

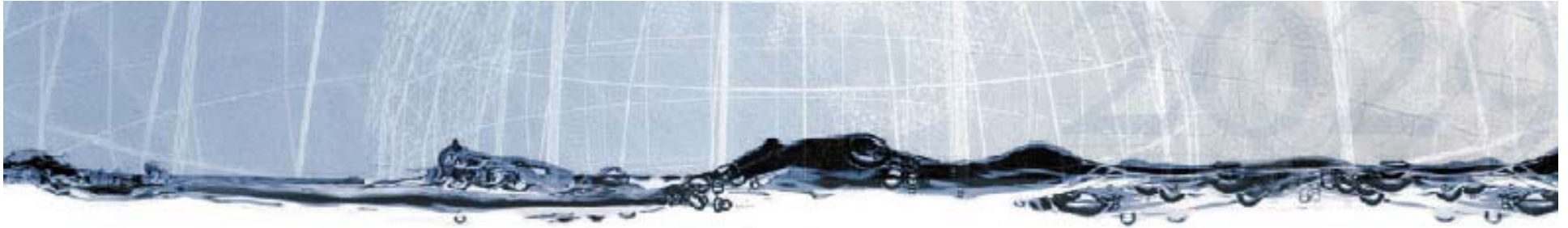
# Capturing the Imagination of the Digital Native

The Massachusetts Cultural  
Coast Forum

March 28th, 2008

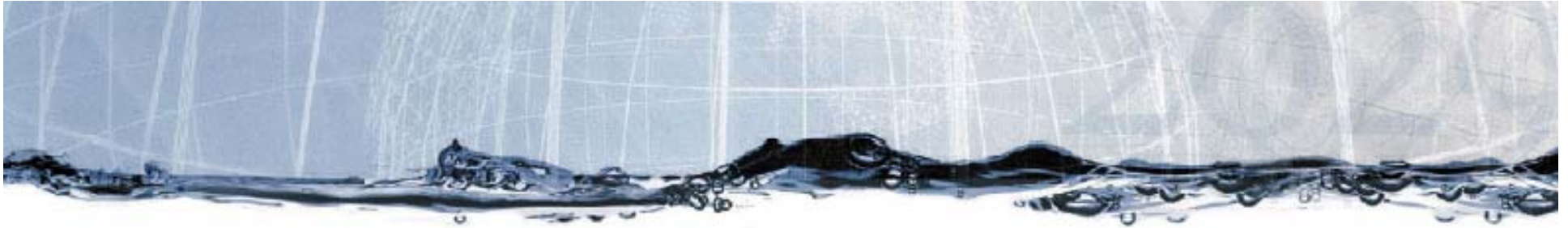
Craig C. Bettles

Futurist



# Three Topic Areas

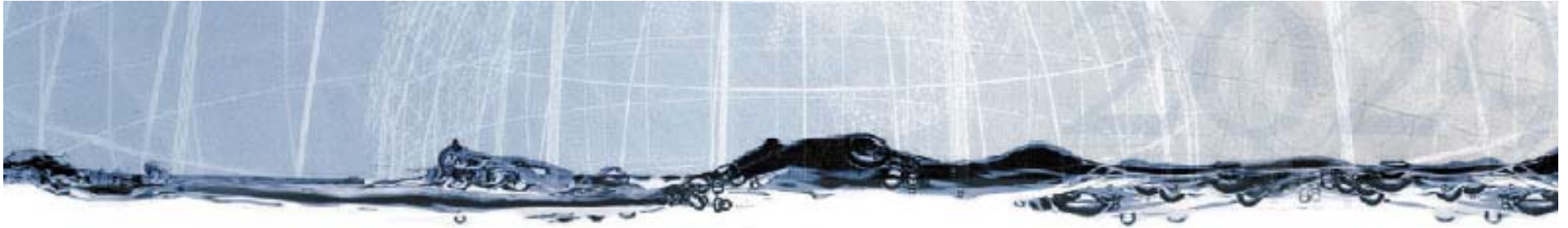
- Digital Natives – Who are they and what do they want?
- Future Tech – What tools will have to interact with our world?
- Cultural Coast 2018 – A vision of what might be possible.



