

Design for Crossing the Chasm

Tools, Examples, Integration

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Chasms



Crossing the Chasm

How do products and technical-cultural practices cross the chasm?

How does Design help products cross?

Who is a Designer?

Everyone designs who devises courses of action aimed at changing existing situations into preferred ones. – Herbert Simon



Typical fields

Graphic

Industrial

Architecture

Landscape

UI/UX

Transport

Exhibit

Atypical fields

Community engagement

Sustainability

Urban Planning

Bioremediation

Retail Experience

Spacecraft Interiors

Wayfinding

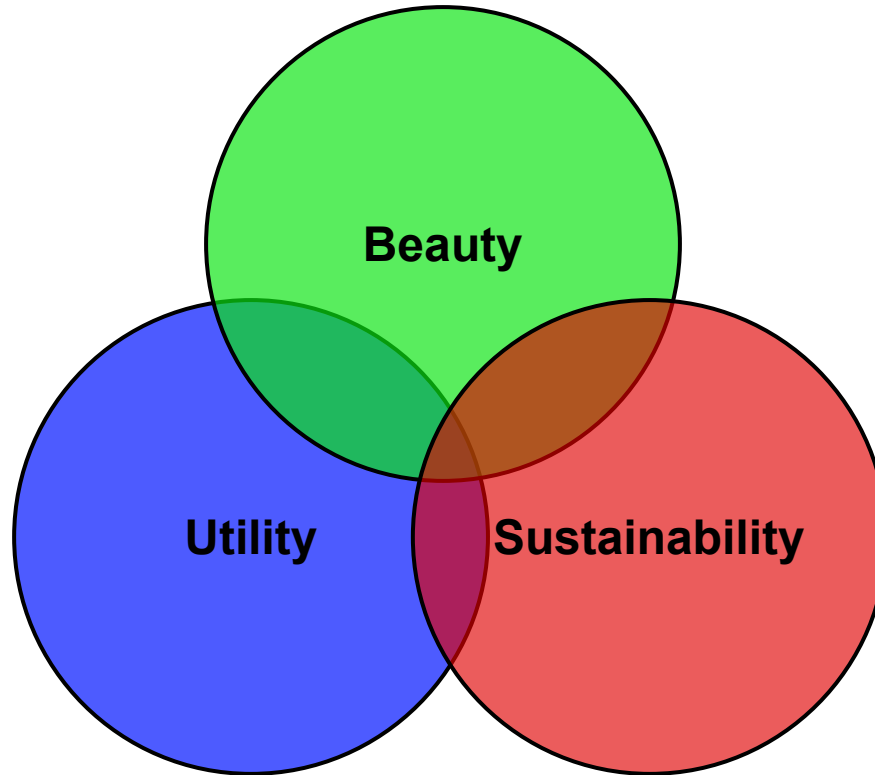
What is Design?

Design typically uses several tiers of visual problem solving to improve outcomes.

Design follows an ordered hierarchy according to Buchanan (1992) from granular to strategic:

- 1) Function: symbolic & visual communications
- 2) Product: material artifacts
- 3) System: activities & organized services
- 4) Community: complex systems & networks

Components of Design



Current Trends in Design

Move from end-of-process to strategic tool.

Emphasis on collaboration & sustainability.

Design is messy and ambiguous until the end.

3 Working Areas

Design Research helps ask the right questions and study the problem from multiple angles

Design Thinking helps individuals and groups arrive at decisions in an inclusive manner.

Design Practice provides a wealth of tools and techniques for visualizing and solving problems.

Design Research

Uses anthropology especially ethnographic studies, statistics, psychology to generate knowledge to inform design decisions.

This process involves triangulating from multiple viewpoints around a problem. These can be across fields or personal diversity.

Provides “thick description” answers.

Example: IDEO and Walgreens

<http://www.ideo.com/work/community-pharmacy>



Design Thinking

Team activities from warm-up exercises like Soundball to facilitating large groups and decision making.

Encourages mode-switching like 6 Hats and empathic interview techniques and new ways to see from others.

Provides coordination and engagement.

