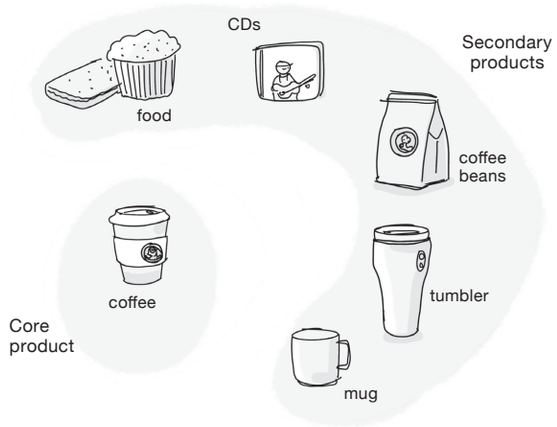
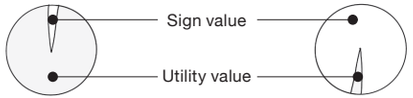


Identify the experience, not just the product.

Every product has one or more core experiences that transcend the product itself. The core experience of mountain biking may be biking, but it also could be exploring the outdoors, embracing physical challenge, or escaping workaday structure. Identifying the core experience clarifies users' motivations and needs. This can lead not only to better design responses, but to developing secondary products for the same user—perhaps rain gear, emergency tools, and high-nutrition snacks. These products may build additional interest in the core experience and increase users' reliance on the product brand.



Casio: $10

Patek Philippe: $80,000

A $25 teakettle needs to boil water, whistle, be dependable, and look appealing. A $900 kettle mostly needs to be beautiful.

The cost of a tangible function tends to be apparent in a market economy. A $10 Casio watch, for example, is almost purely functional, thereby establishing that telling time has a **utility value** of perhaps $9. A Patek Philippe watch can cost $80,000, suggesting that almost all of its value is **sign value**—the status it grants its wearer. Prestige, being an abstract quality, lacks a clear price standard.

Archive
product in storage

Anticipated
product in use context but not performing

Active
product performing core function

Use modes

Products perform when not in use.

When is a credenza “in use”? When it is placed in a living room or office, at the moment an object is placed in or on it, or when it sits idle?

Indeed, many products are at work when not performing their primary function. Furniture, lighting fixtures, dishes, and countless other products serve as background or aesthetic objects, or simply stand at the ready, when not being actively operated.

The ultimate effectiveness of a product may depend on its **context** (manufacture, transport, display, installation, storage, disposal, etc.) more than its **primary use** (its ordinary, intended function or application). A window air conditioner can be designed to run efficiently, but its true efficiency depends on the integrity of its installation. A headphone should be designed for the wearer’s comfort, but its value to the user may hinge on whether it can be folded for transport and storage.

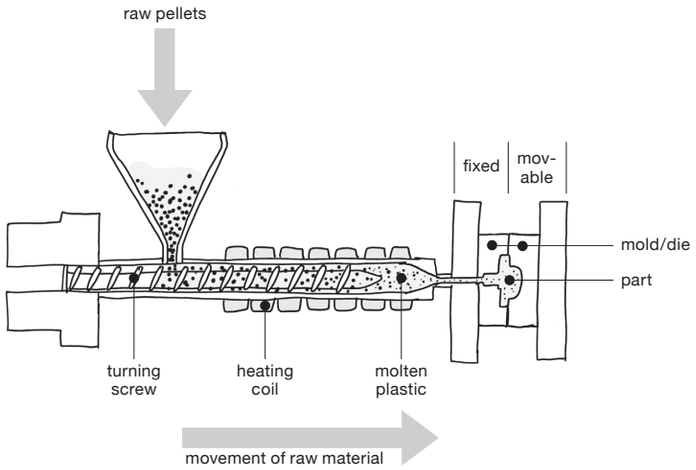
Natural color enhanced by surface treatment
polishing
sandblasting
clear coating

Color infused into material
dyeing or staining, or mixing pigments into material during casting

Layer of color technically bonded
chemical, electrostatic, electrolytic, or thermal process

Paint is a last resort.

Products whose finish reveals, rather than conceals, the material's true color tend to command higher value and age better than products with a painted surface. Paint wears, chips, and fades in ways that degrade a product. It can be an effective cover for cheap materials, but it may also advertise that the underlying material is cheap: if it *isn't* cheap, why is it hidden?



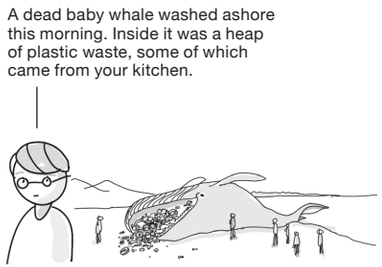
Injection molding

Many parts are made by heating a raw material, such as plastic pellets, metal, or glass, and injecting it into a metal cavity called a **mold** or **die**. The part is allowed to cool and harden, and is then removed. IM essentials include:

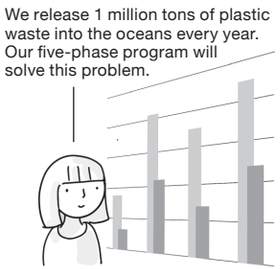
Mold/part shape: A part needs to slide out of its mold after casting. This requires that its sides have a **draft angle** of at least 1°. Additionally, complex shapes with "undercuts" can become trapped in a mold. Side ejection may be possible, but is expensive. Making a part in two pieces will often solve this problem.

Mold or die material: Heat-treated steel "tooling" suits high-volume production, up to 100,000 cycles. Aluminum is less expensive but will last only a few thousand cycles. It is often used for pre-production prototypes that closely resemble the final product.

Production speed: Manufacturing can be accelerated with aluminum tooling, which cools faster but is less durable. Two- or three-cavity molds will produce more units per cycle, increasing initial tooling cost but lowering the cost of each part.



Story
emphasizes emotions and personal context



Argument
emphasizes facts, logic, and analysis

Persuade through story, not just argument.

When presenting, begin with a **user-based narrative** on the experiences and pain points of the potential customer. The narrative may be idiosyncratic and focus on a few specific users, but ultimately it should evidence an empathetic understanding of the problem and its context as experienced by many users.

Segue to a **design-based narrative** on how you, the designer, engaged, researched, analyzed, and solved the problem. Discuss your juggling of information and insights, your various design hypotheses, the failures and successes of prototypes, and your arrival at a solution. This narrative should ultimately put forth a logical and convincing argument.

Return to and synthesize the user narrative. Show how your solution addresses the user's pain points and how it will naturally insinuate itself into the user's life context.