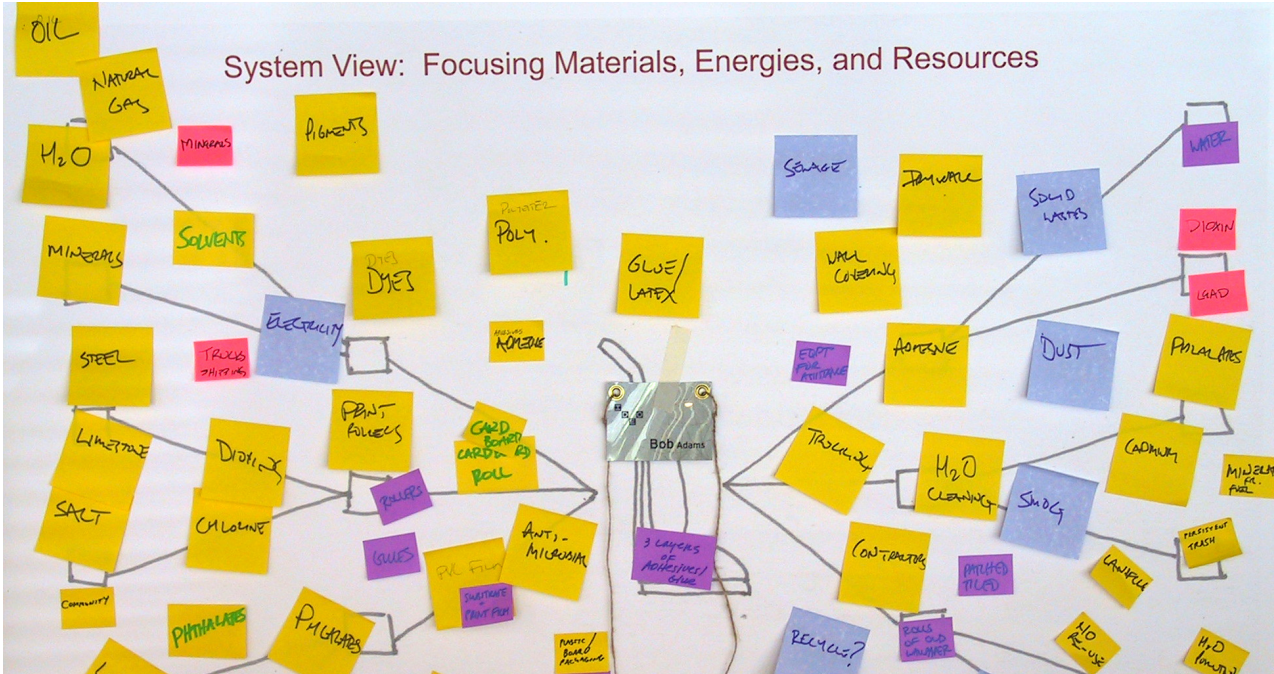


Earlier prototype in use

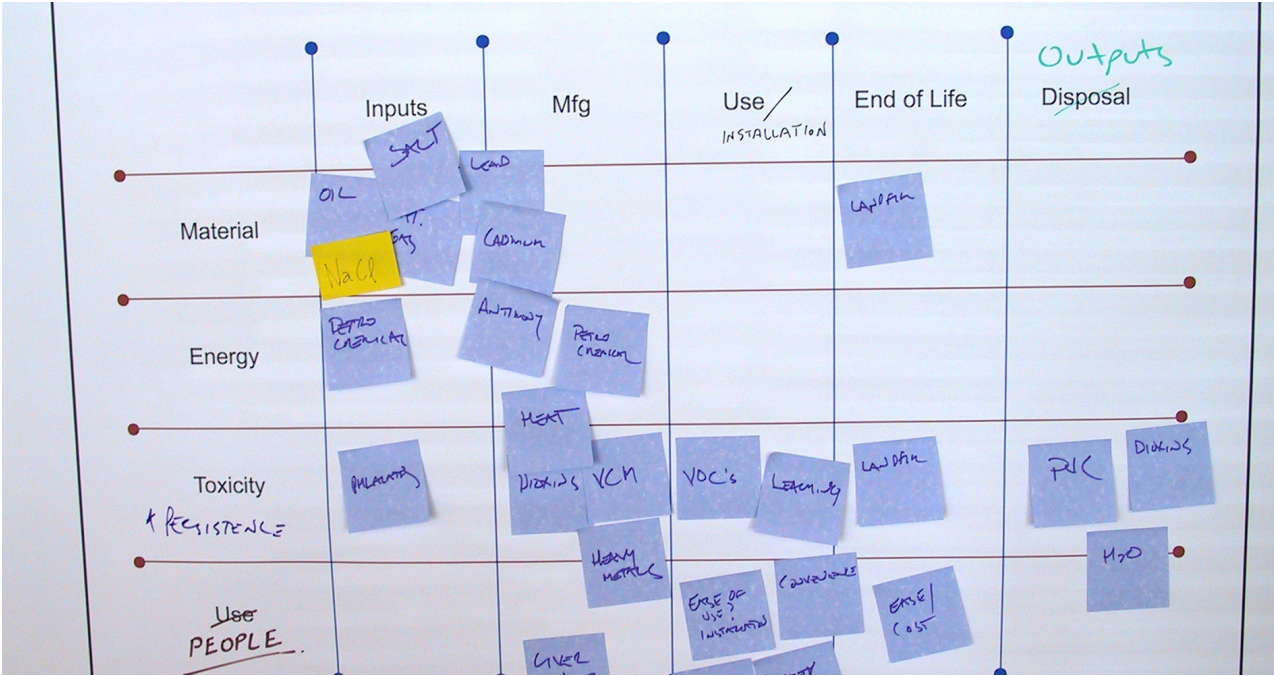




# 1 AWARENESS

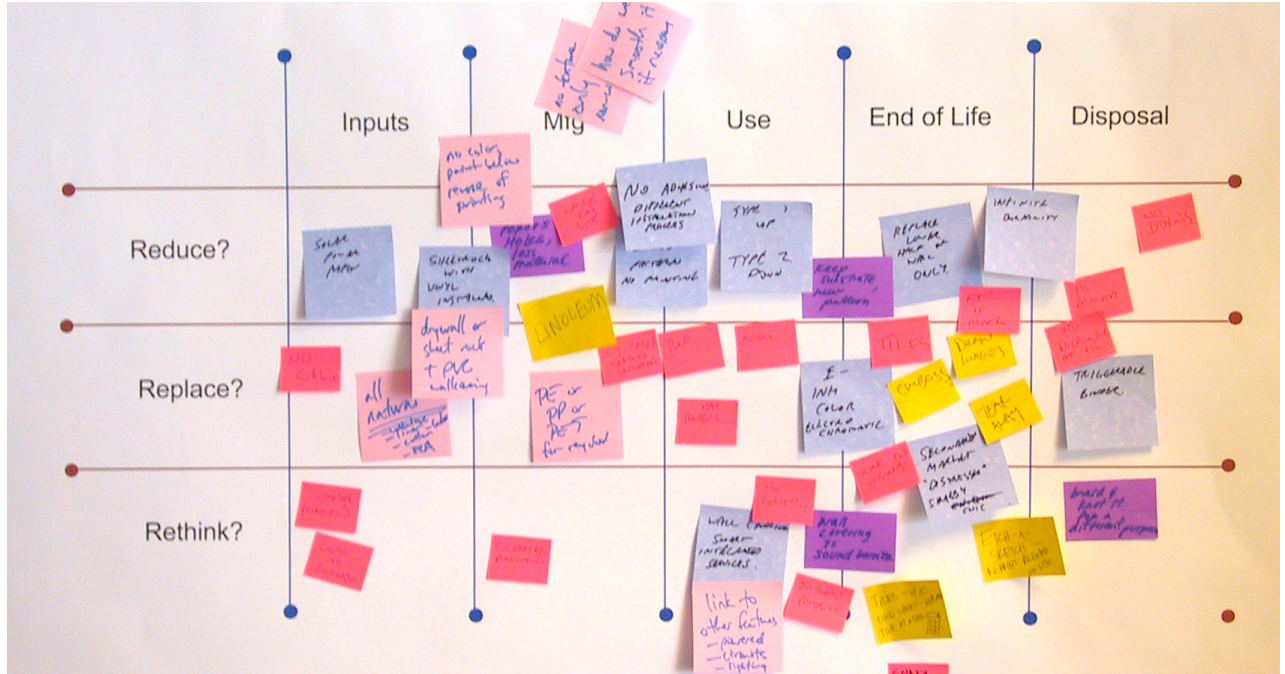


## 2 UNDERSTANDING

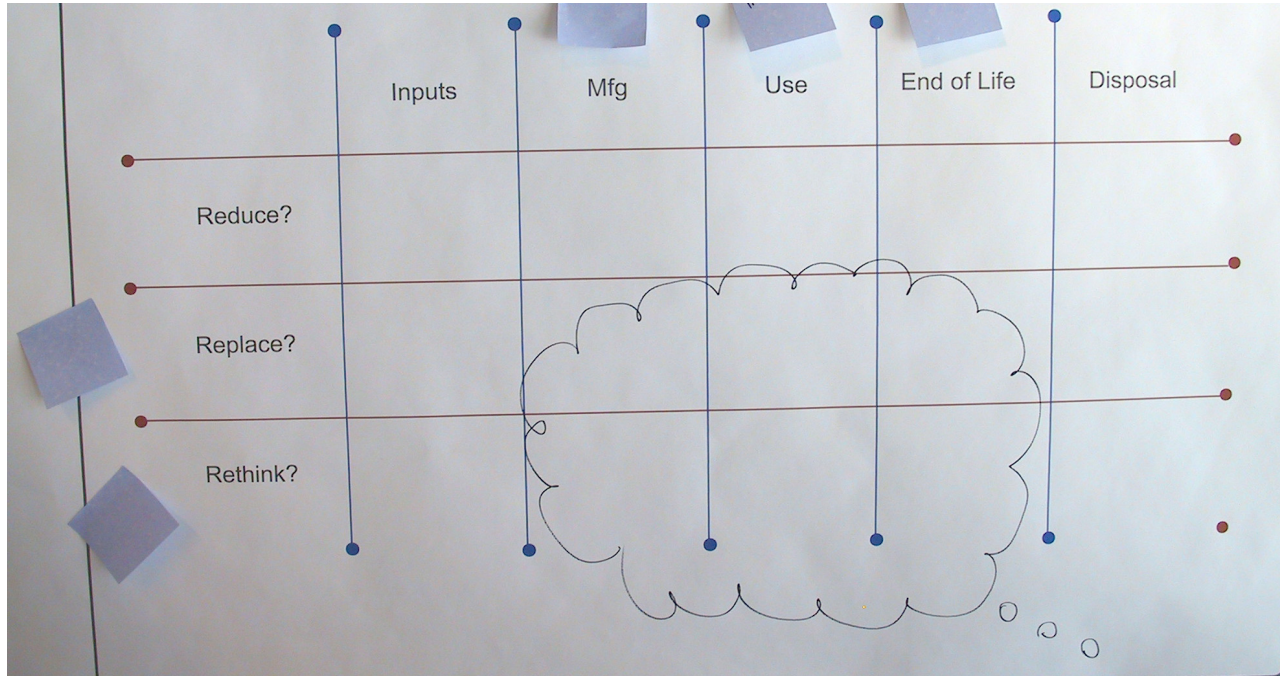


These earlier prototypes give a sense of how to use the tools in this book.

### 3 OPPORTUNITIES



## 4 GETTING TRACTION





SUSTAINABILITY IS NOT  
ENVIRONMENTALISM  
DRESSED IN NEW  
CLOTHES. IT'S  
ESSENTIALLY A NEW  
WAY OF SEEING  
THE WORLD.

*Author Unknown*

Looking through a sustainability lens doesn't necessarily mean it has to become a *sustainability project*. Quite the contrary. The sustainable design lens is one of many we can apply to a problem. Think of it as a facet of a project, rather than the entire gem. It's simply another way of looking at things. An internal inspiration and an external exercise.