# A Different Way of Interacting



- Digital Natives
- Future Technology
- Cultural Coast 2018

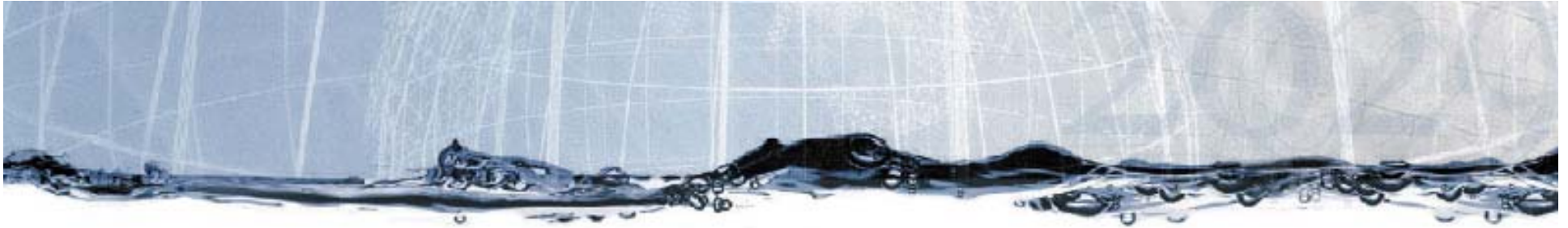


# Digital Natives

*They are native speakers of technology, fluent in the digital language of computers, video games, and the Internet.*

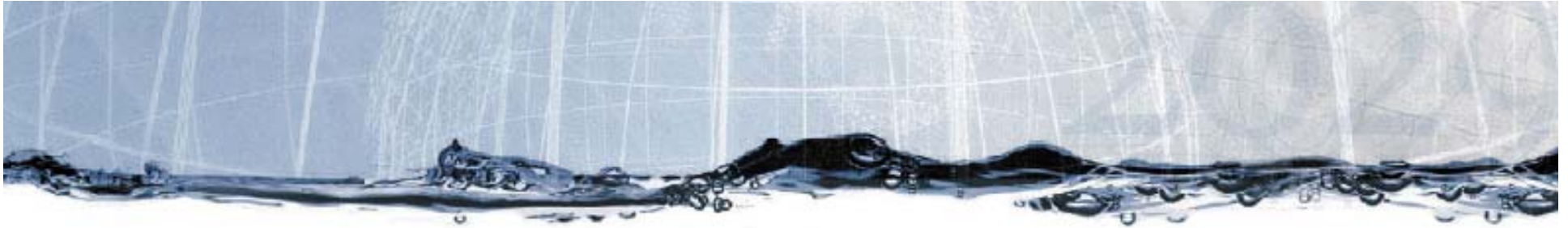
*-Marc Prensky, Listen to the Natives*





# What Generation?

- Generation Y
  - Born 1980-2000  
(age 7 to 27)
  - A wired generation
  - Also called the Millennials & Echoboomers
- Generation Z
  - Born 2000 +  
(age 7 and under)
  - A wired generation
  - Also called the New Silent Generation or Generation Next



# Timeline of the Digital Native

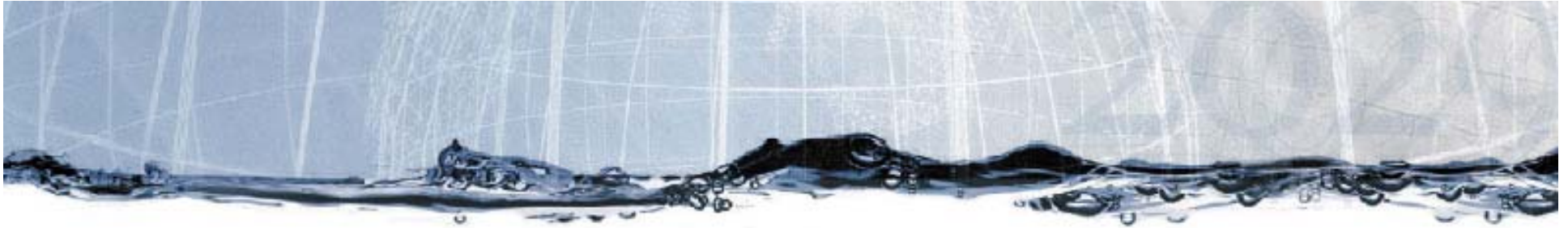
- 1979 – The first USENET online groups are formed
- 1982 – The term “internet” is coined
- 1985 – Nintendo Entertainment System
- 1996 – 40 million users in 150 countries are online
- 1998 – Google Founded
- 2000 – Y2K passes without incident
- 2001 – Apple Ipod launched
- 2005 – YouTube Founded
- 2006 – 1 millionth account created on MySpace
- 2008 – Online game World of Warcraft hits 10 million subscribers



