

# Good Design

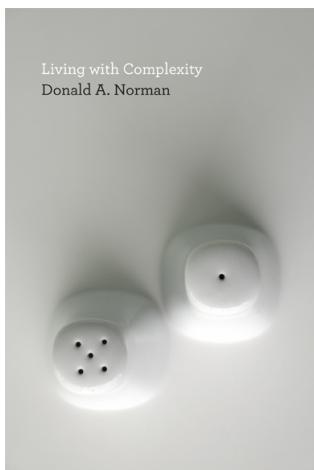
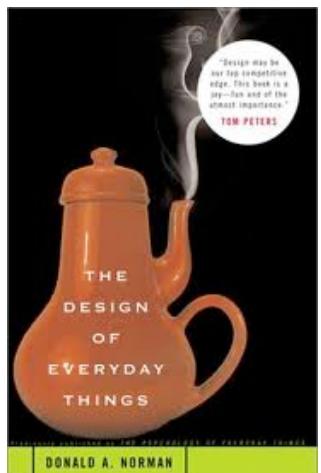
Elena Punskaya, elena.punskaya@eng.cam.ac.uk

# Good Design

*...perfection is finally attained not when there is no longer anything to add, but when there is no longer anything to take away...*

*Man and His World, 1939, Antoine de Saint-Exupéry*

- Design is a complex activity involving many different disciplines
- Most design is used by PEOPLE
- Technology changes FAST, People change SLOW
- Principles of Good Design are Universal, they equally apply to making a new toothbrush or to developing a mobile phone app



## Books by Donald A. Norman

- **The Design of Everyday Things, 1988/2002**
- **Living with Complexity, 2011**

# Dieter Rams

- Dieter Rams (born May 20, 1932), a German industrial designer

*Rams is possibly the most well-known German industrial designer, who not only produced—or directly oversaw—the design of more than 500 products in the course of his 40 years of service for Braun, but also established and headed a design department, which was extremely productive and made a global enterprise out of the company Radio Braun of Frankfurt. To date, Rams and Braun represent what is considered the typical German design approach, in which thoroughness, straightforwardness, clarity, and meaningfulness play a special role.*

*San Francisco Museum of Modern Art, [www.sfmoma.org](http://www.sfmoma.org)*



Vitsœ's designer, Dieter Rams.  
Photograph by Abisag Tüllmann  
[www.vitsoe.com](http://www.vitsoe.com)

<http://designmuseum.org/design/dieter-rams>

<http://www.vitsoe.com/en/gb/about/dieter-rams/who-is-dieter-rams>

# Braun SK4 Record Player

- 1950s record players: from all wood cabinets to transparent leads



traditional Telefunken record player



Braun SK4 record player AKA "Snow White's Coffin", 1956

[s940.photobucket.com/albums/ad247/sunyani/?action=view&current=telefunken.jpg](http://s940.photobucket.com/albums/ad247/sunyani/?action=view&current=telefunken.jpg)

[www.chrislabrooy.com/SK4.html](http://www.chrislabrooy.com/SK4.html)

# Dieter Rams



## Dieter Rams in conversation with Deyan Sudjic

by Vitsœ PRO

2 years ago



Couch Mode

More

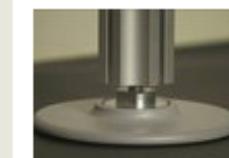
Show me [Vitsœ's videos](#) ▾

See all



[film: hide those wires](#)

by Vitsœ  
1 year ago



[6. Vitsœ feature film: structures](#)

by Vitsœ  
1 year ago



[5. Vitsœ feature film: shelves](#)

