How to engage designers to ensure great products
Great products fulfill at least three criteria. They are effective, efficient, and engaging.

– Effective: Meet important needs, in robust and reliable ways; they are low-maintenance, safe, solid.

– Efficient: Easy to learn and use—clear, consistent, and coherent; they unfold, adapt, and accommodate.

– Engaging: Considerate and inspiring—more than merely satisfying; they draw us in, enable “flow”, and delight.

See Vitruvius, *De Architectura*, (circa 15 BCE), the earliest surviving treatise on architecture and design, and ISO 9241 (circa 2005), which defines standards for ergonomics and HCI.
Great products come from iteration; they evolve—or more precisely, they co-evolve with changing internal and external environments.

That is to say: all products are the result of conversations.
A new product teaches its environment. The environment also teaches the product.
“In most people’s vocabularies, design means veneer. It’s interior decorating. It’s the fabric of the curtains and the sofa. But to me, nothing could be further from the meaning of design. Design is the fundamental soul of a man-made creation that ends up expressing itself in successive outer layers of the product or service.”

— Steve Jobs, *Fortune*, January 24, 2000
The partnership between Steve Jobs and Jony Ive is famous. What’s rarely discussed is what it means, what we can learn from it.
It was an on-going conversation that built a relationship and trust.

“We had lunch together pretty much every day. He would spend many afternoons a week in the design studio, and we became very close friends.”

The Jobs-Ives conversation is not unique; pretty much everywhere that you find really great design, you find such conversations.

Steve Jobs + Jonathan Ive = Apple
Ed Catmull + John Lasseter = Pixar
Tom Watson, Jr. + Eliot Noyes = IBM
Walter Paepke + Herbert Bayer = Container Corp.
Adriano Olivetti + Marcello Nizzoli = Olivetti
Artur & Erwin Braun + Dieter Rams = Braun
Max Dupree + George Nelson = Herman Miller
William Paley + William Golden = CBS
Frank Stanton + Lou Dorfsman = CBS
Hans Knoll + Florence Schust = Knoll
Martha Stewart + Gael Towey & Eric Pike = Martha Stewart
Pixar has made 15 hit movies—in a row—by design, not luck. Founder Ed Catmull explains how in his book, Creativity, Inc.
Story meetings at Pixar—conversations, without laptops, supported by a dedicated war room, lots of sketches, a high-info-density physical environment.
Increasingly, venture capital (VC) and business consulting firms are bringing senior designers into their conversations.

- Google Ventures named Braden Kowitz “Design Partner”
- Khosla hired Irene Au, former head of design at Google
- Kleiner-Perkins hired John Maeda, former RISD President

- Accenture bought European service design firm Fjord.
- Deloitte bought design planning firm Doblin Group.
- McKinsey bought SF product design firm Lunar.

These firms didn’t hire these designers to make wireframes; they hired them to change the nature of their conversations.
The quality of the conversation depends on the relationship between a design group and the organization that it supports.

— Sabine Junginger, 2009
Traditional, industrial age management is **hierarchical**. Designers *add style after* a product has been engineered.

**Controlling:** Manager tells designer what to do + how to do it; designer executes.

**Mentoring:** Manager sets goals but discusses means with designer.
Emerging, information age management is more **collegial**. Designers *participate throughout* the entire development cycle.

**Delegating:**
Manager sets goal but leaves means to the designer.

**Collaborating:**
Manager and designer set goals together.
Sophisticated managers operating in an agile manner, avoid waterfall handoffs and include designers in daily scrums.

But agile managers often fall into the trap of focusing on wireframes, without building the necessary foundation.

If your designer isn’t producing wireframes fast enough, it may be because you didn’t make time to build the right scaffolding.

That is, you may not be having the right conversations.
The right conversations iterate shared vision and conceptual structures. That’s where effectiveness, efficiency, and engagement are born.

“At its heart, software design is about creating virtual worlds in which users work, learn, and play.

Virtuality has two aspects:
1. Conceptual structure—the ideas and how they unfold, connect, and lodge in the mind
2. Feel—how things look and the other sensations we experience (crude or slick, bumpy or smooth, warm or cool)

The real issue is designing a consistent conceptual structure, one that fits the domain as much as possible, as comprehensively and comprehensibly as possible.

Consistency, completeness, and clarity are the objectives.”

— Ted Nelson, the inventor of hypertext
“For people to use a product successfully, they must have the same mental model (the user’s model) as that of the designer (the designer’s model). But the designer only talks to the user via the product itself, so the entire communication must take place through the ‘system image’: the information conveyed by the physical product itself.”