# Rough Estimates 15 to 20 year olds

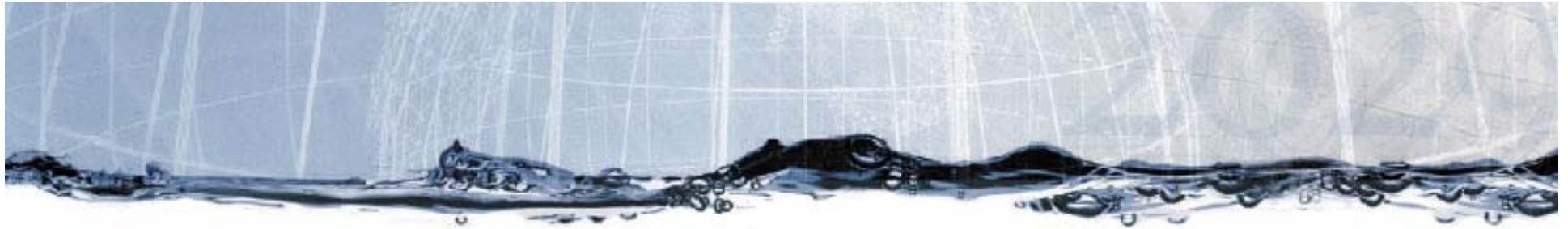
- 10,000 hours playing video games
- 200,000 emails & instant messages
- 10,000 hours on digital cell phones
- 200,000 hours watching TV
- 5,000 hours of book reading





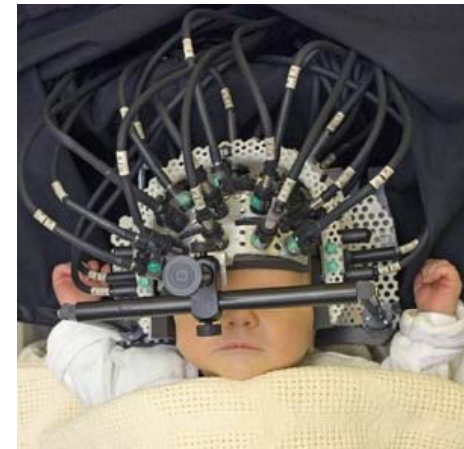
## Digital Natives – A Different Culture

- People in different cultures don't just act differently – they think differently.
- Brain activity can change to reflect that difference.
- Digital Natives often think differently, which provide them with different skills.



# The Changing Brain

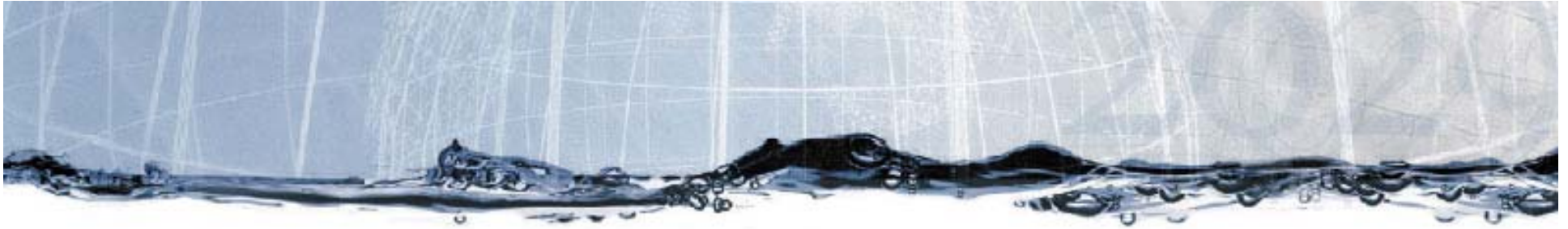
- Highly Plastic & Capable of Change
- Change Requires Training
- Brain Training
  - Language
  - Reading
  - Video Games?



# Digital Natives – New Skills



- Parallel, not Sequential Thought
- Visual-Spatial Skills
- Multi-Tasking Skills
- Response Times
- Mental Mapping