by Vitsœ  
1 year ago

4. Vitsœ feature

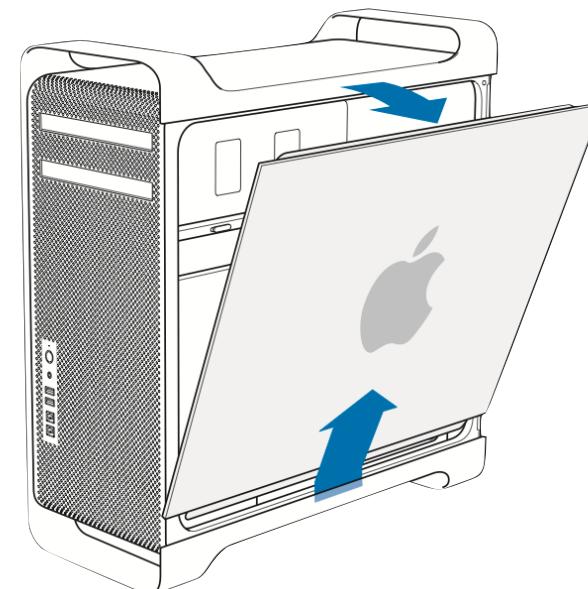
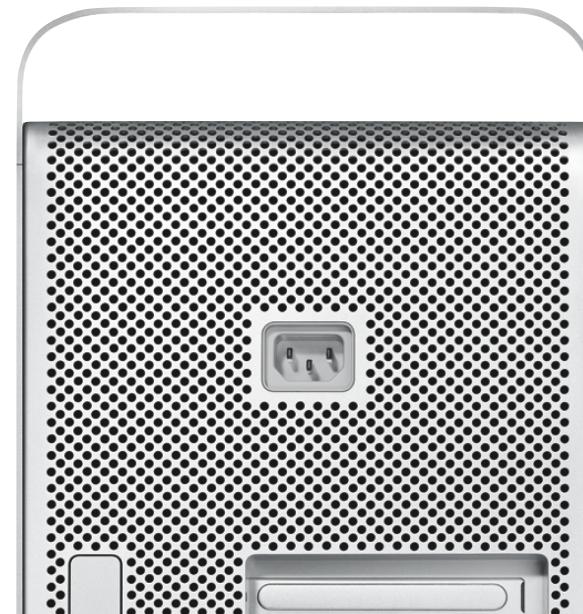
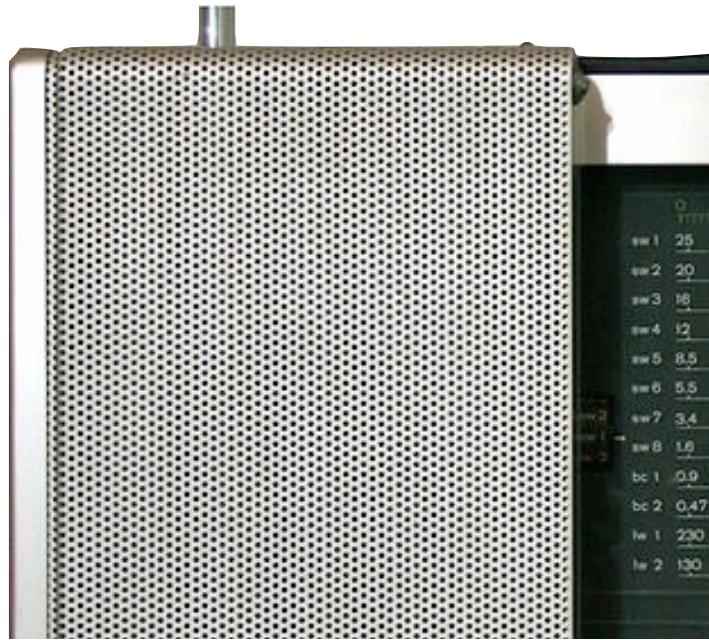
Dieter Rams in conversation with the director of London's Design Museum, Deyan Sudjic.

Filmed at Vitsœ, 72 Wigmore Street London in September 2008.

