
The Future
Human, Brand & Interface
Cannes Lions Festival June 21, 2013
Aegis Media + Oblong + MIT Media Lab
Hiroshi ISHII
MIT Media Lab


The Future
is not to predict,
but to invent
Alan Kay 1971
This is the century in which you can be proactive about the future;
you don't have to be reactive. The whole idea of having scientists
and technology is that those things you can envision and describe
can actually be built.


変化
changes


破壊
disruptive changes
変化
http://www.nytimes.com/interactive/2011/03/12/world/asia/20110312_japan.html?ref=asia#68


視点
perspective


情報
information = running water
流水


Canon

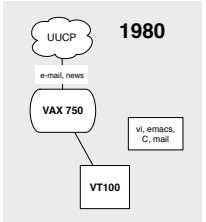

Turkcell
03:10
Text
Calendar
Photos
Camera
iTunes
App Store
YouTube
TwitterFon
oneConnect
Google
Virgin Radio
1Cast
Banner
Dimensions
Wired
Amazon.com
Night Camera
SteadyCam P
Seadragon
TIME
Clock
Weather
Maps
Settings
iProRecorder
fring
Star...eashed
Lightsaber
Newsdesk
Report Now
CNN
NYTimes
iEasyCamera
Urbanspoon
Cocktails
Espresso
Starbucks
AllRecipes
BlackBook
Vringo
Calculator
Remote
Yahoo!
Last.fm
Google Earth
Shazam
midomi
SnapTell
Jamd
iTV
RhinoBall
Labyrinth LE
TWC
reQall
iTranslate
FontShuffle
Night Stand
eBay
Searchme
Snow Report
Facebook
Flickr
deviantART
MySpace
DigiDrummer
Scratch Plus
Ocarina
iBeer
Tap Tap
iBowl
Evernote
Box.net
Contacts
Stocks
Notes
orgutcayli
Truphone
vlingo
wheretraveler
Now Playing
Phone
Mail
Safari
iPod