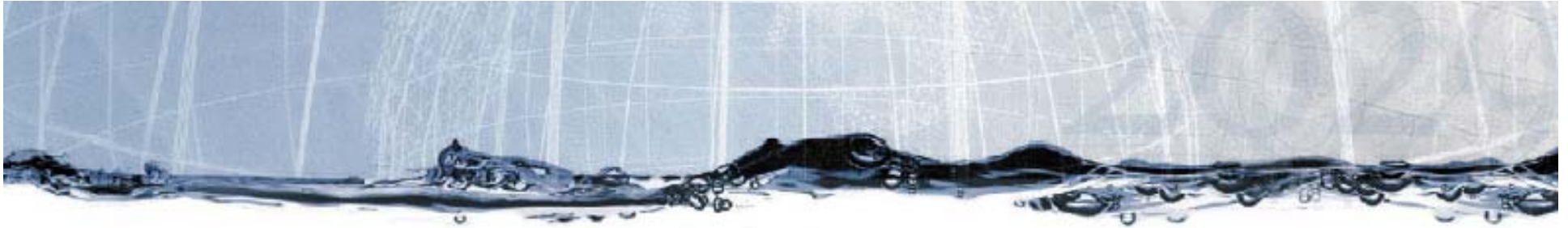


### Digital Natives Prefer:

- Receiving info quickly from multiple sources
- Multitasking and parallel processing
- Pictures, sounds and video before text
- Hyperlinked sources
- Interacting in “real-time”
- User generated content
- Learning that is instant, relevant and fun

### Digital Immigrants Prefer:

- Controlled release of info from limited sources
- Single or “focused” tasks
- Often prefer to get information from text
- Greater need for private and personal space for introspection
- Like info presented linearly, logically and sequentially



## Non-linear self-exploration

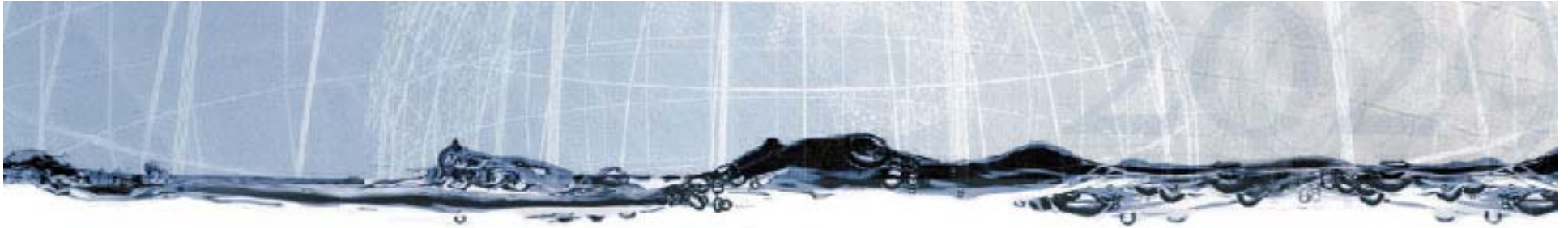
- The best video games teach and encourage non-linear self-exploration
- The internet, particularly hyper-linking, encourages non-linear self-exploration



## Staying Ahead of Generation Next

*“We have to stay ahead of the multi-taskers. Email came out when we were middle school. The next generation have had this technology since they were born.”*