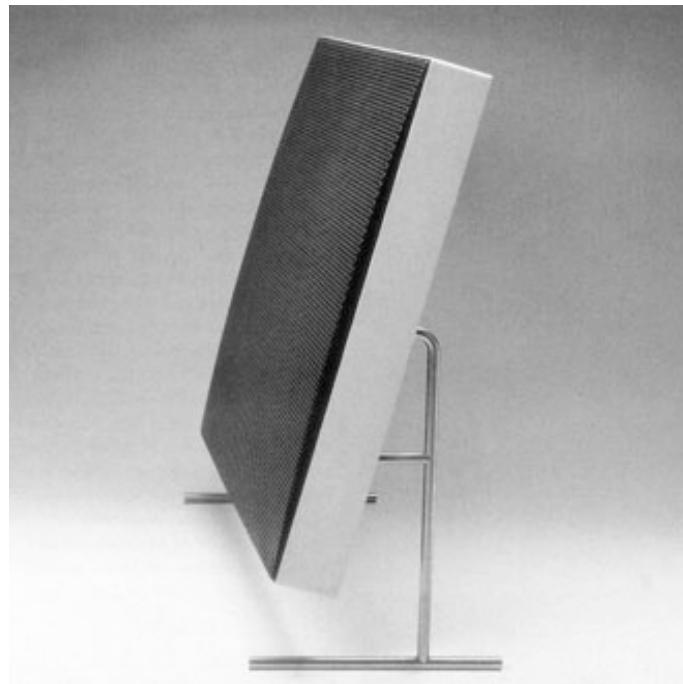
# Braun T1000 radio vs Apple iPod



# Braun T1000 radio vs Apple Mac Pro



# Braun LE1 speaker vs Apple Cinema Display



# Braun ET66 calculator vs Apple iPhone calculator



*Apple has managed to achieve what I never achieved: using the power of their products to persuade people to queue to buy them.*

*Dieter Rams on Apple, 2011, The Daily Telegraph*

# Good Design Is... by Dieter Rams

- Good design is innovative

- The possibilities for innovation are not, by any means, exhausted. Technological development is always offering new opportunities for innovative design. But innovative design always develops in tandem with innovative technology, and can never be an end in itself.

- Good design makes a product useful

- A product is bought to be used. It has to satisfy certain criteria, not only functional but also psychological and aesthetic. Good design emphasises the usefulness of a product while disregarding anything that could possibly detract from it.

- Good design is aesthetic

- The aesthetic quality of a product is integral to its usefulness because products are used every day and have an effect on people and their well-being. Only well-executed objects can be beautiful.

- Good design makes a product understandable

- It clarifies the product's structure. Better still, it can make the product clearly express its function by making use of the user's intuition. At best, it is self-explanatory.

- Good design is unobtrusive

- Products fulfilling a purpose are like tools. They are neither decorative objects nor works of art. Their design should therefore be both neutral and restrained, to leave room for the user's self-expression.

# Good Design Is... by Dieter Rams

- Good design is honest
  - It does not make a product more innovative, powerful or valuable than it really is. It does not attempt to manipulate the consumer with promises that cannot be kept
- Good design is long-lasting
  - It avoids being fashionable and therefore never appears antiquated. Unlike fashionable design, it lasts many years – even in today's throwaway society.
- Good design is thorough down to the last detail
  - Nothing must be arbitrary or left to chance. Care and accuracy in the design process show respect towards the consumer.
- Good design is environmentally friendly
  - Design makes an important contribution to the preservation of the environment. It conserves resources and minimises physical and visual pollution throughout the lifecycle of the product.
- Good design is as little design as possible
  - Less, but better – because it concentrates on the essential aspects, and the products are not burdened with non-essentials. Back to purity, back to simplicity.

# User-Centred Design

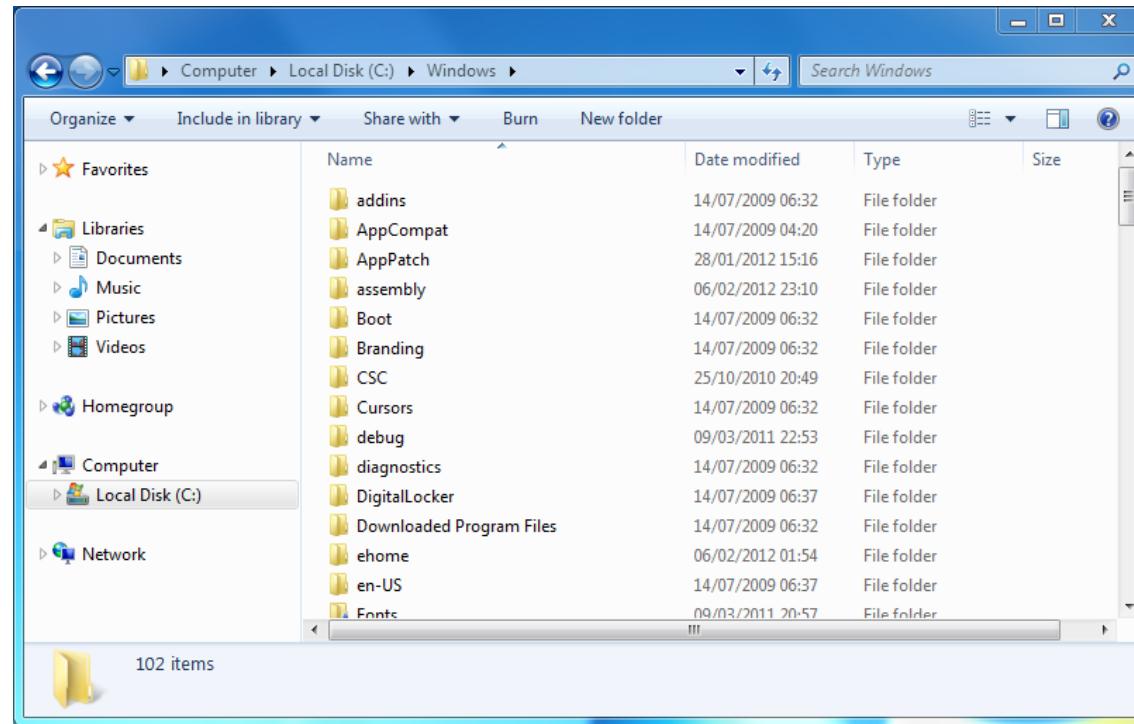
*Machines have rules they follow. They are designed and programmed by people, mostly engineers and programmers, with logic and precision. As a result, they are often designed by technically trained people who are far more concerned about the welfare of their machines than the welfare of the people who will use them. The logic of the machines is imposed on people, human beings who do not work by the same rules of logic.*