**How long does the whole thing take?** In our experience, it has taken an hour or two to use these tools in a workshop. Often, we have run brainstorming sessions directly afterwards, based on our insights around opportunity and action. We have found this to be a nice filter to inform our work and gives the client a sense of what can be using this lens alone. It gives them a glimpse into our process and helps illustrate one of many ways we are inspired to “make things better.”



THE LIFE CYCLE TOOLS PUSHED US AND THE CLIENT TO BROADEN THE TYPICAL USE AND PRODUCT RESEARCH PROCESS — LITERALLY FOLLOWING THE PRODUCT FROM RAW MATERIAL TO TRASH AND TALKING TO ALL THE FOLKS INVOLVED ALONG THE WAY. THE TOOLS PROVIDED A FRAMEWORK THAT ENSURED THAT WE UNDERSTOOD ALL STEPS IN THE PRODUCT'S LIFE— THEY WERE SOMETHING WE COULD COME BACK TO IN ORDER TO MAKE SURE OUR INVESTIGATION WAS THOROUGH. WE COULD THEN SEE WHERE IN THE PRODUCT'S LIFE THE MOST PROMISE FOR IMPROVEMENT LAY AND THEN FOCUS OUR ENERGIES THERE. PERHAPS MOST IMPORTANTLY, WE INTRODUCED THE TOOLS DURING THE PROJECT KICKOFF, ENSURING THAT WE AND THE CLIENT WERE ON THE SAME PAGE ABOUT THE EXTENT OF THE INVESTIGATIONS, AND HOW THOROUGHLY WE WERE GOING TO QUESTION AND UNDERSTAND THEIR PRODUCT AND BUSINESS.

*Jeff Chapin*







The medium is the message:

We've printed this booklet on paper which is made of 50% post-consumer waste, 100% recycled and processed without chlorine. It's called Reincarnation and made by New Leaf Paper. It's the most environmentally sound coated paper manufactured in the United States.