~ Early Career Engineer at an ASME Futures Focus Group



# New Tech for a New World



- Digital Natives
- **Future Technology**
- Cultural Coast 2018

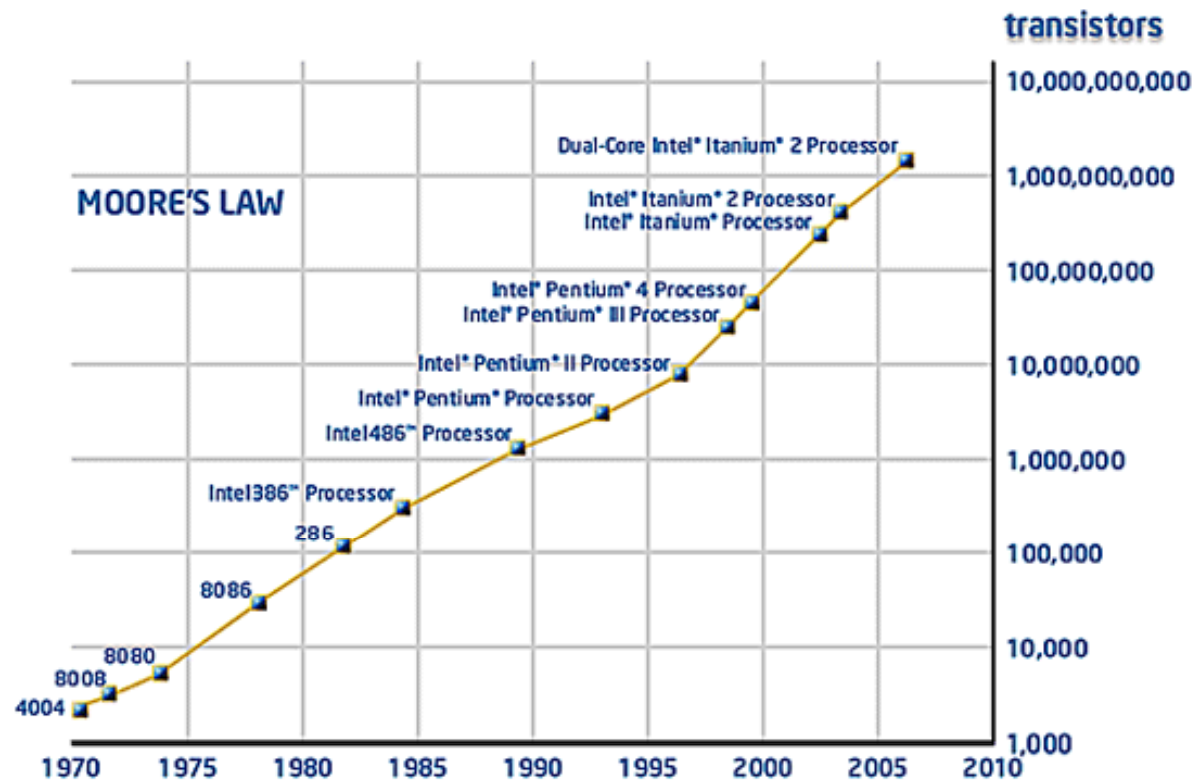


# Information & Communication Advances

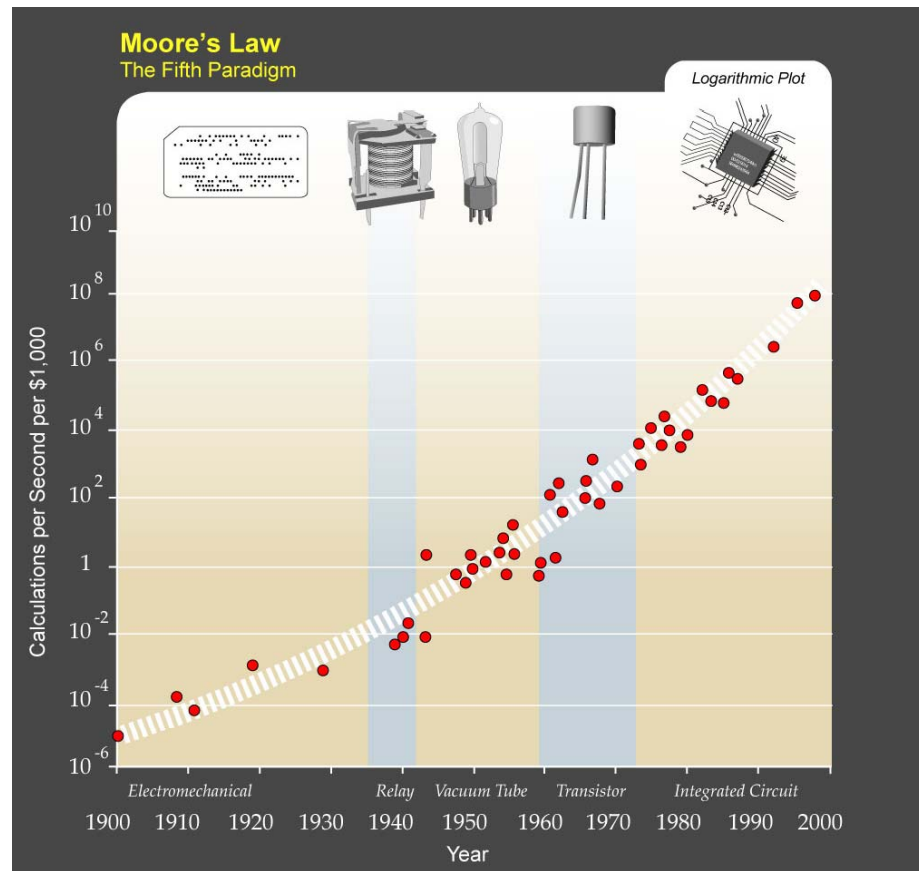
- Powerful Computing
- Wireless Networking
- One Laptop per Child
- Virtual Worlds
- Ubiquitous Computing
- Open, Collaborative Content