Example: Sound Ball

A mental-social warmup exercise.



Design Practice

A form of visual construction for a range of uses. Includes both prototype and final making.

Studio design practice creates unique artifacts as examples for production or explanation.

Design practice facilitates the range of artifacts and visuals across the built environment.

Example: Bike Brainstorm



Graphic Design for community engagement and dialogue.

Crossed the Chasm

SCUBA

iPad

Bikeshare

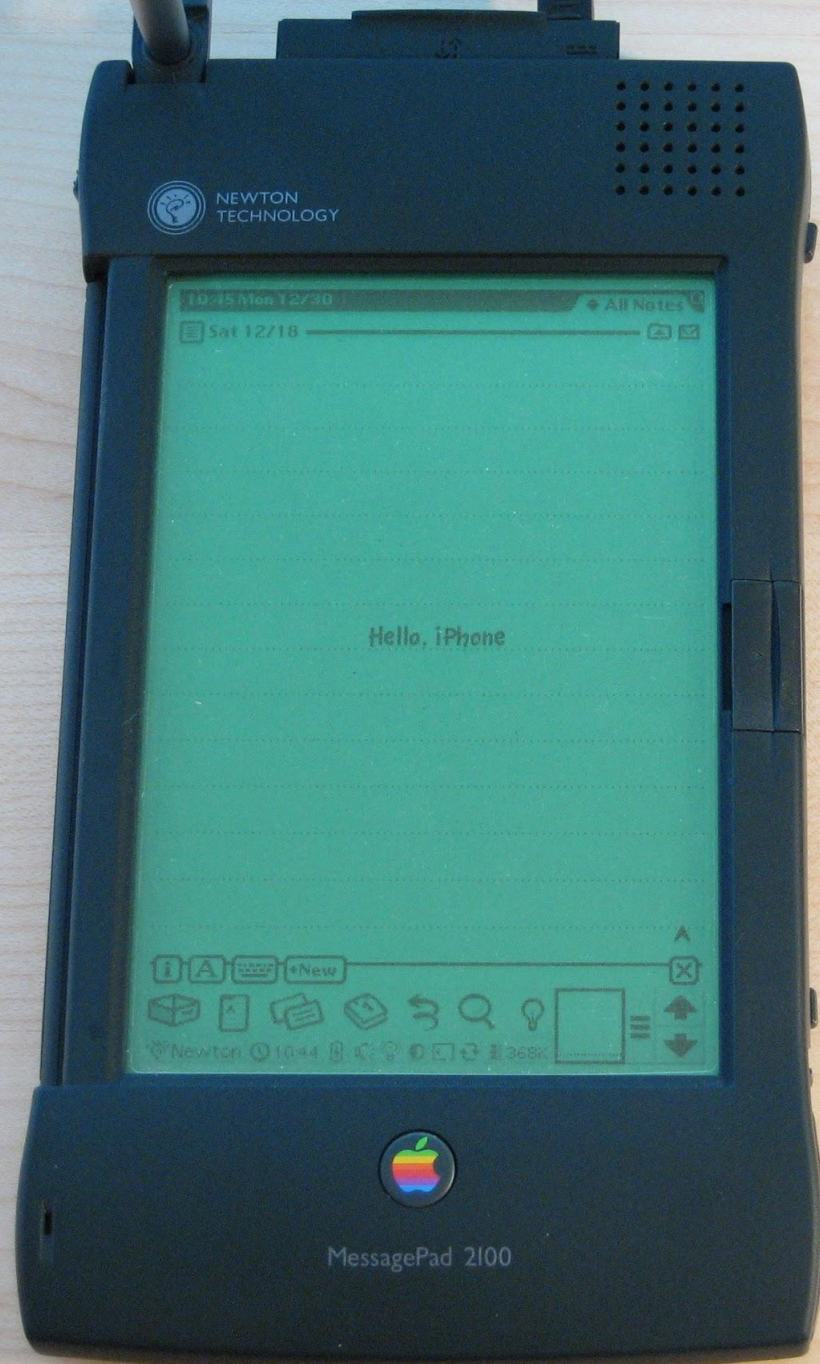
River Rouge Plant

Patagonia

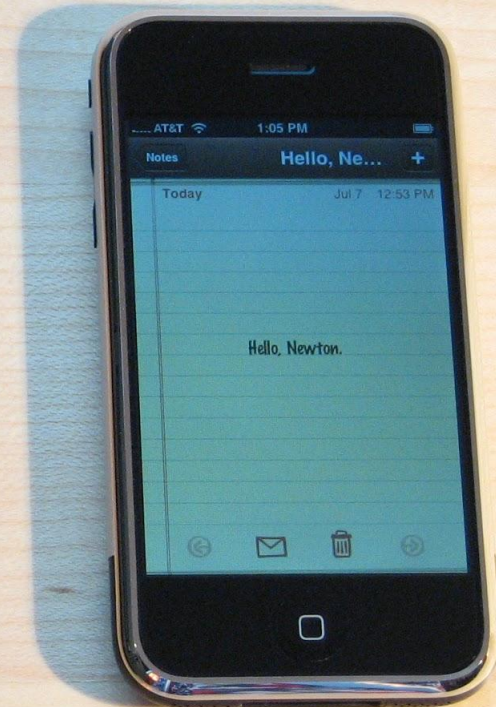
GPS Navigation

SCUBA





iPad/iOS Devices

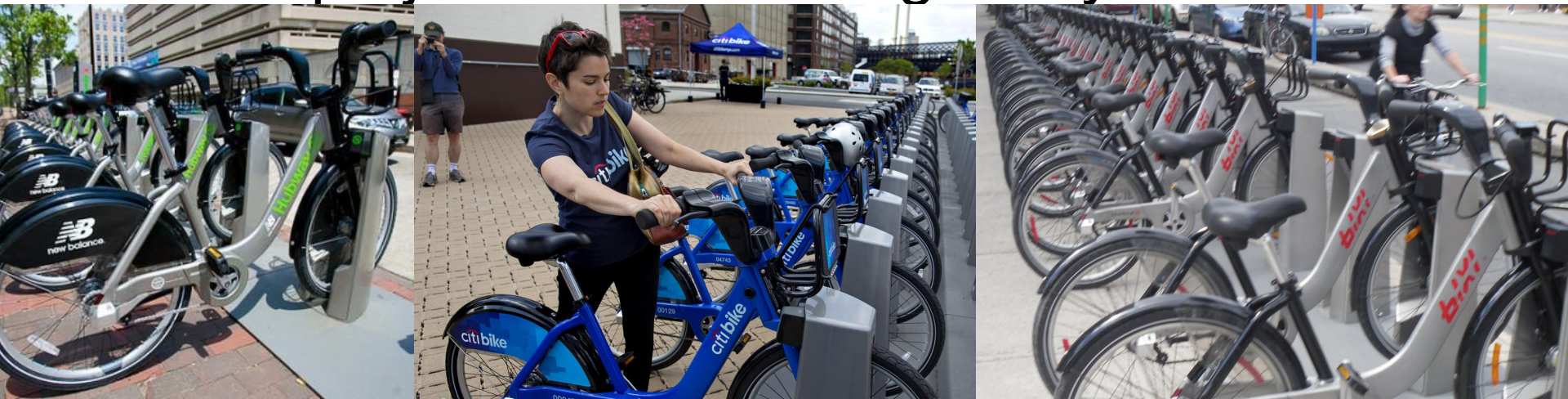


Apple overcame it's own chasm with iOS.

BikeShare

BIXI - Montreal. An ecosystem of design firms was involved with suppliers, interested parties and the public to make a complete human-powered transportation solution for a harsh sub-polar climate.