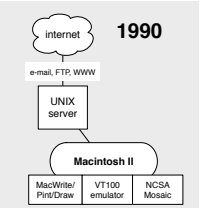
Hiroshi ISHII's Digital Life

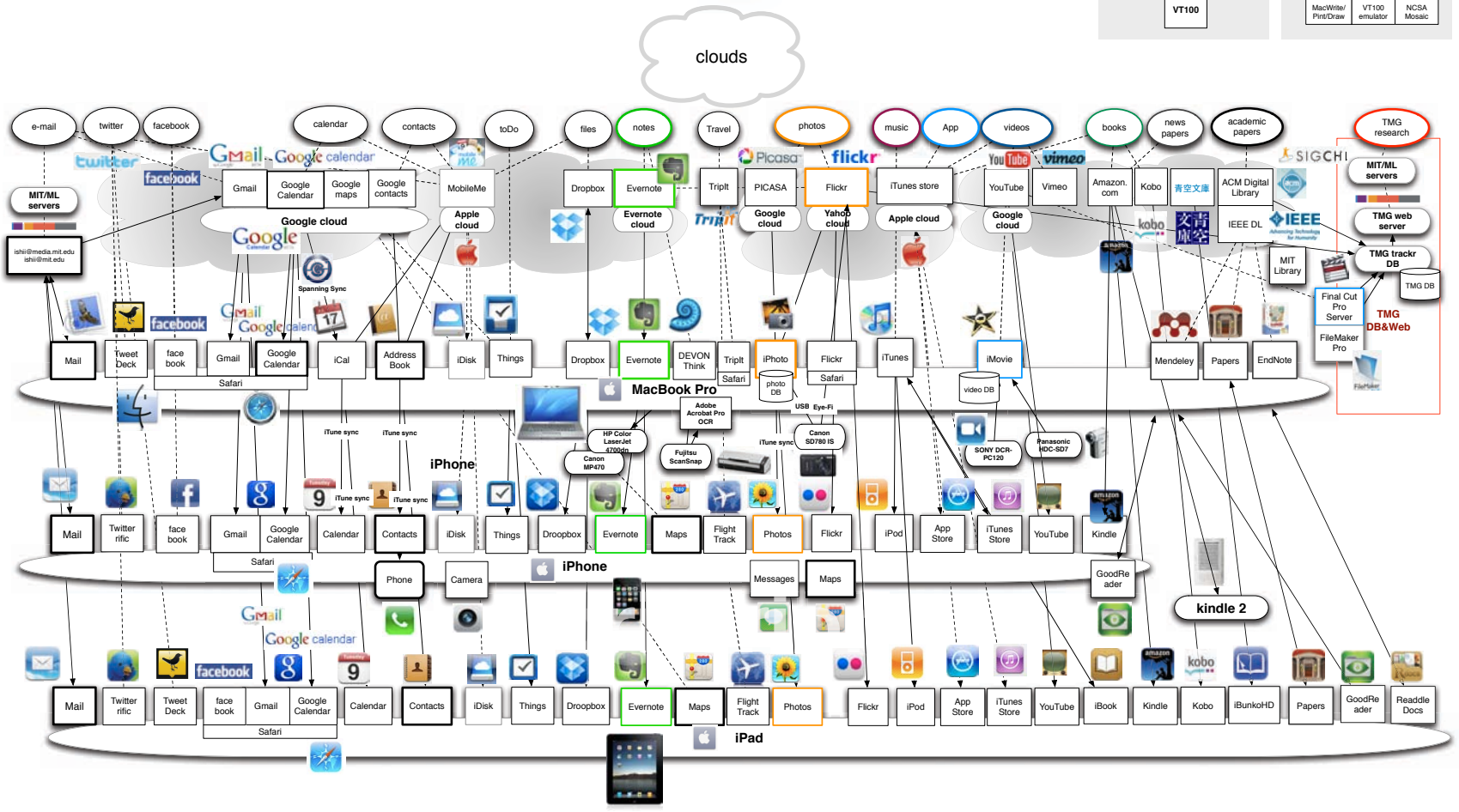
Information Ecology 2010

June 12, 2010 Tokyo
January 9, 2010 Cambridge MA

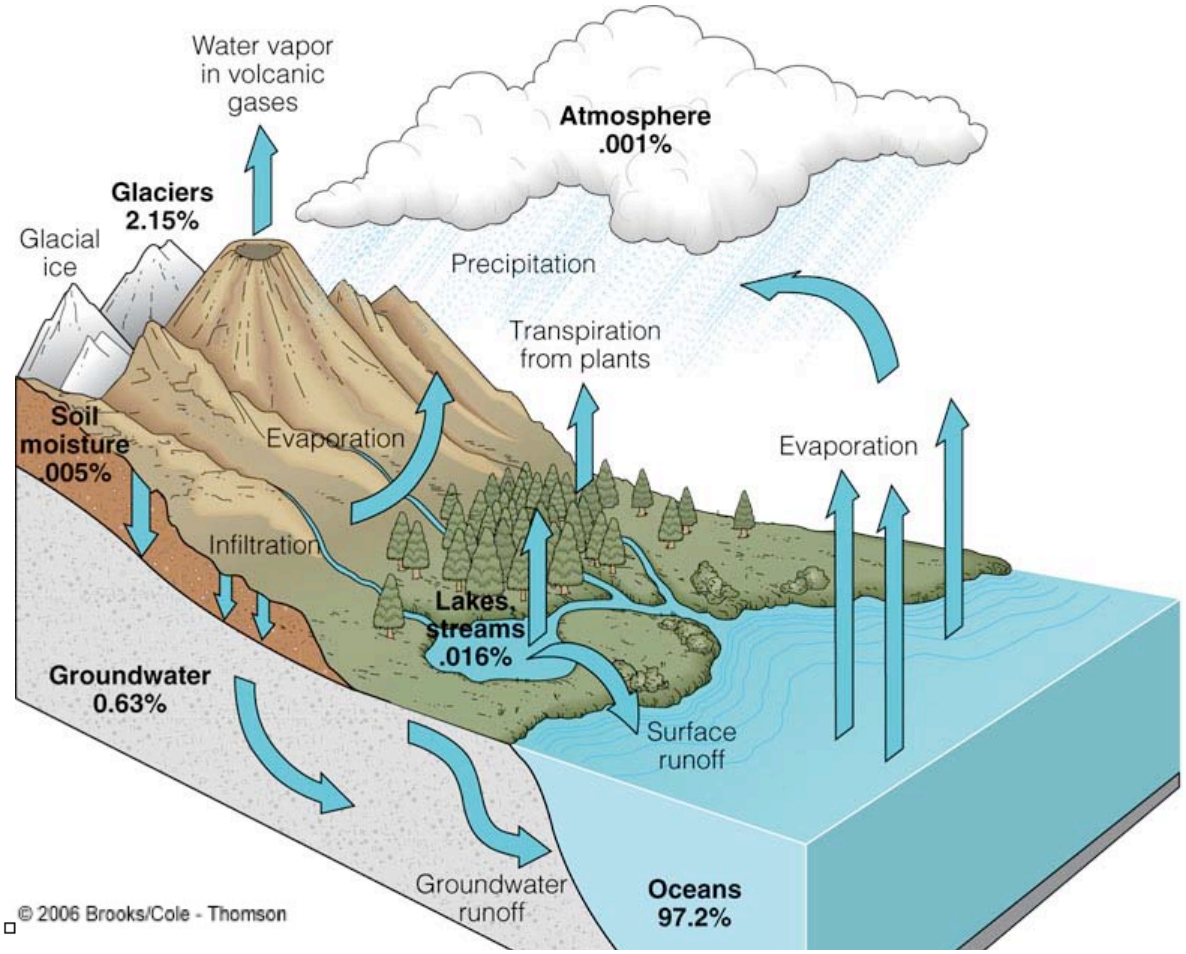
eco-system







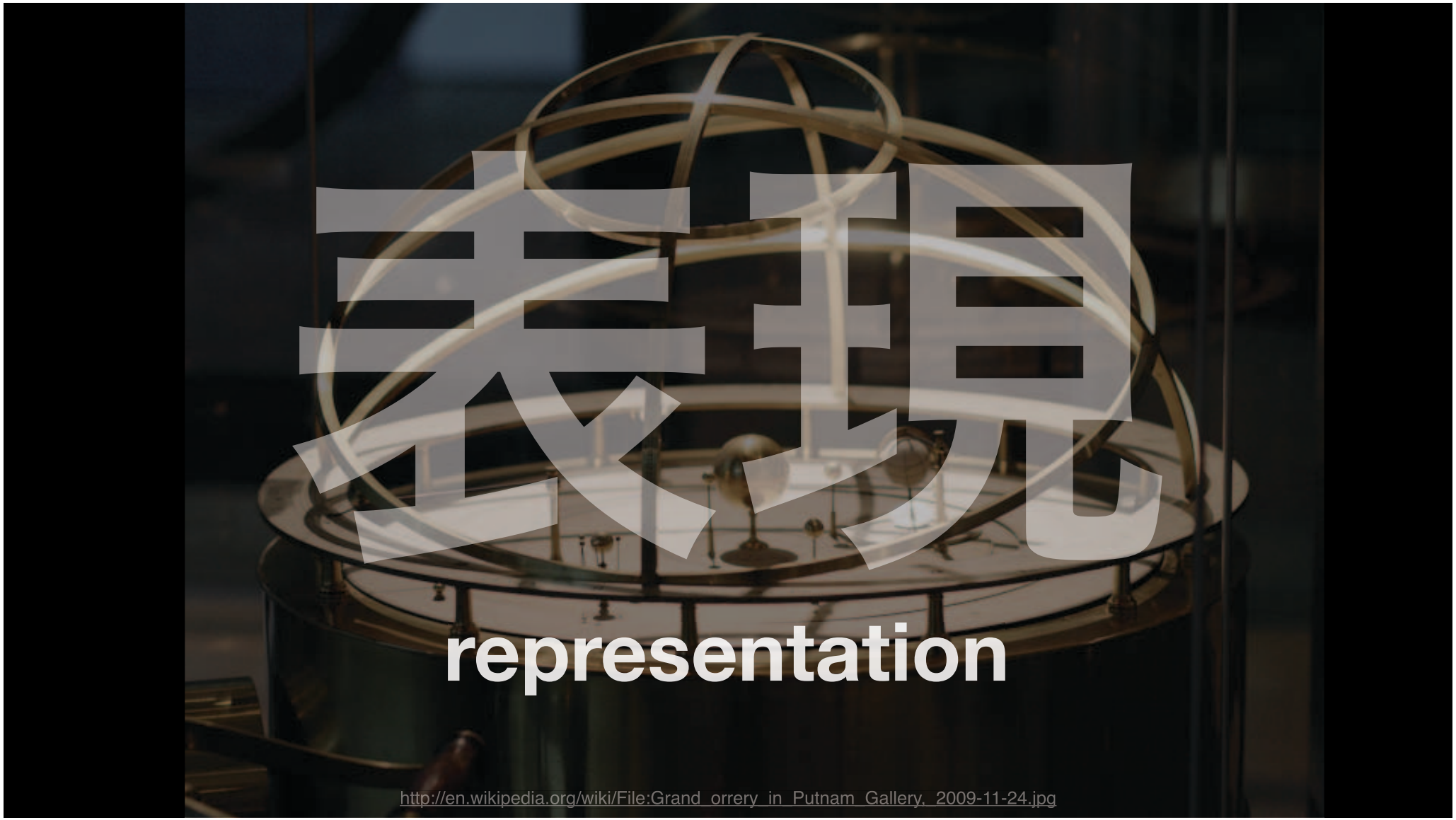
eco-system


Water vapor
in volcanic
gases
Atmosphere
.001%
Glaciers
2.15%
Glacial
ice
Precipitation
Transpiration
from plants
Soil
moisture
005%
Evaporation
Evaporation
Infiltration
Lakes,
streams
.016%
Groundwater
0.63%
Surface
runoff
Groundwater
runoff
Oceans
97.2%
© 2006 Brooks/Cole - Thomson


循環
cycling
Flow Clouds http://www.flickr.com/photos/mjohnsphoto/6801328985/

telescope

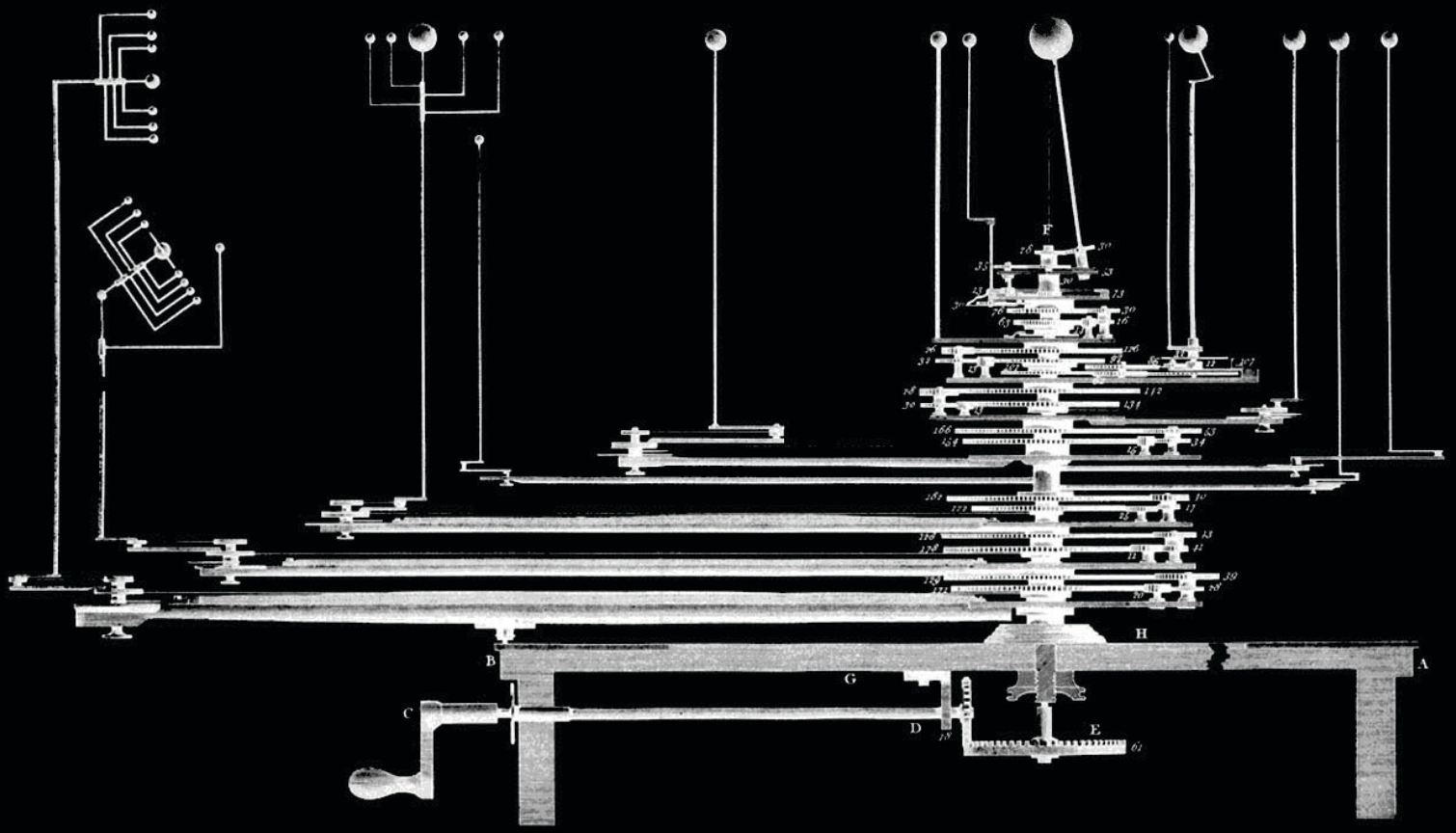
http://en.wikipedia.org/wiki/File:Grand_orrery_in_Putnam_Gallery,_2009-11-24.jpg