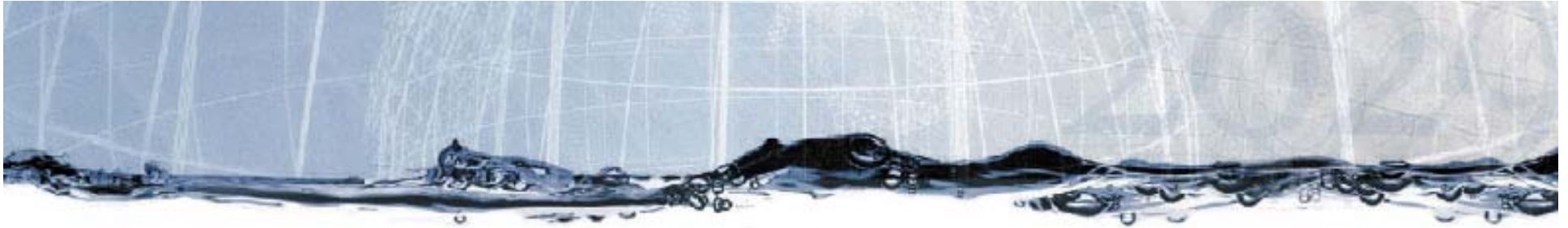


# Processing Power



# Ray Kurzweil – Law of Accelerating Returns





# Wireless Broadband Everywhere



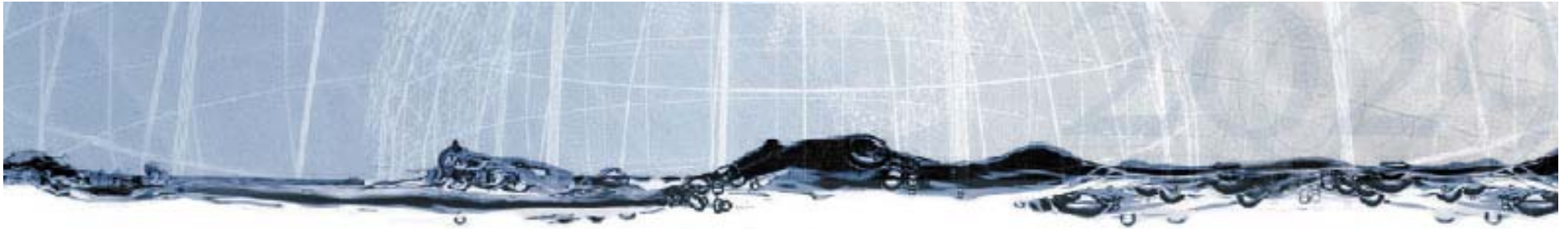
- Municipal Wi-Fi
  - Philadelphia
  - San Francisco
- Wi-MAX technology
  - Miles rather than feet
  - Thousands of residences
- Wireless Mesh Networks
  - Distributed nodes of radios on public Wi-Fi spectrum
  - More resilient and scalable
- Solves last mile problem for rural areas



# One Laptop Per Child

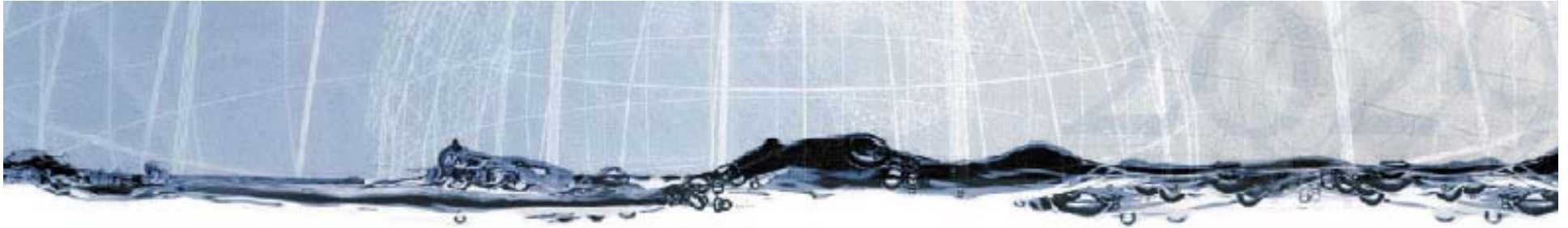
- MIT Media Lab
- Non-profit association
- \$100 Laptop (currently \$150)
- Free and Open Source
- Designed for tough conditions
- Open, Collaborative Content