*Donald A. Norman, Living with Complexity*

- Provide a good conceptual model
  - when simply looking at a product, a user should be able to understand what it does and how to operate it
- Make task structure simple
  - a user shouldn't require to remember more than 5 unrelated items at a time due to short-term memory limitations
- Make actions predictable
  - "(You can review this order before it's final.)" – Amazon checkout process
- Design for error
  - "what happens if I press this button?.. Five times... With a hammer..." :)
- Use standards (where applicable)
  - iOS Human Interface Guidelines, "industry standards"

# 1. Conceptual Model

- Conceptual Model is “the underlying belief structure held by a person about how something works”



- Files and folders are abstractions of data items and their organisational structure
- Filename + Extension – linking what it is with what I can do with it: start the application – run.exe, read about it – run.txt

# 1. Conceptual Model

- Conceptual models can evolve:
  - No files – just pictures, no folders – just albums



- Arguably, the key reason why people who have never used a computer become active iPad users is that Apple provides a better conceptual model
- It's the job of the designer to provide users with the most suitable conceptual model

# 1. Bad Conceptual Models

- One of the most common examples of poor design is...  
a DOOR



[www.speakhci.com](http://www.speakhci.com)



[journal.drfaulken.com](http://journal.drfaulken.com)

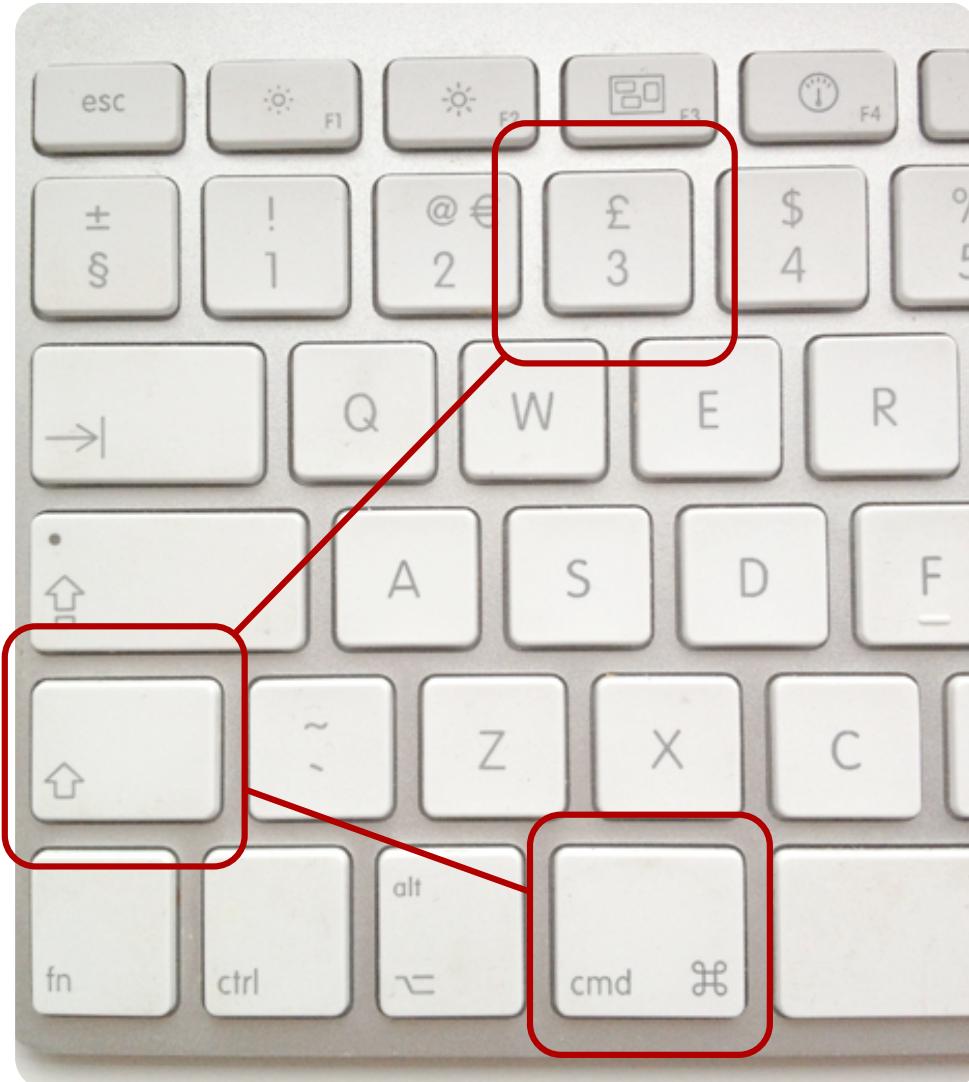


[edmazur.com/usability](http://edmazur.com/usability)

- A handle strongly suggest to the user to Pull, yet Push is required and advised by the sign
- An emergency staircase door, it's clear a person needs to push (accent plates tell that) but on WHAT SIDE?
- Sliding doors with a twist – only one part slides open (left)

## 2. Complexity of Simple Things

- Functional Requirement: copy of the computer screen



Mac OS: **Cmd-Shift-3**



Windows: **Print Screen**

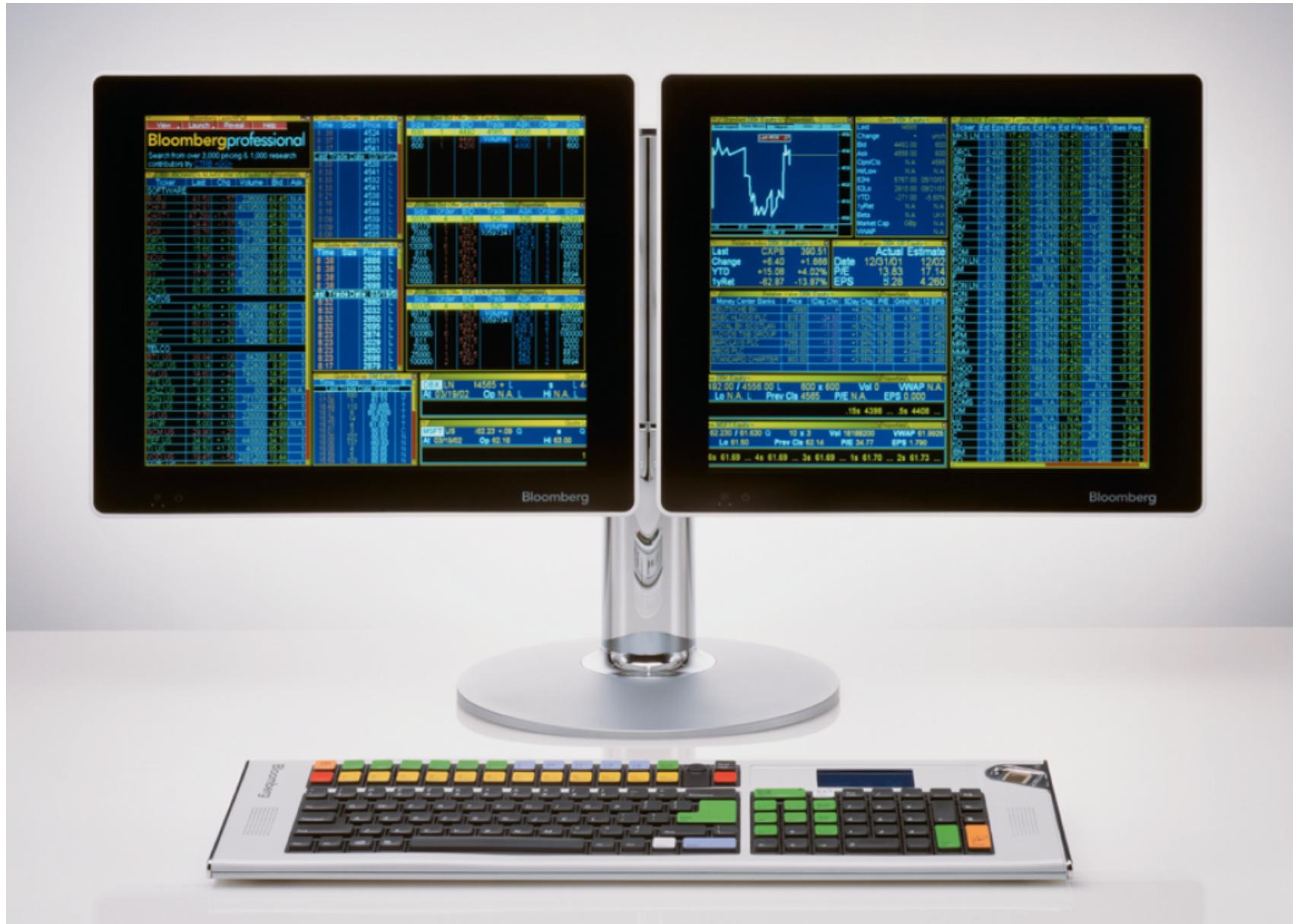
## 2. Simplicity vs Functionality?