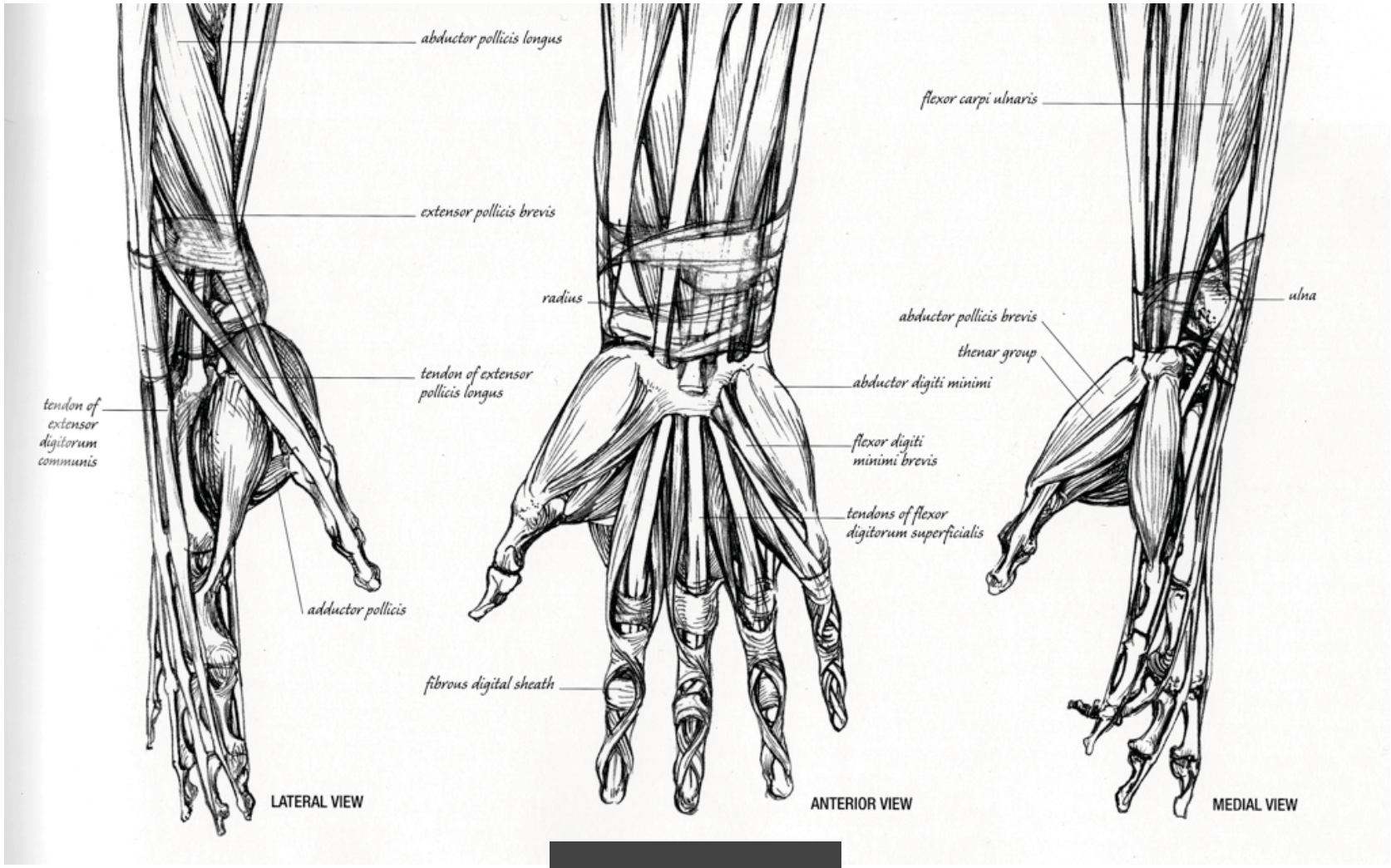


http://en.wikipedia.org/wiki/File:Grand_orrery_in_Putnam_Gallery,_2009-11-24.jpg

Orrery

Tangible Representation of Knowledge




abductor pollicis longus
extensor pollicis brevis
tendon of extensor pollicis longus
tendon of extensor digitorum communis
adductor pollicis
LATERAL VIEW
radius
abductor digiti minimi
flexor digiti minimi brevis
tendons of flexor digitorum superficialis