# Virtual Worlds

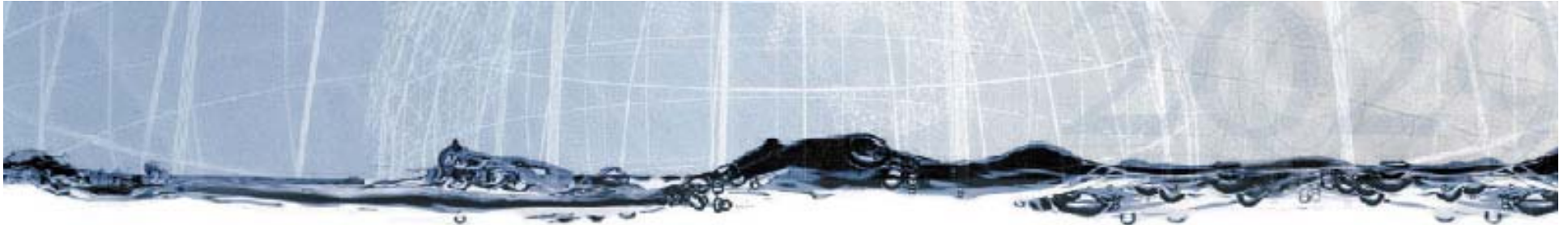




# World of Warcraft

- Largest virtual world
  - 10 million players
  - 5.5 Asia
  - 2.5 N. America
  - 2 Europe
- MMORPG





## Second Life

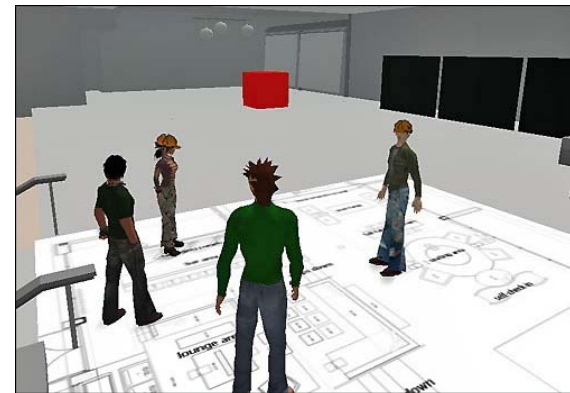


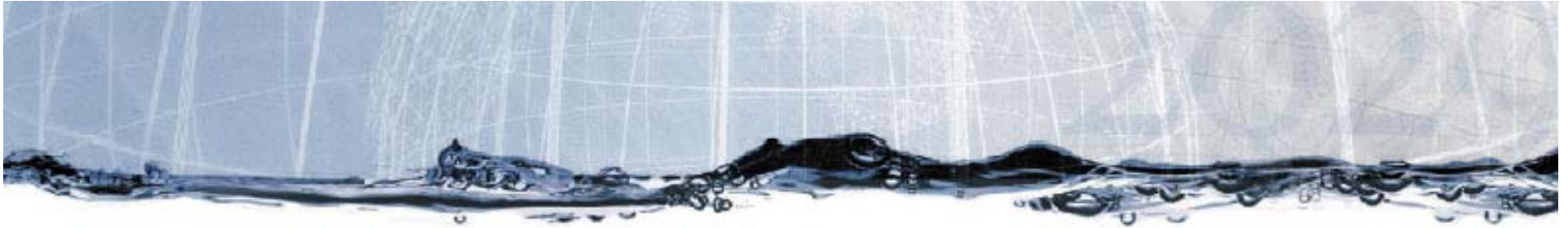
- More than 500,000 active users
- GDP – \$500 m.
- IBM - \$10 m. investment
- ACS – \$115,000 for 2007 virtual relay



# Virtual Aloft Hotels

- Run by Starwood Hotels
- Physical Prototype in White Plains, NY
- Virtual Prototype in Second Life
- Tap Customers for Ideas
- Build up Brand Equity