[www.flickr.com/photos/raneko](http://www.flickr.com/photos/raneko)

- Two buttons or one?
- Two: more flexibility, but confusing for new computer users
- One: single action, but limited functionality

## 2. Simplicity != Fewer Features



Bloomberg Terminal (Industrial Design: Masamichi Udagawa, Sigi Moeslinger; Antenna Design New York Inc. Screen Interface Design: Bloomberg Team. Foto: Ryuzo Masunaga).

## 2. Simplicity

- KISS principle – “Keep it simple, Stupid!”
- Not that simple... just because something has fewer buttons it is not automatically more simple
- People find simple things they understand and can do = need to provide best possible conceptual models
- Simplicity perception depends on the user
- The purpose of a good design is to turn complexity of the required functionality into a product that allows to complete its tasks in the most effective and enjoyable way
- Unfortunately, it means more work for us... :)

*Every application has an inherent amount of irreducible complexity. The only question is who will have to deal with it, the user or the developer.*

*Larry Tesler, Tesler's law of the conservation of complexity*

- <http://www.designingforinteraction.com/tesler.html>

### 3. Predictability -Affordances and Signifiers

- Affordance – the term originated in psychology and introduced in to interaction design by Donald Norman (1988)
- In design, the term actually refers to “Perceived affordance”, which is qualities of the object that a user can observe and deduce the way of interacting with the object
  - door handles are for pulling
  - buttons are for pressing
  - chairs is for sitting on
- Norman later advocated that design is more about Signifiers than Affordances (2010)
- Signifier – a “perceivable sign of appropriate behaviour”



[www.uxbooth.com](http://www.uxbooth.com)

## 4. Dealing with Errors

- “Life has no error messages”
- Computer/Video games have no error messages (mostly ;)
- In real world learning could be achieved by trial and error because possibilities of alternative actions are limited
- CrontoSign device has three buttons
  - the big button in the middle turns it on
  - some users might try pressing the smaller buttons first, but would not stop there – 100% would discover that the middle button turns the device on
- However, if there are too many choices the user will give up
- In complex systems, errors are “wonderful teaching opportunities”,  
e.g. dynamic input validation in web forms, also “most people want “just-in-time” learning



[www.cronto.com](http://www.cronto.com)

Payee name:

ABCDE

\* Some of the characters used are not allowed.

# 5. Standards

Standards help to build systems that are

- extensible



- understandable



# Example of Good Design

A common way to measure goodness of design is to refer to the ‘ables’ on the slide.

These are sometimes re-phrased as ‘scalable, maintainable, and flexible’.