fibrous digital sheath
ANTERIOR VIEW
flexor carpi ulnaris
ulna
abductor pollicis brevis
thenar group
MEDIAL VIEW

hands

http://en.wikipedia.org/wiki/File:Wright_of_Derby,_The_Orrery.jpg


理念
vision
NATIONAL GEOGRAPHIC
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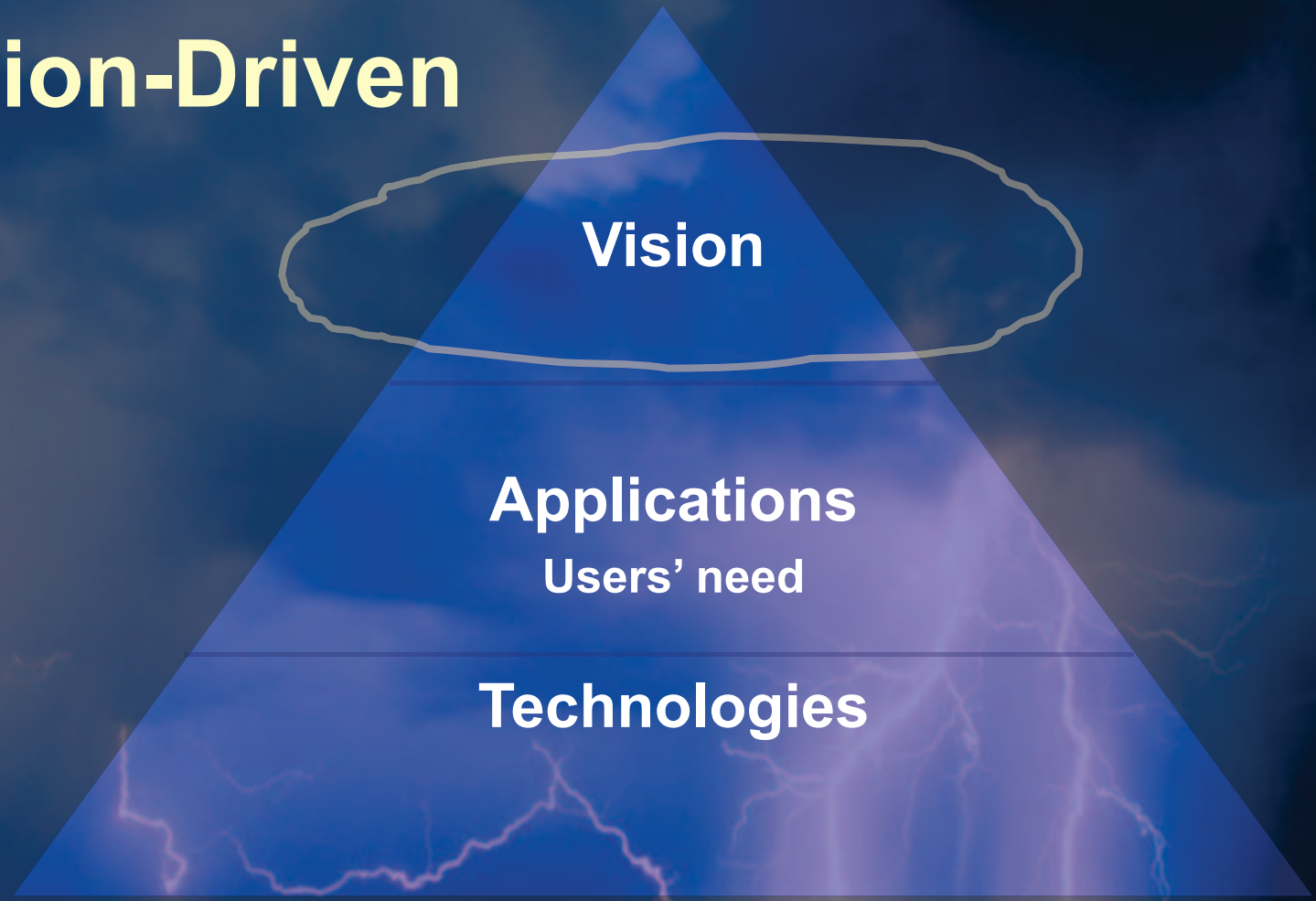
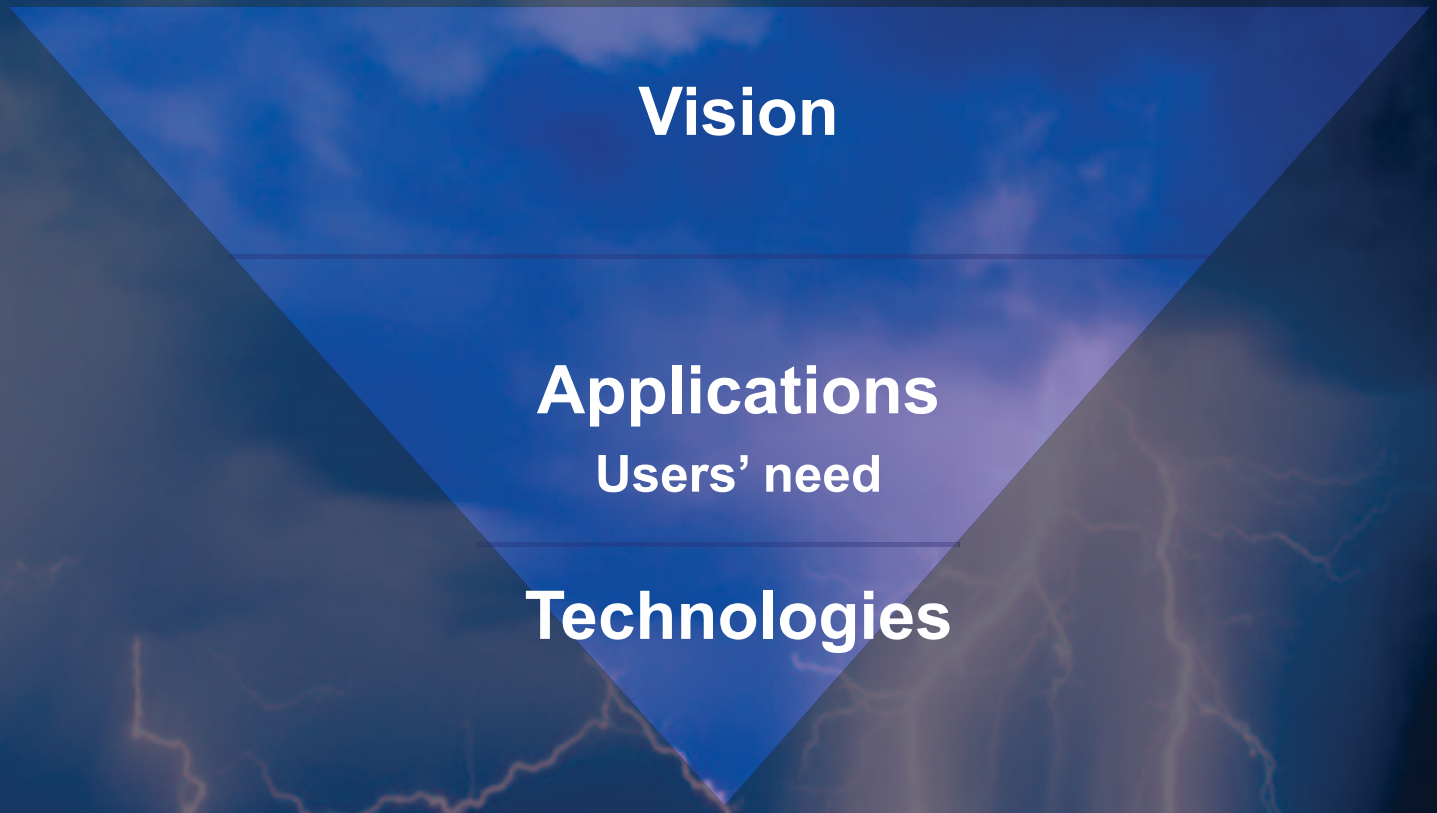
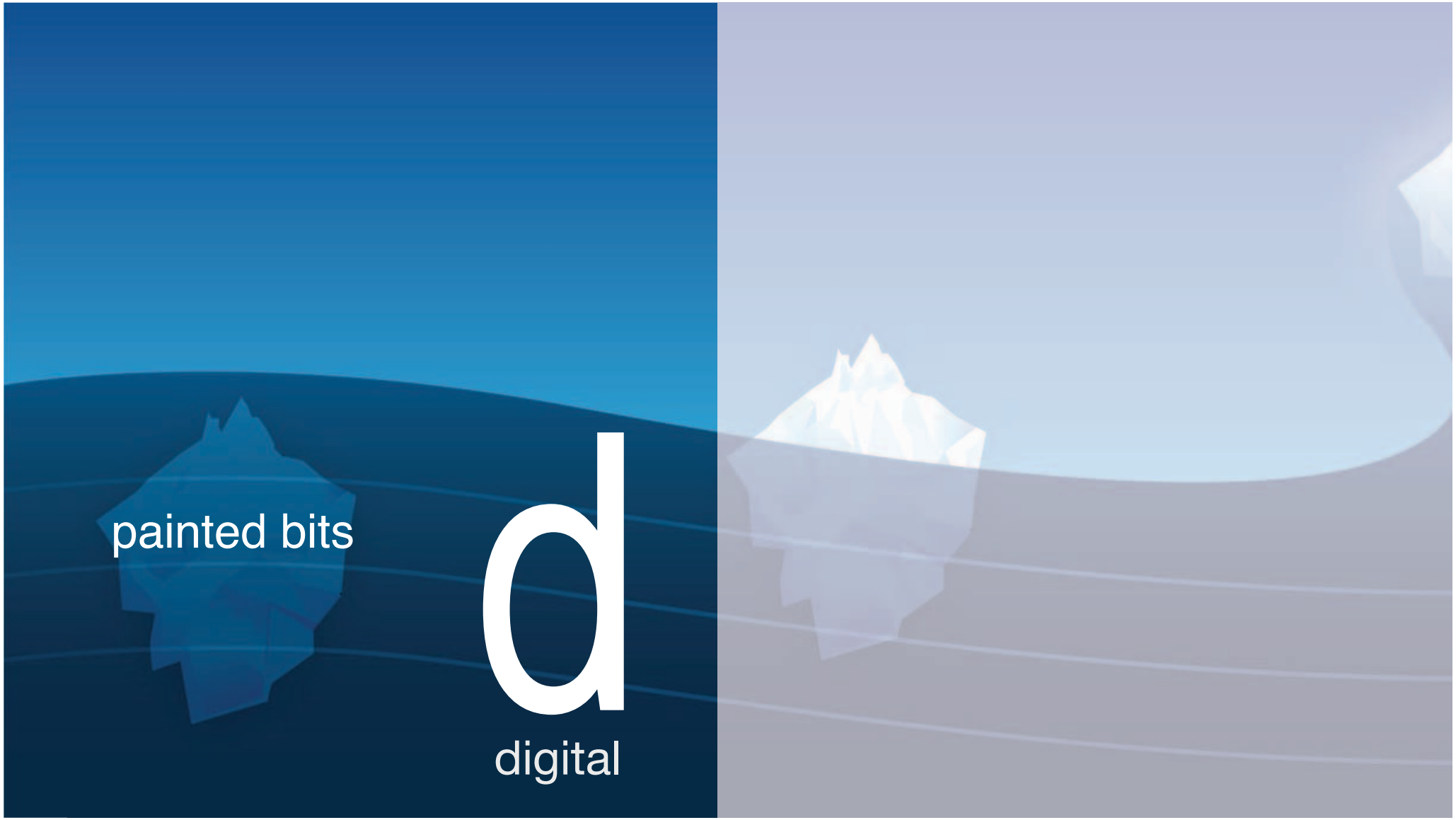
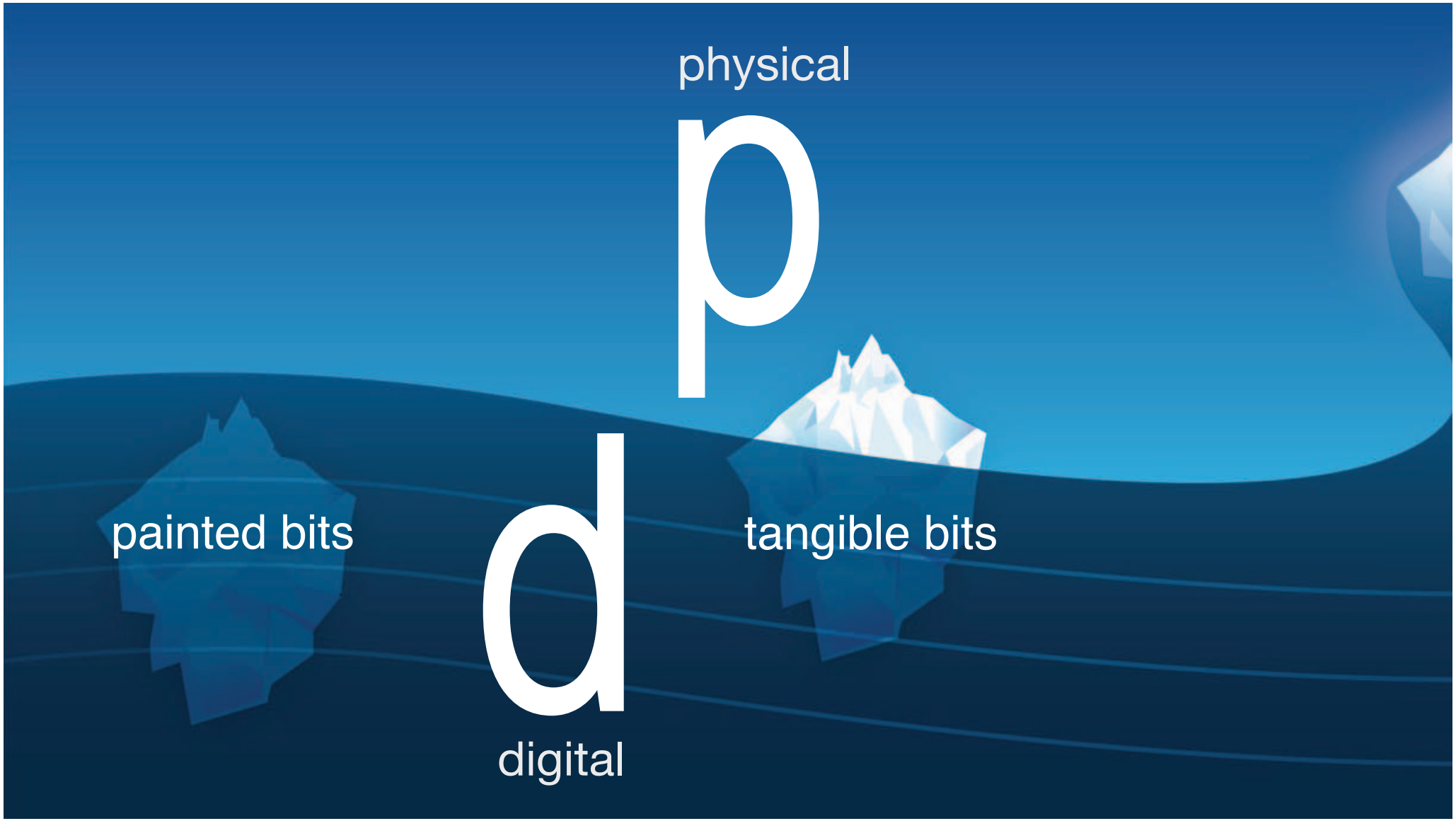
Vision-Driven