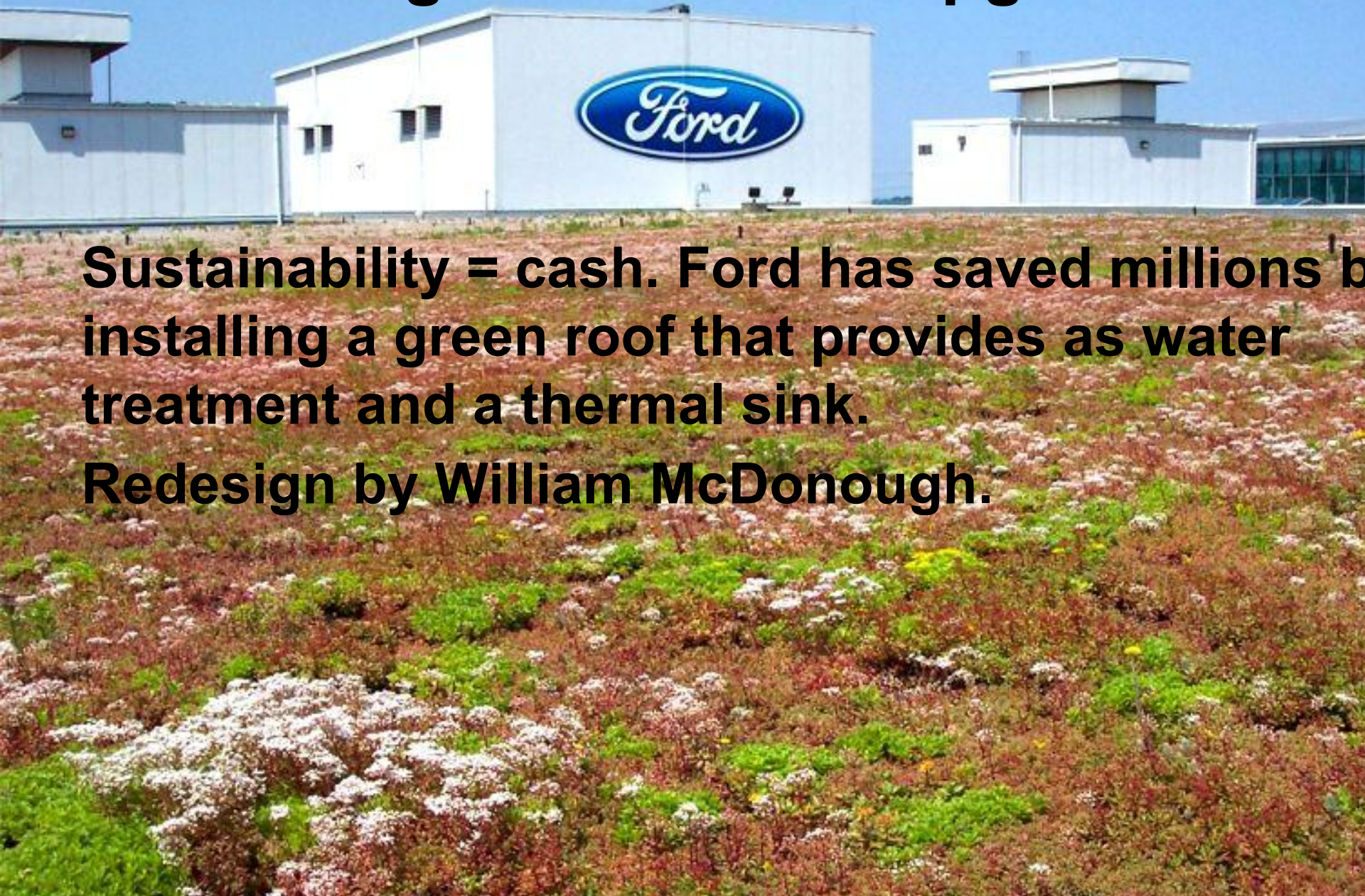
Similar projects are blooming everywhere.



River Rouge Truck Plant Upgrade

Sustainability = cash. Ford has saved millions by installing a green roof that provides as water treatment and a thermal sink.

Redesign by William McDonough.





The Footprint Chronicles is Patagonia's effort to show a global supply chain to consumers and help them make informed decisions.