“Separates” hi-fi system is an example of good design:

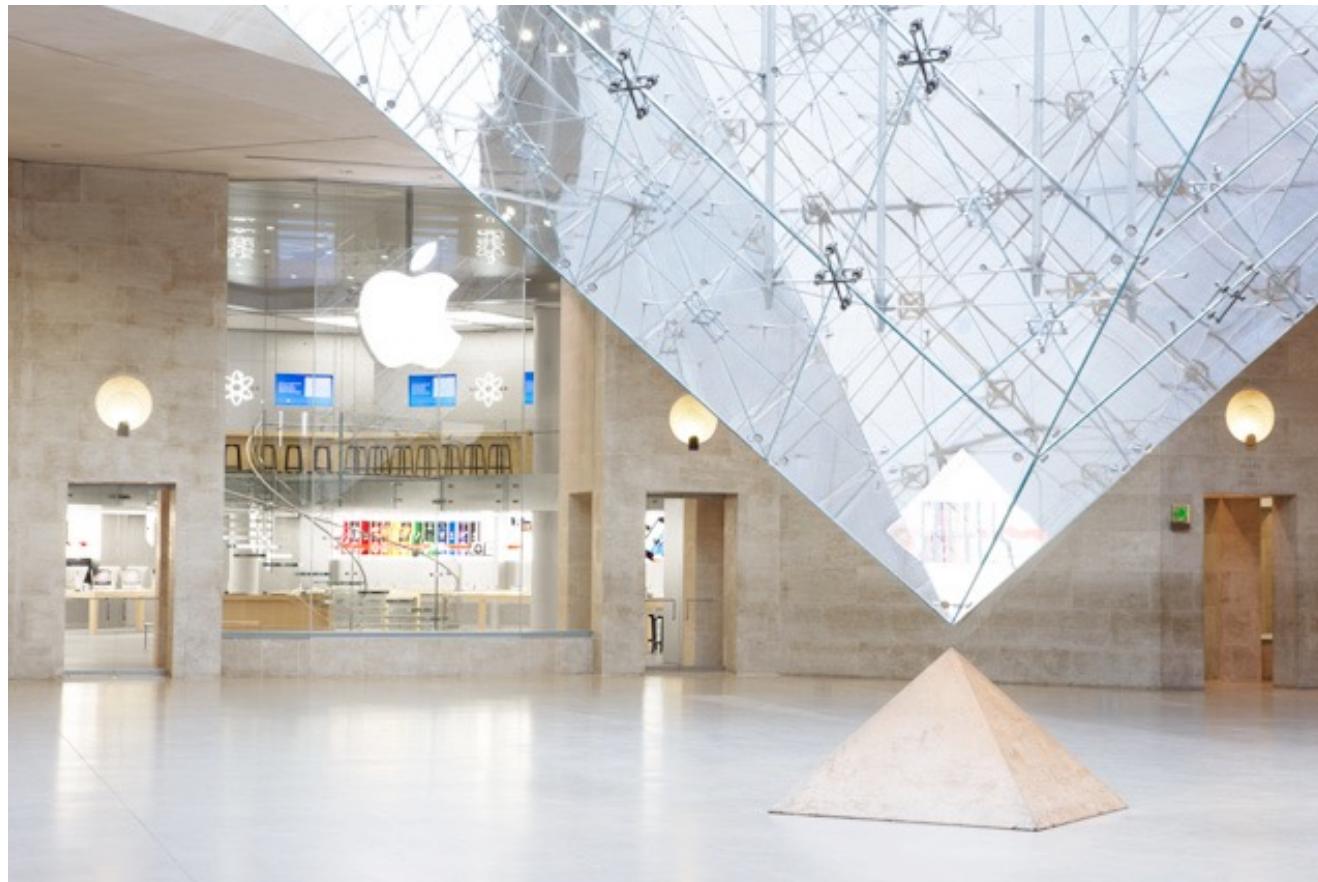
- extensible/scalable: you can add new components to your system
- maintainable: if one thing goes wrong, the rest of the system keeps on working, broken module can be repaired/replaced independently
- flexibility: could add a more advanced unit to my hi-fi system as technology changes

What makes the above possible?

Standard interfaces between the components and the amplifier - even new equipment provides an audio output in a way that my old amplifier can process.

# Attractive Things Work Better

- User perception of the product is also connected user's emotions
- The user can be more forgiving to a beautiful product
- Designing the Experience



Apple Store, Carrousel du Louvre, Paris, © Apple

Less  
But  
Better