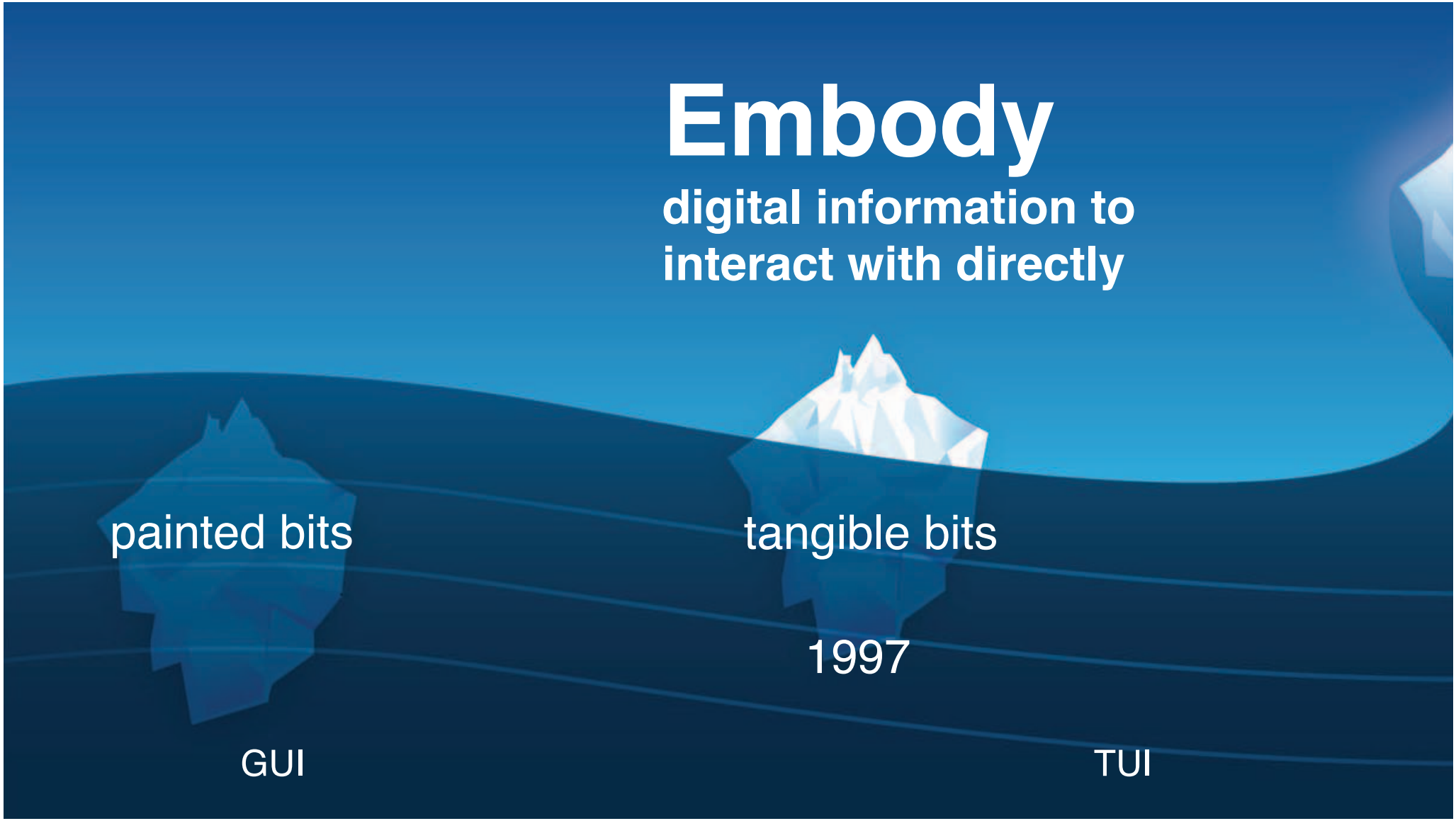


Why? Life Span

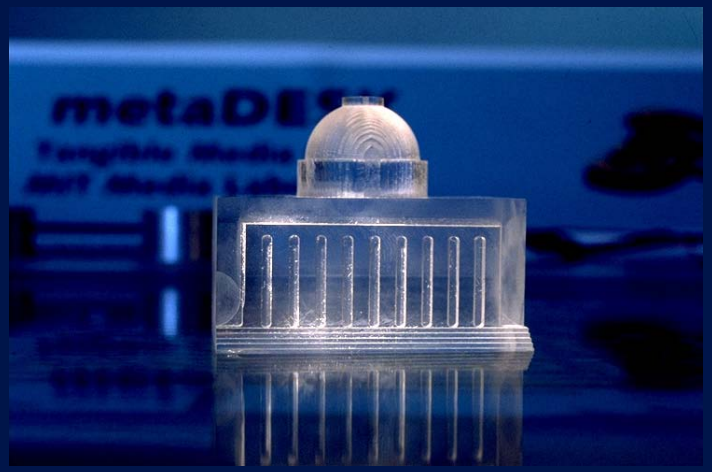



painted bits
d
digital


physical
p
painted bits
d
tangible bits
digital

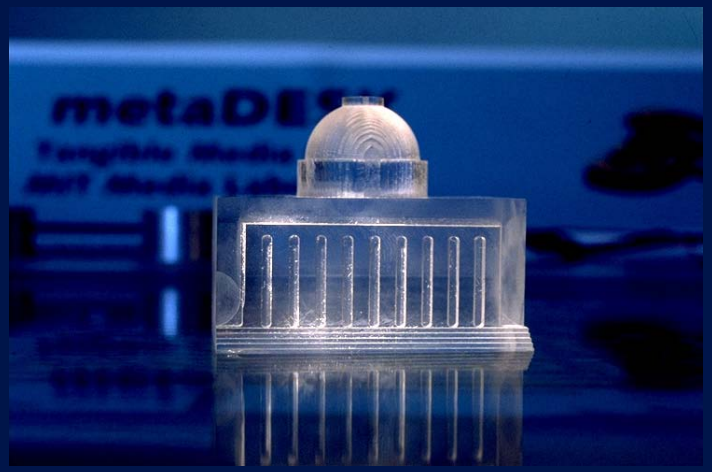

Embody
digital information to
interact with directly
painted bits
tangible bits
1997
GUI
TUI

Tangible Bits



Physical embodiment of digital information and computation

Tangible Bits



March 1997

“Tangible Bits” paper
presented at CHI ‘97 in Atlanta

Published in the Proceedings of CHI '97, March 22-27, 1997, © 1997 ACM 1

Tangible Bits: Towards Seamless Interfaces between People, Bits and Atoms

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ABSTRACT
This paper presents our vision of Human Computer Interaction (HCI): "Tangible Bits." Tangible Bits allows users to "grasp & manipulate" bits in the center of users' attention by coupling the bits with everyday physical objects and architectural surfaces. Tangible Bits also enables users to be aware of background bits at the periphery of human perception using ambient display media such as light, sound, airflow, and water movement in an augmented space. The goal of Tangible Bits is to bridge the gaps between both cyberspace and the physical environment, as well as the foreground and background of human activities.

This paper describes three key concepts of Tangible Bits: interactive surfaces; the coupling of bits with graspable physical objects; and ambient media for background awareness. We illustrate these concepts with three prototype systems – the metaDESK, transBOARD and ambientROOM – to identify underlying research issues.

Keywords
tangible user interface, ambient media, graspable user interface, augmented reality, ubiquitous computing, center and periphery, foreground and background

INTRODUCTION: FROM THE MUSEUM
Long before the invention of personal computers, our ancestors developed a variety of specialized physical artifacts to measure the passage of time, to predict the movement of planets, to draw geometric shapes, and to compute [10]. We can find these beautiful artifacts made of oak and brass in museums such as the Collection of Historic Scientific Instruments at Harvard University (Fig. 1).

We were inspired by the aesthetics and rich affordances of these historical scientific instruments, most of which have disappeared from schools, laboratories, and design studios and have been replaced with the most general of appliances: personal computers. Through grasping and manipulating these instruments, users of the past must have developed rich languages and cultures which valued haptic interaction with real physical objects. Alas, much of this richness has been lost to the rapid flood of digital technologies.

We began our investigation of "looking to the future of HCI" at this museum by looking for what we have lost with the advent of personal computers. Our intention was to rejoin the richness of the physical world in HCI.

BITS & ATOMS
We live between two realms: our physical environment and cyberspace. Despite our dual citizenship, the absence of seamless couplings between these parallel existences leaves a great divide between the worlds of bits and atoms. At the present, we are torn between these parallel but disjoint spaces.

We are now almost constantly "wired" so that we can be here (physical space) and there (cyberspace) simultaneously [14]. Streams of bits leak out of cyberspace through a myriad of rectangular screens into the physical world as photon beams. However, the interactions between people and cyberspace are now largely confined to traditional GUI (Graphical User Interface)-based boxes sitting on desktops or laptops. The interactions with these GUIs are separated from the ordinary physical environment within which we live and interact.

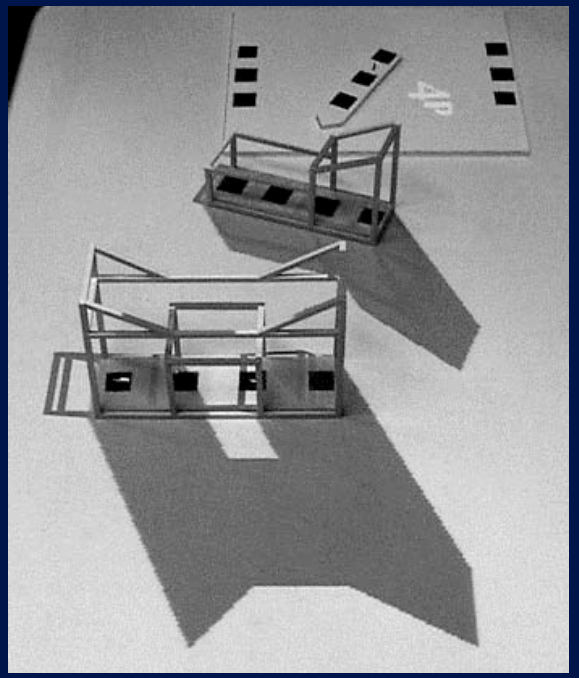
Figure 1 Sketches made at Collection of Historical Scientific Instruments at Harvard University

Although we have developed various skills and work practices for processing information through haptic interactions with physical objects (e.g., scribbling messages on Post-It™ notes and spatially manipulating them on a wall) as well as peripheral senses (e.g., being aware of a change in weather through ambient light), most of these practices are neglected in current HCI design because of the lack of diversity of input/output media, and too much bias towards graphical output at the expense of input from the real world [3].

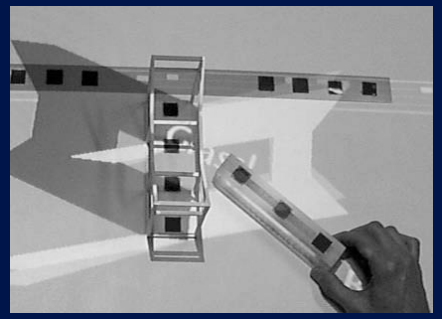
Outline of This Paper
To look towards the future of HCI, this paper will present our vision of Tangible Bits and introduce design projects including the metaDESK, transBOARD and ambientROOM systems to illustrate our key concepts. This paper is not intended to propose a solution to any one single problem. Rather, we will propose a new view of interface and raise a set of new research questions to go beyond GUI.

FROM DESKTOP TO PHYSICAL ENVIRONMENT
In 1981, the Xerox Star workstation set the stage for the first generation of GUI [16], establishing a "desktop metaphor" which simulates a desktop on a bit-mapped

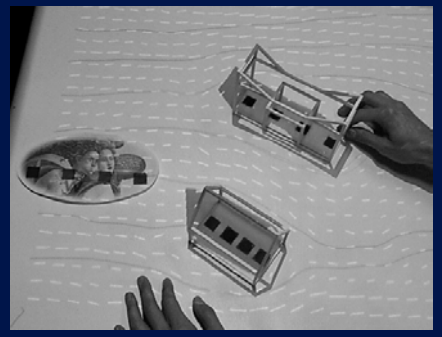
Urp:
Urban Planning Workbench
John Underkoffler and Hiroshi Ishii, 1997 - 1999