Becoming a Responsible Company

Common Threads Partnership

The Footprint Chronicles: Our Supply Chain

Reference Library

WHAT'S NEW

Responsibly Sourced Merino



Learn about our groundbreaking partnership with The Nature Conservancy and Ovis XXI to promote sustainable grazing practices in the Patagonia region and produce the finest merino wool.

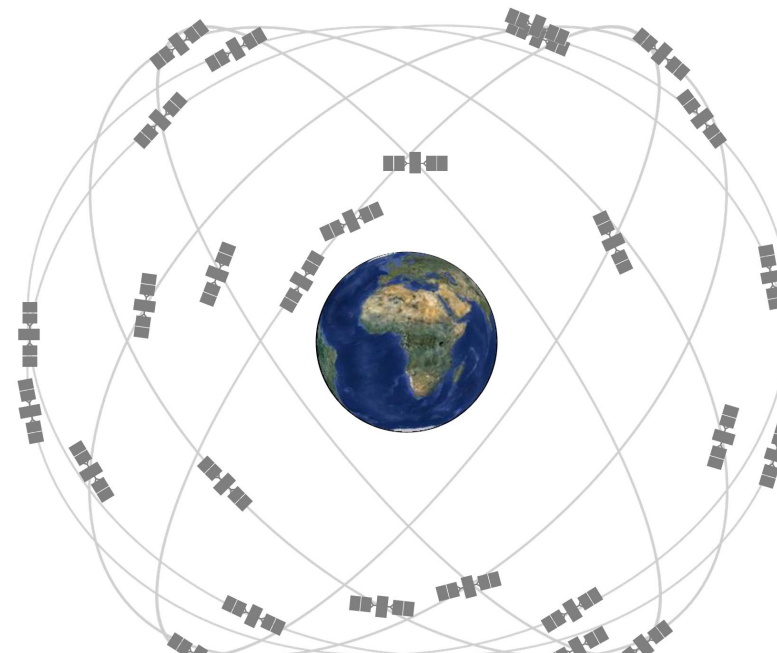
About our Suppliers Map

THE NEW FOOTPRINT CHRONICLES: REDEFINING CORPORATE RESPONSIBILITY



GPS

Global Positioning System is the US Military's tracking signal system. Originally for guiding submarines and smart weapons, it has seen a surge in commercial and civilian use.



Crossing Now!

CubeSats

Suborbital passenger flight

Wearable computing

Desktop VR (again)