“...most digital systems fail when they fail to provide a story, when there is a poor conceptual model.”

— Don Norman
How to make conceptual models is explained in a wonderful new book *Conceptual Models: Core to Good Design*, by Johnson & Henderson.
A conceptual model describes what a user needs to know in order to use your application successfully.

“A conceptual model is a high-level description of an application. It enumerates all concepts in the application that users can encounter, describes how those concepts relate to each other, and how those concepts fit into tasks that users perform with the application.”

— Jeff Johnson + Austin Henderson, Conceptual Models: Core to Good Design, 2012
As an example of a conceptual model, Johnson + Henderson describe an alarm clock.

The clock stores the current time of day, continually updating it to track the passage of time.

It displays the current time constantly.

Users can set the current time.

Users can set an alarm at a specified time, or no alarm.

When an alarm is set and the current time equals the set alarm time, the alarm is triggered.

Users can turn off an alarm.
User conceptual models can be expressed in a number of ways. Node-link diagrams—or concept maps—can be very efficient.
Example user conceptual model: an email client app
Example user conceptual model: restaurant staff scheduling app
Johnson + Henderson’s conceptual model of a clock can be expressed in digital or analog interfaces.
At first the iPhone and Galaxy Nexus clocks look similar, but their conceptual models are more complex than the travel alarms.
In addition to communicating the conceptual model to users, designers also need to **communicate with the product team**.

The communication needs to go two ways; it needs to be a conversation.

That means designers don’t own the model; the designer’s role is to facilitate the conversation, by representing the model and prototyping.
In addition to user conceptual models, product teams benefit from producing a number of other artifacts, that support conversations.

These include:

- **An elevator pitch**—a summary of the product concept
- **Mission statements**—the purpose of the product, why it matters
- **Positioning statements**—how a product differs from competitors
- **User personas**—descriptions of users, their context, and their goals
- **Context maps**—representations of the situations in which a product is used
- **Systems maps**—representations of the infrastructure that supports the product
- **User stories**—descriptions of tasks users will undertake
- **Wireframes**—schematic representations of a product interface
- **Prototypes**—working versions of a product

Each artifact is what sociologist Susan Star calls a *boundary object*—objects that help bridge the boundaries between domains of knowledge.
The purpose of product team conversations is to improve products.

The better the conversation, the more the product team learns; the more the product team learns, the better the product.

In a single iteration:  understanding > agreement > action
Repeated many times:  iteration > learning > better products
“Everyone designs, who devises courses of action aimed at changing existing situations into preferred ones. The intellectual activity that produces material artifacts is no different fundamentally from the one that prescribes remedies for a sick patient or the one that devises a new sales plan for a company or a social welfare policy for a state.”

— Herbert Simon, *Sciences of the Artificial*, 1969
The Analysis-Synthesis **Bridge Model** shows how design crosses the gap between *what is* and *what should be*.
The **SECI Model** shows how organizations turn tacit knowledge into explicit knowledge, create new knowledge, and deploy it in operations.
Both models have the same basic structure—iterative loops—suggesting that **designing is learning.**

**Analysis-Synthesis Bridge Model**
Dubberly, Evenson & Robison (2008)

**SECI model of knowledge creation**
Ikujiro Nonaka (1995)
Learning happens at different scales—small + large.

- **Individuals** have insights, which they refine and share with colleagues, building support within an organization.

- **Companies** who master new skills first gain a lead over competitors, but competitors soon copy success and catch up.

- Eventually, knowledge becomes distributed throughout an **industry**—and innovative practices become standard operating procedure—table-stakes.
Learning is often described as a curve; learning curves can be seen as a series of waves.
Over the last 40-50 years, product **innovation has occurred in 4 waves.** Climbing a curve early confers advantage; eventually it’s a necessity.
Apple’s lead over Samsung has been across a series of learning curves. Samsung responds quickly to external conversations—it’s a follower. Apple has generative conversations, iterating quickly—it’s a leader.
A final thought about the domain of design:
Design is not art; design is not science; design is politics.

Wireframes are an important step in movie-making and software design. But if you begin and end the design conversation with wireframes, the story will be lost; the project will lack coherence; and audiences will yawn.

The real issues, the issues that matter, are essentially political in nature. What’s important to us? What do we value? What are our values?

What aspects of our world do we wish to bring forward? What do we want to conserve? What is our preferred situation? What should be? What is the fundamental soul of this character, product, or enterprise?

These questions can only be answered through conversation.
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