digital shadows



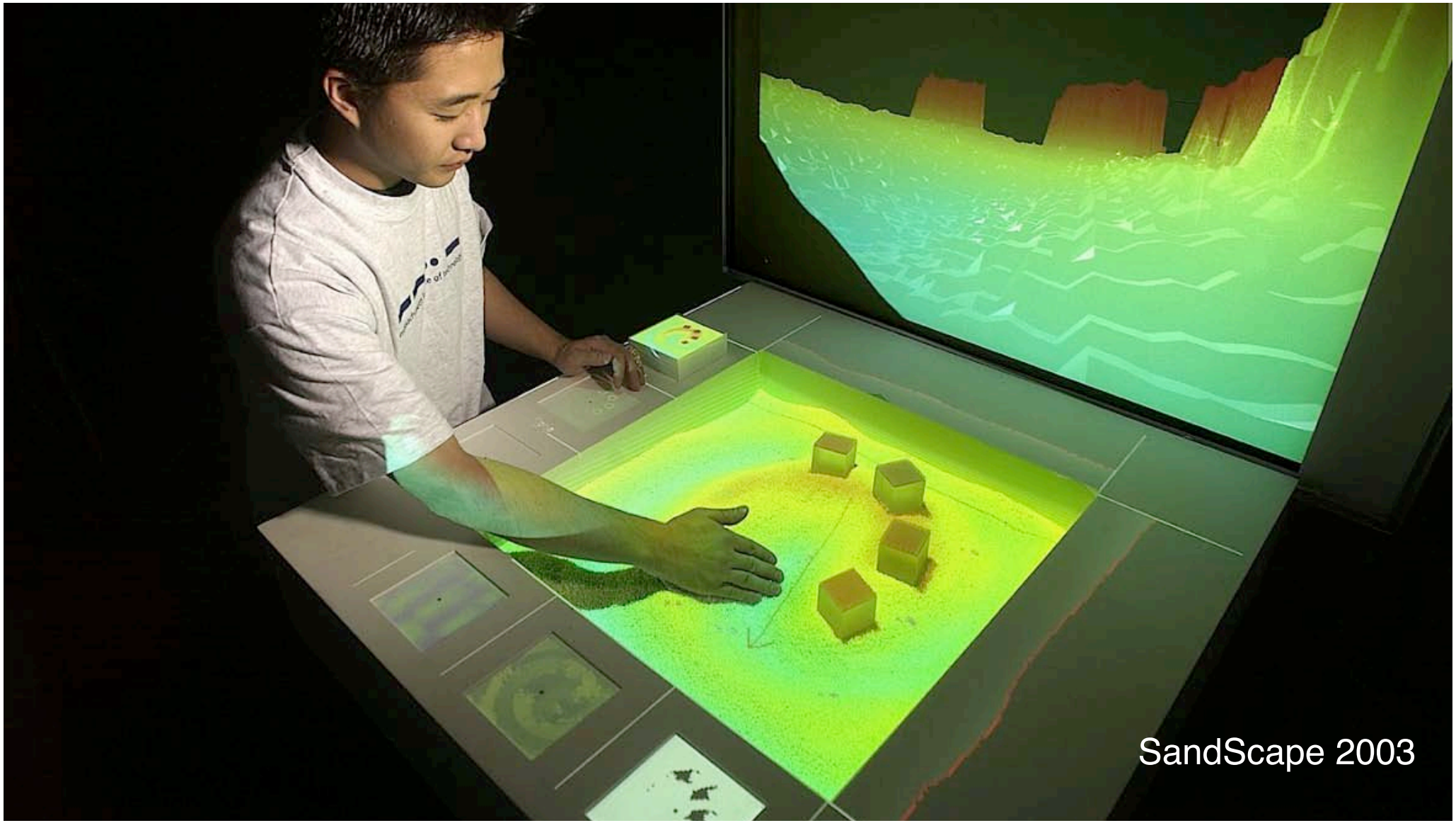
light reflections



wind

Eyes are in charge,
but hands are underemployed.