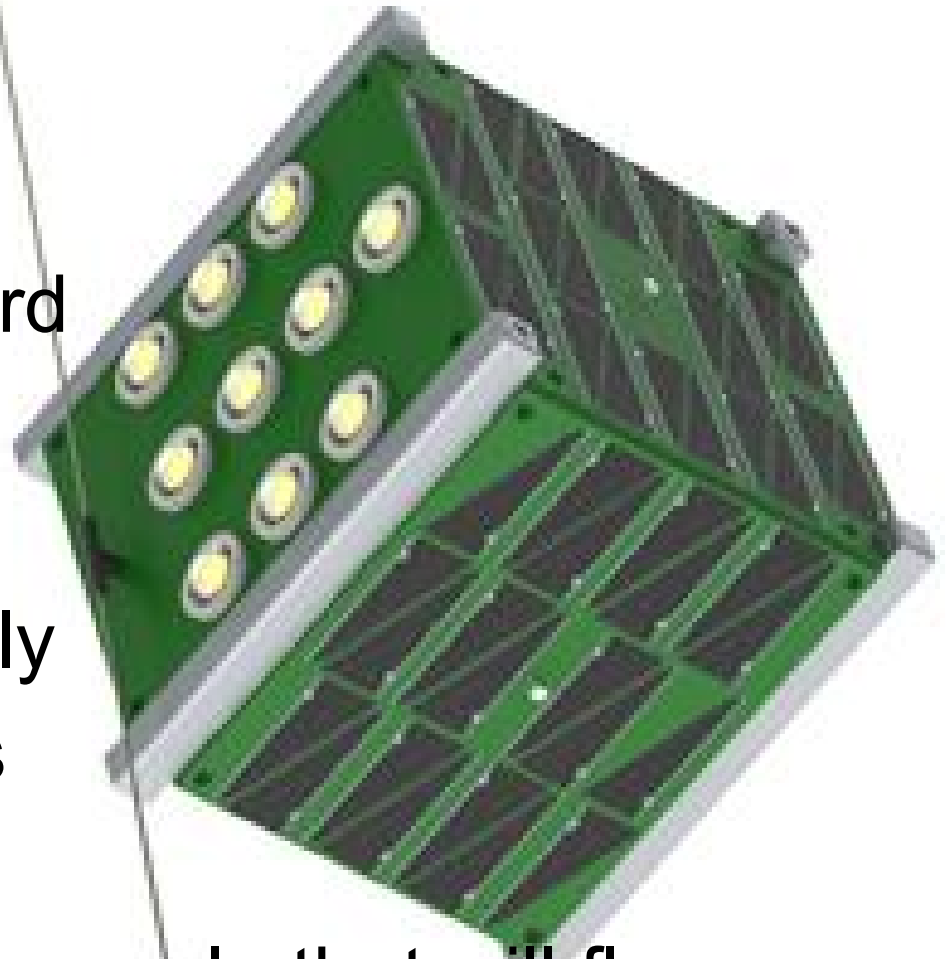
Home 3D Printing

Nest digital thermostat

CubeSats

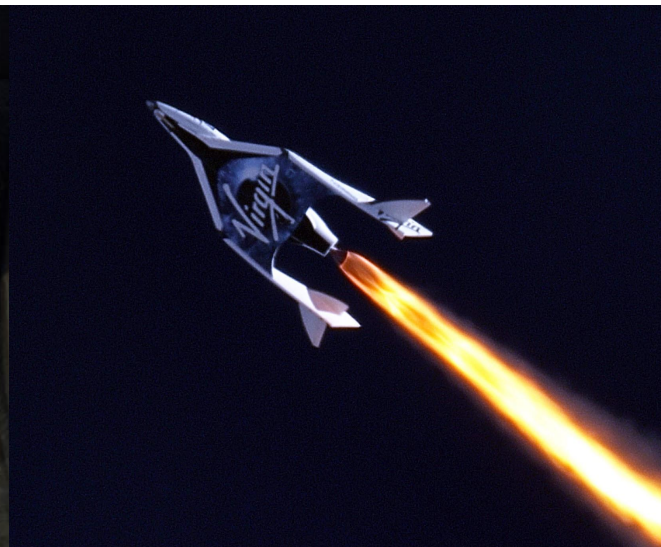
CubeSats are a standard form-factor created by Bob Twiggs. They are used to create extremely simple, cheap satellites for various purposes.

Brown's Equisat is an example that will fly a simple flash system to be viewable from the ground.



Suborbitals

Virgin Galactic's SpaceShipTwo and XCOR's Lynx are in drop and test flights. This form of consumer-oriented spaceflight has been hinted at for years but only now is happening, despite Virgin's recent accident.



Wearable Computing

Google Glass is the search giant's answer to needing a screen/camera at all times. Athos is athletic wear that tracks user performance. FitBits are a simple bracelet that tracks vitals.



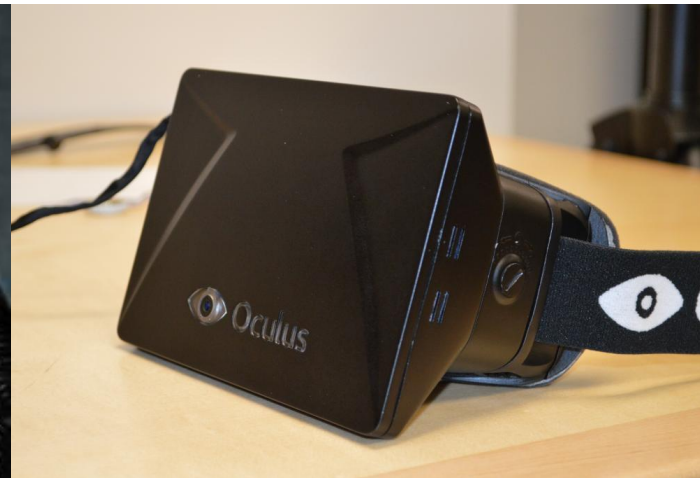
But...



Desktop VR (again)

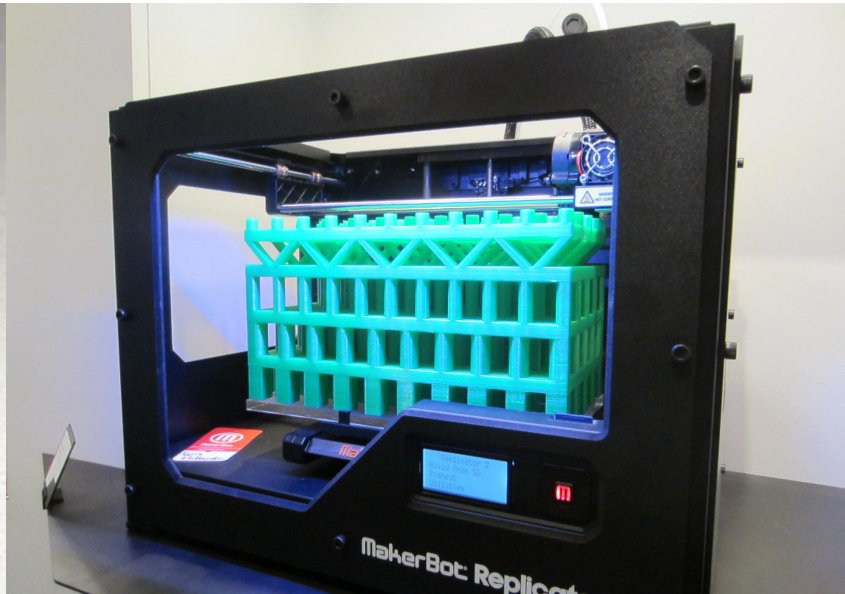
Oculus Rift and Microsoft Hologram appear poised to be the next great thing in game interfaces. It follows a long line of Virtual Reality and Augmented Reality headsets of varying levels of success.

Evolution of Steve Mann's "wearable computer" invention



3D Printing @ Home

Reserved for FabLabs, school shops and other workgroup settings, 3D printing is in the process of integration into home settings.



Nest Digital Thermometer

Nest is an intelligent home thermostat that learns the occupant's patterns. Recently purchased by Google, it is poised to become the first truly smart home appliance.



Tail-landing rockets



Needs some help crossing the Chasm

Knee/task chair

FloatSpa

Diesel light vehicle fleet

Shelf-storable milk & eggs

Residential Solar Hot Water

Fast Breeder Fission Reactors



Knee Chairs

Standard in Swedish public schools, these chairs provide optimal body alignment. They are only used for computer work in the USA.

Float Spa

Popular in parts of Europe, these pods provide sensory deprivation and music while floating in a high-saline solution.



Diesel Light Vehicle Fleet



Shelf-storable eggs & milk

Ultrapasteurized milk and unwashed eggs can be stored at room temperature. Energy and transport savings would be tremendous.

Is it possible to convince Americans?