bottles


SandScape 2003

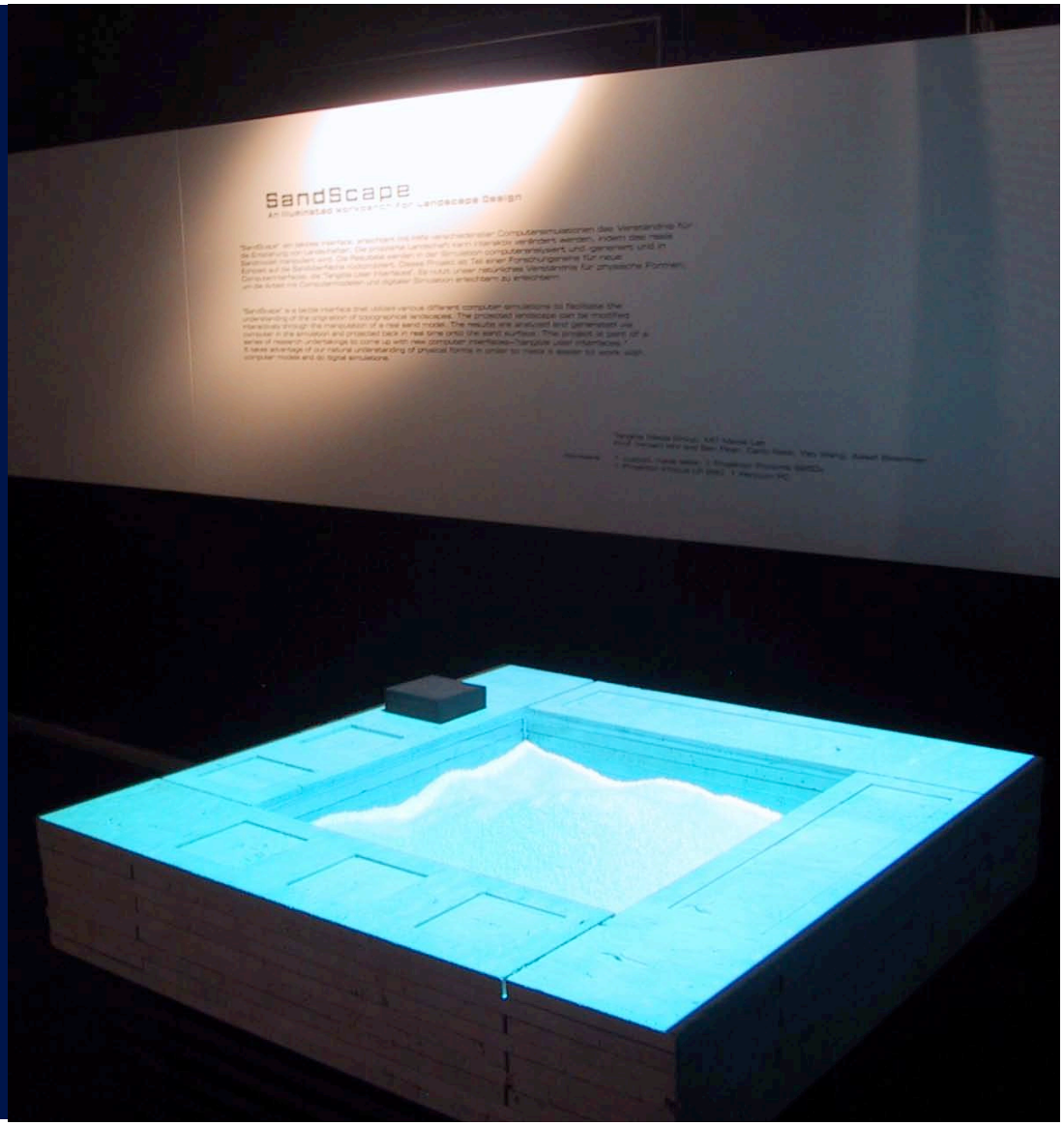

Clay & Sand

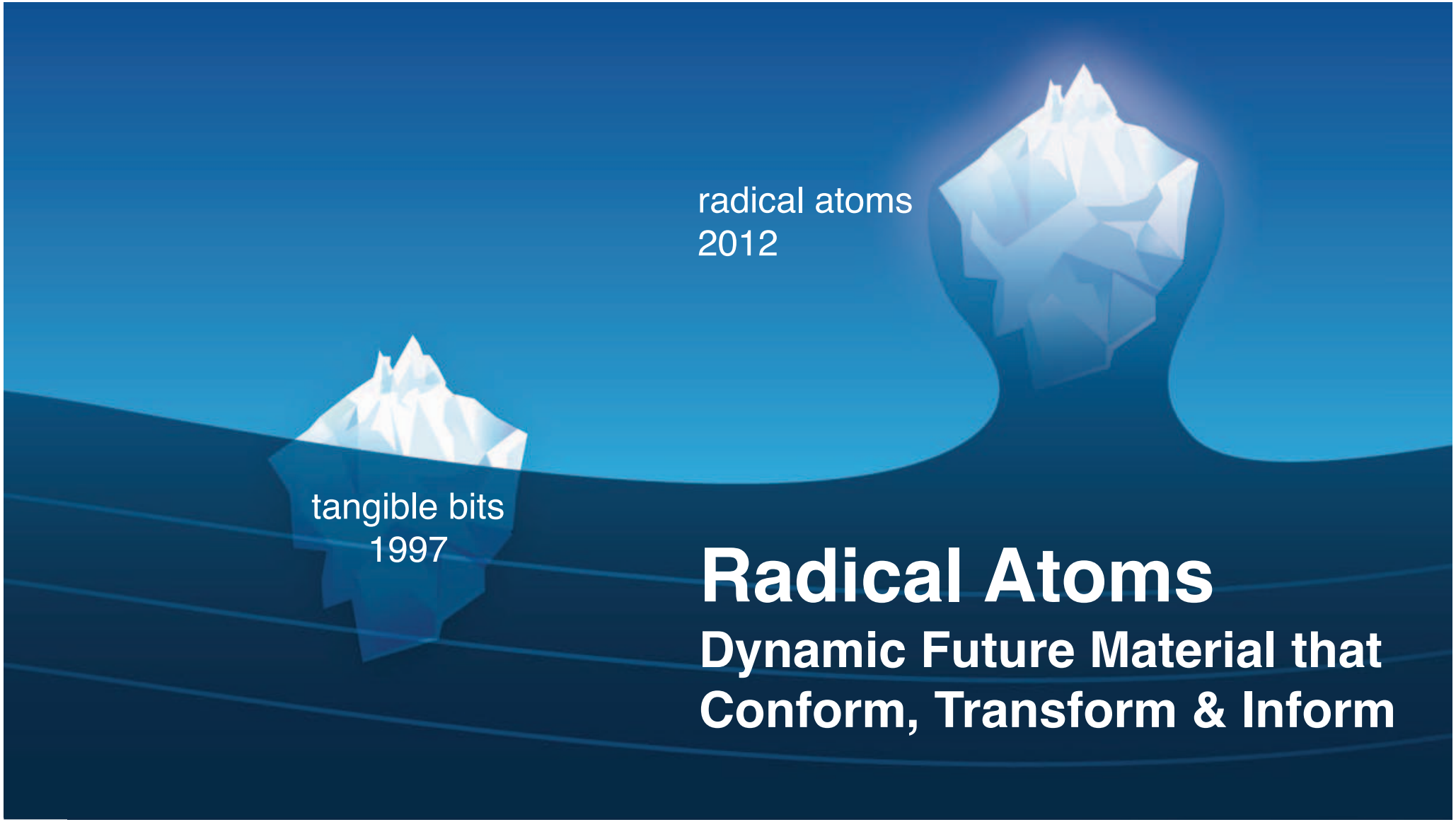
SandScape

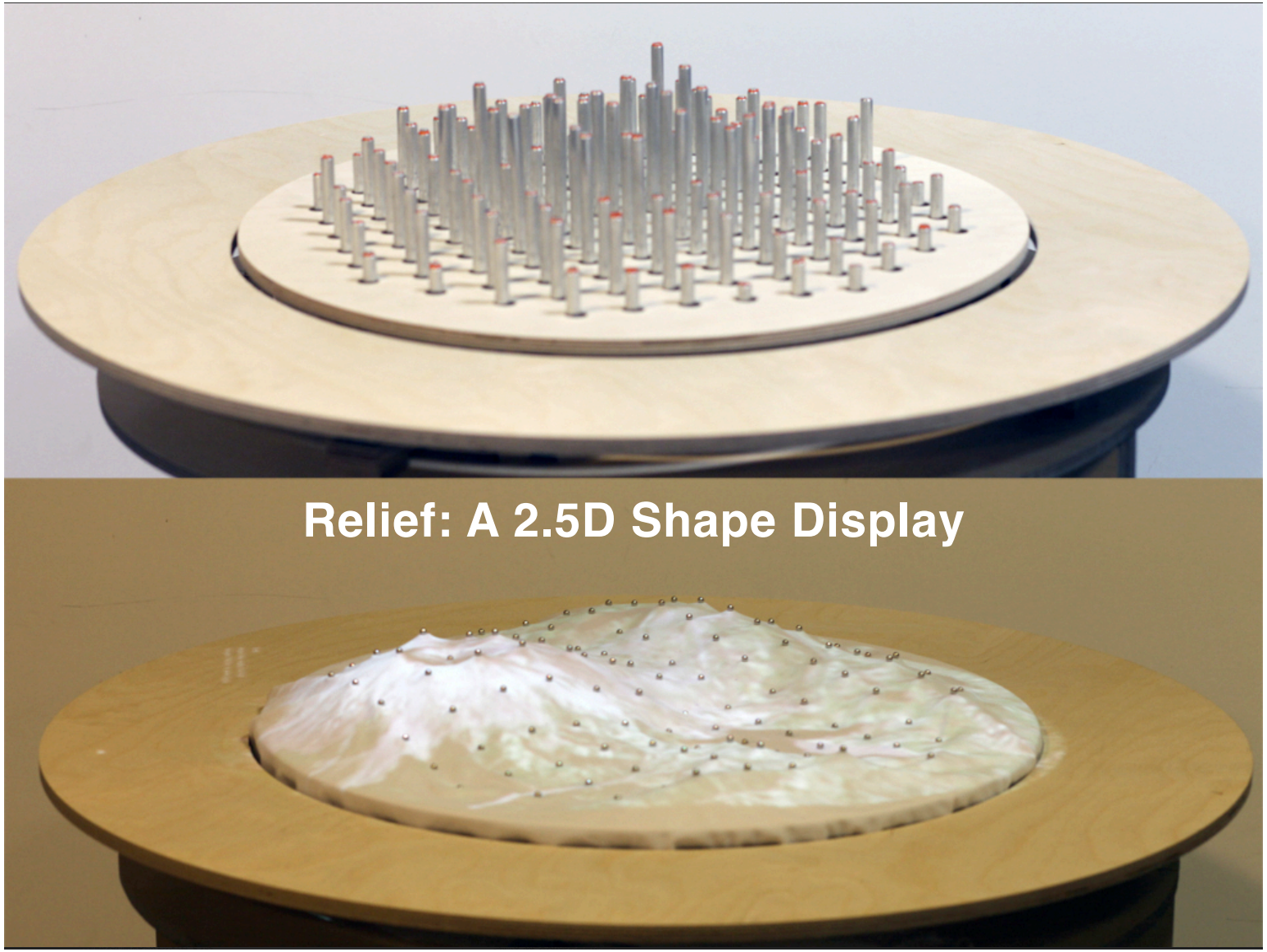
Hiroshi Ishii,
Carlo Ratti,
Ben Piper,
Yao Wang, and
Assaf Biderman

Tangible Media Group

MIT Media Laboratory

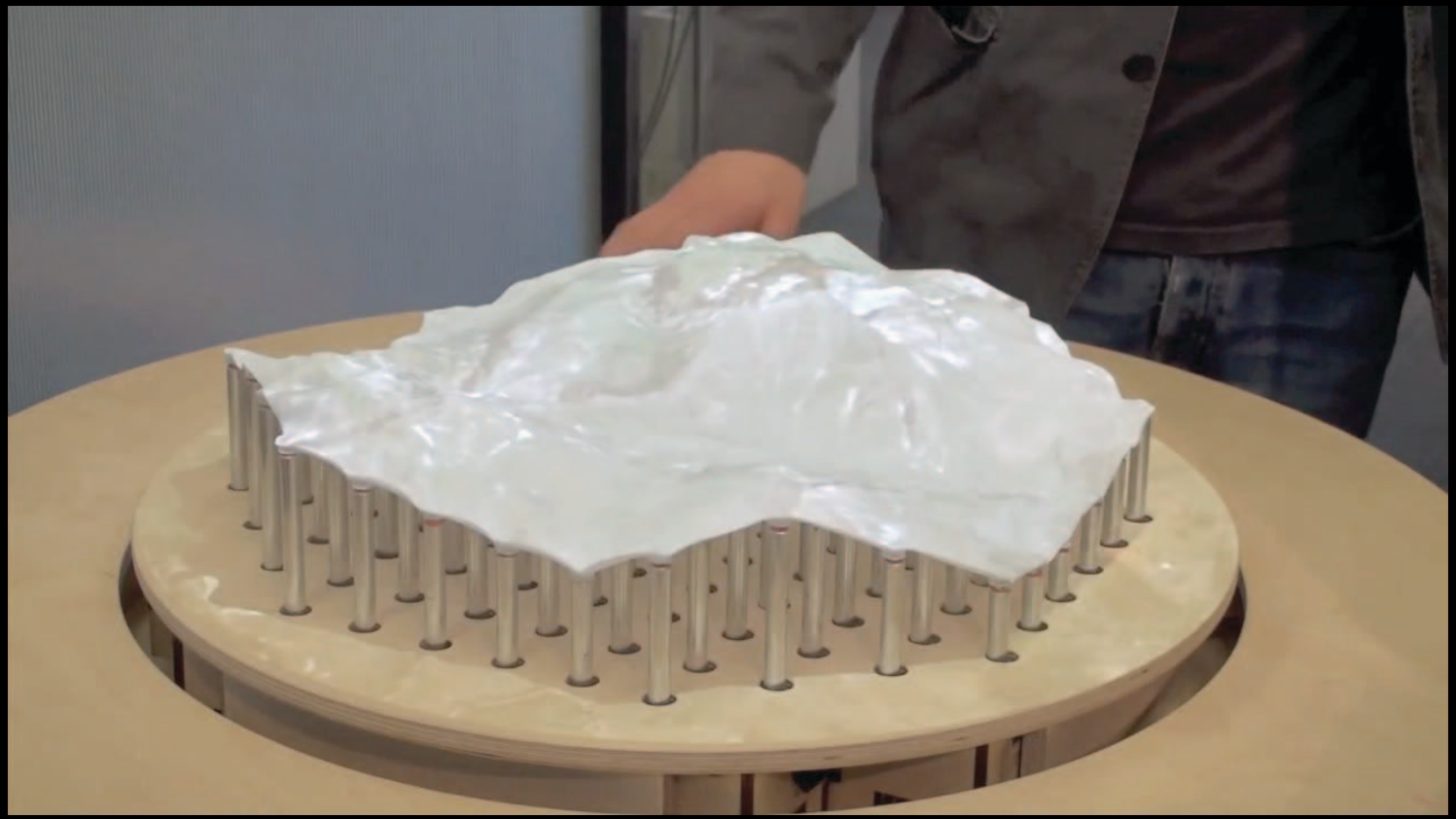



radical atoms
2012
tangible bits
1997
Radical Atoms
Dynamic Future Material that
Conform, Transform & Inform