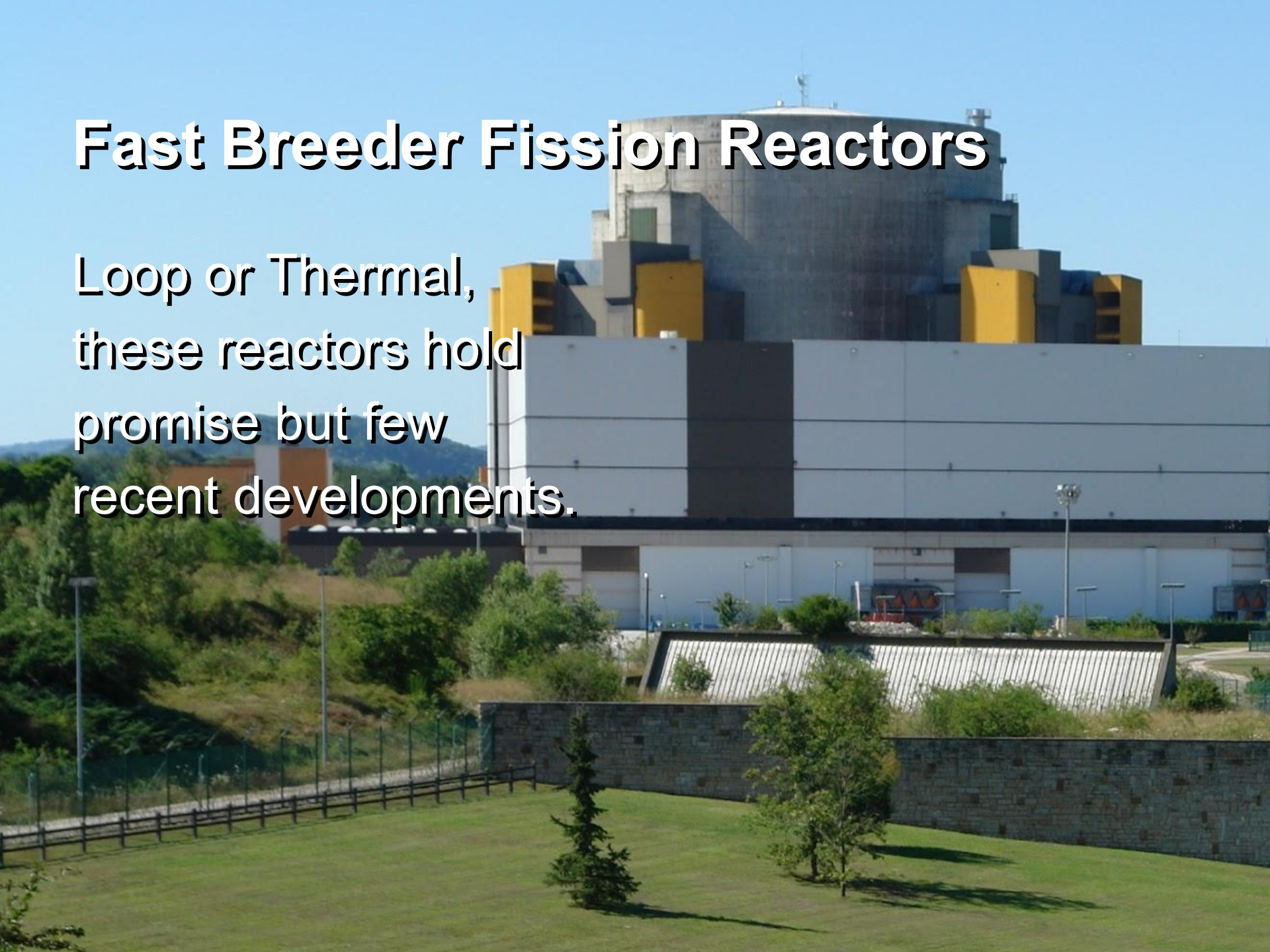
Residential Solar Hot Water

Up to 90% of homes in Israel use solar hot water systems to satisfy household needs.



Fast Breeder Fission Reactors

Loop or Thermal,
these reactors hold
promise but few
recent developments.



Needs further help crossing the Chasm

Solar Power Satellites

Vertical Farms

Hyperloop/Bering Tunnel

Floating Cities

Grasshopper Hutch

Metric system

Design and Engineering

(two great tastes that taste great together)

Designers bring new materials, processes and making techniques to other fields.

Engineers bring discipline, building and quantitative analysis to any team.

Language & Terms are very important.

Books

101 Design Methods, Kumar

Research Design, Creswell

Design of Everyday Things, Norman

Design for the Real World, Papanek

Designing Media, Moggridge

Designing Interactions, Moggridge

Universal Principles of Design, Lidwell

The Culture of Objects, Boradkar

SAGE Handbook of Visual Research Methods, Margolis
and Pauwels

On the Web

[IDEO](#)

[The d.school at Stanford](#)