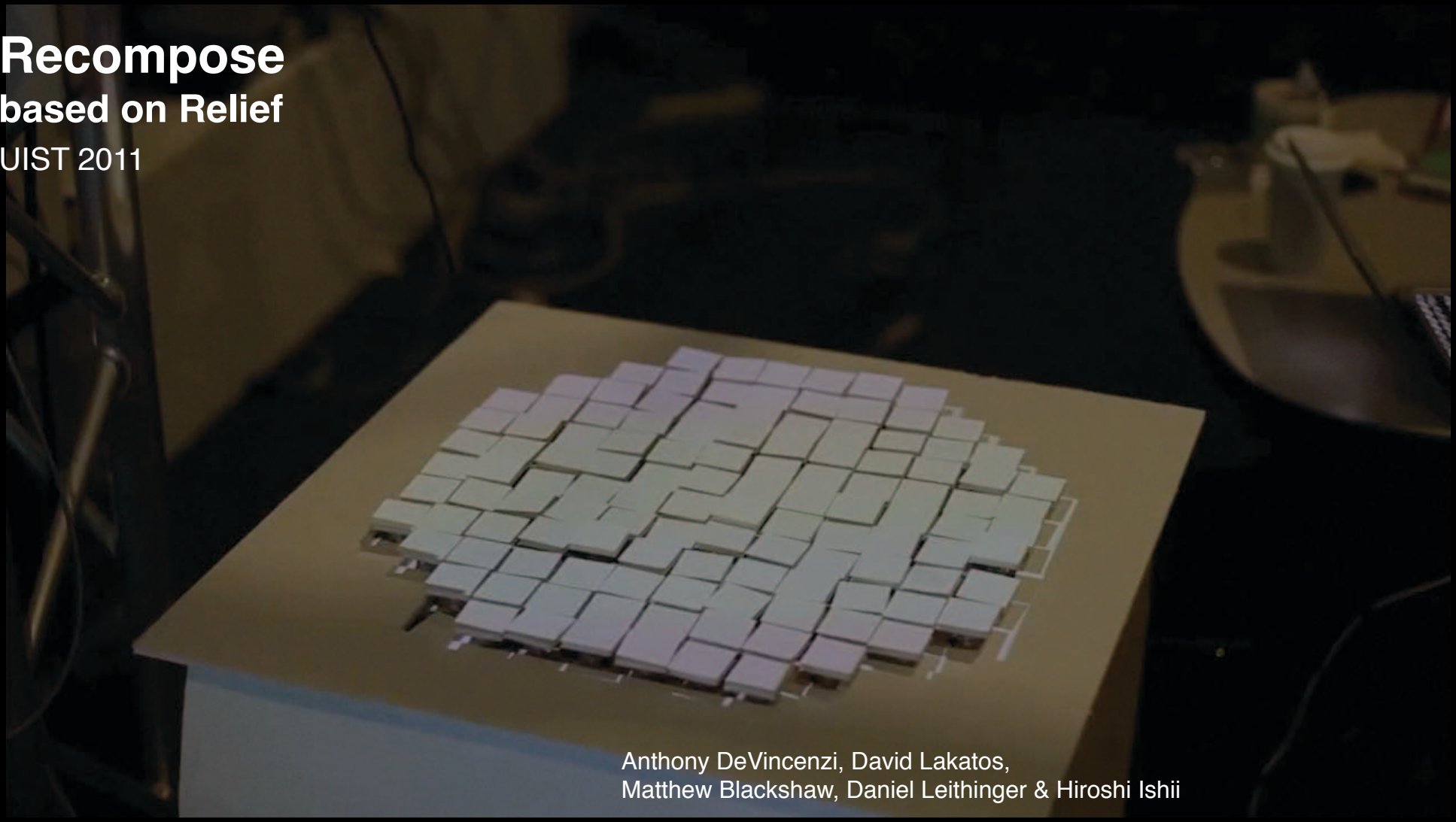

Relief: A 2.5D Shape Display

Relief

Daniel Leithinger and Hiroshi Ishii



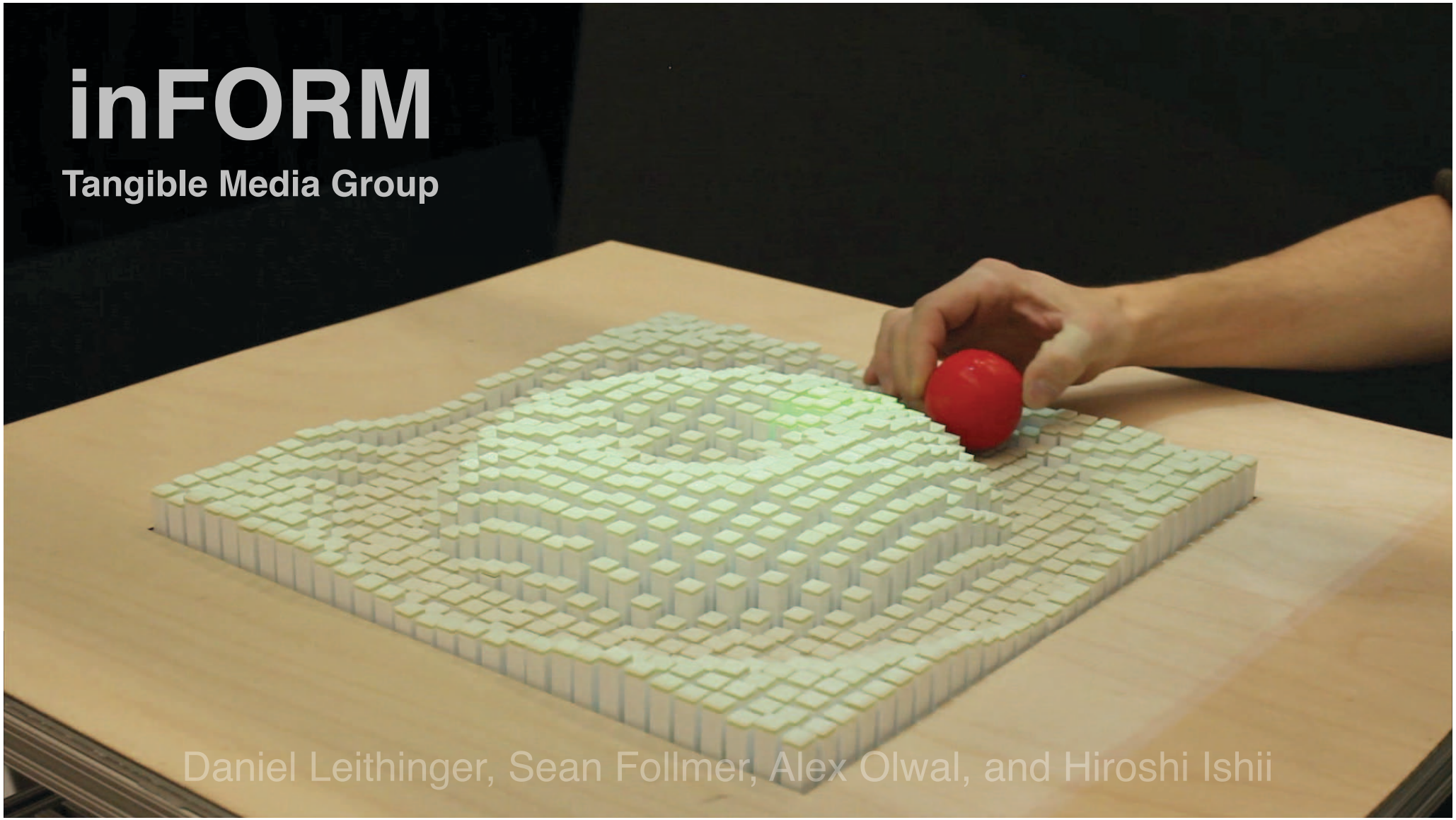
Recompose
based on Relief
UIST 2011



Anthony DeVincenzi, David Lakatos,
Matthew Blackshaw, Daniel Leithinger & Hiroshi Ishii

TimeScape
based on Relief

Daniel Leithinger, Jinha Lee, Sean Follmer, Austin Lee, Matthew Chang & Hiroshi Ishii


inFORM
Tangible Media Group
Daniel Leithinger, Sean Follmer, Alex Olwal, and Hiroshi Ishii

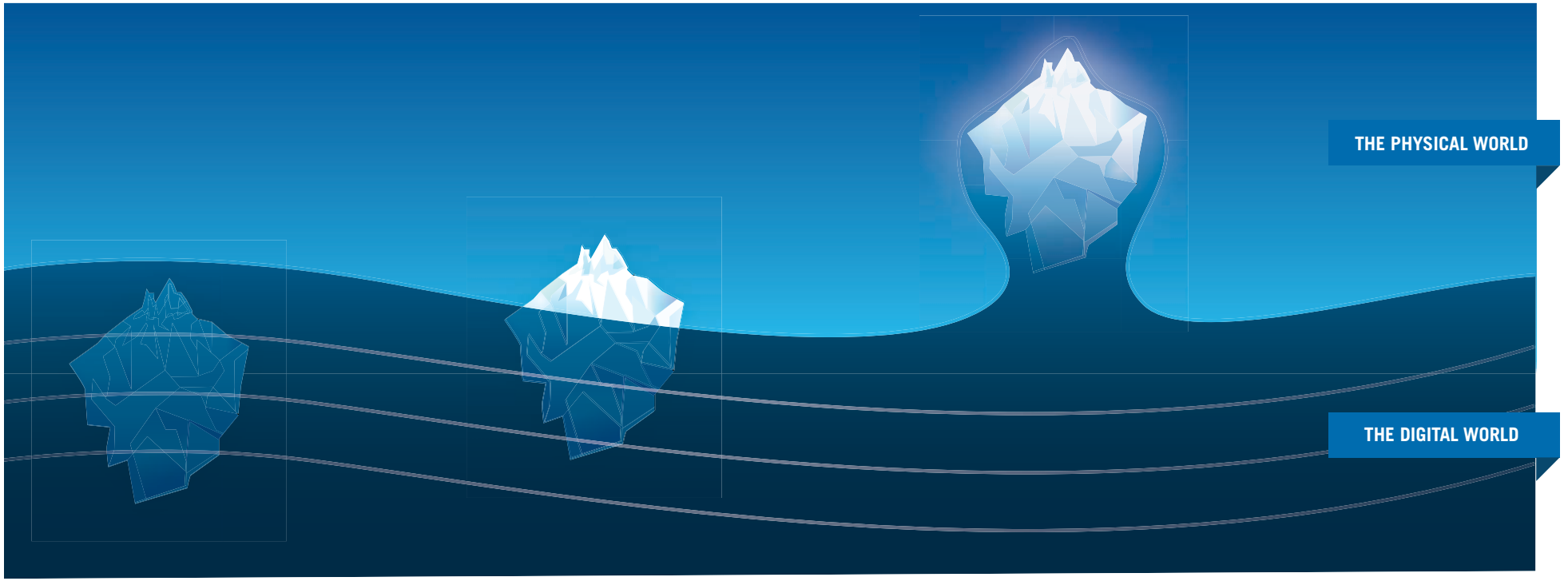
ZeroN

Jinha Lee, MIT Media Lab
Rehmi Post, MIT Center for Bits and Atoms
Hiroshi Ishii, MIT Media Lab

GUI PAINTED BITS

TUI TANGIBLE BITS

RADICAL ATOMS



A Graphical User Interfaces only let users see digital information through a screen, as if looking through a surface of the water. We interact with the forms below through remote controls such as a mouse, a keyboard or a touch screen.

A Tangible User Interface is like an iceberg: there is a portion of the digital that emerges beyond the surface of the water - into the physical realm - that acts as physical manifestations of computation, allowing us to directly interact with the 'tip of the iceberg.'

Radical Atoms is our vision for the future of interaction with hypothetical dynamic materials, in which all digital information has physical manifestation so that we can interact directly with it - as if the iceberg had risen from the depths to reveal its sunken mass.


理念
vision
NATIONAL GEOGRAPHIC
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Envision & Embody
Invent & Inspire
The Future


Thanks!
June 21, 2013
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The Future

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