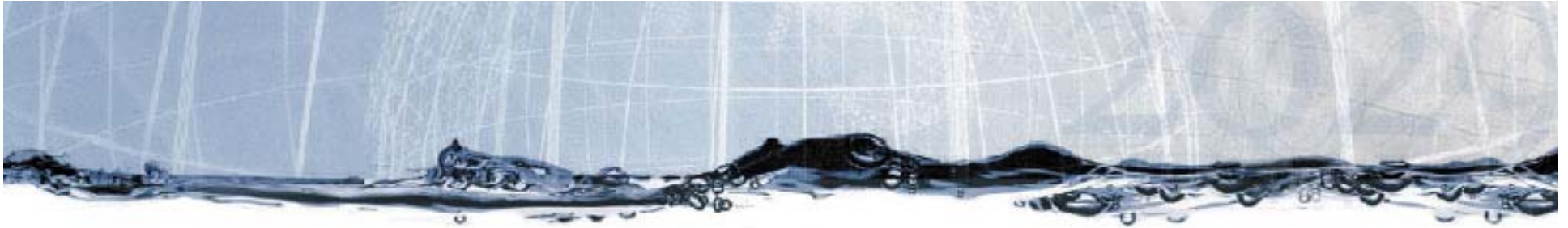




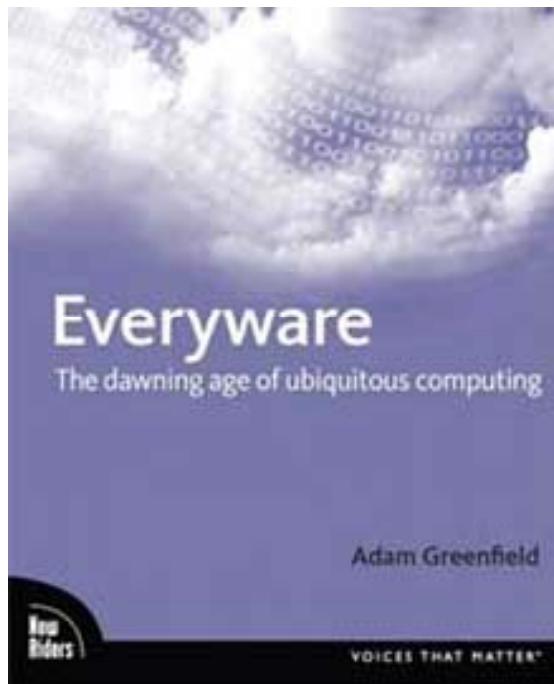
## Virtual World for Kids

- Club Penguin
  - Bought by Disney
  - \$700 million
- WebKinz
  - Plush & Virtual Pet
  - More than 2 m. sold

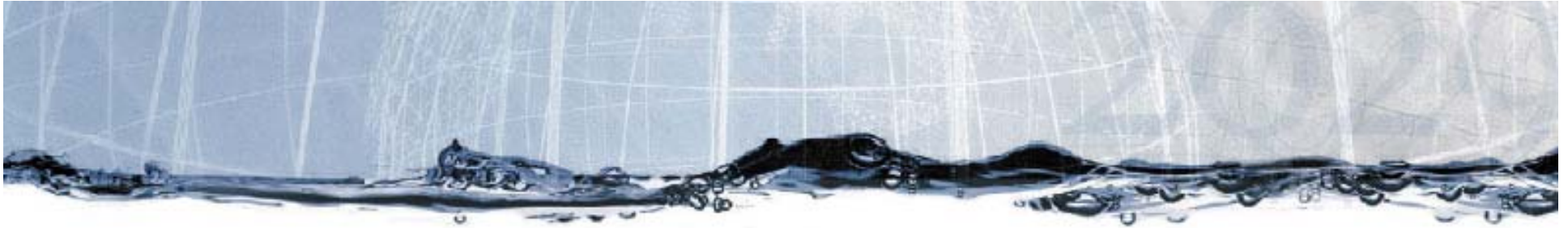




# Ubiquitous Computing



- Embedded Technologies
- Better Standards
- Cell Phones
- Physical World Hyperlinks



## Smart Shoe

- Aidas 1
- \$150 shoe
- Contains a sensor
- Adjusts cushioning level





# The Future of Cell Phones

- By 2016, more than 75% of the population will have cell phones with broadband capabilities
- Cell phones will offer GPS services and streaming video
- Physical “hyperlinks” will connect cell phones to their surroundings.

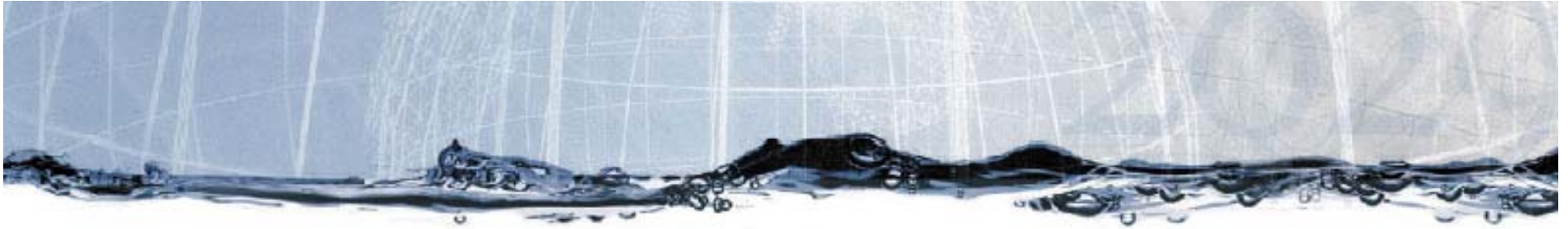




# Future Cell Phones Today

- Iphone
  - WiFi Access
  - Interface
  - Software Development Kit
- AT&T Video Share
  - Digital Video
- Montclair State University
  - Requires GPS Cell phones





# A Hyperlinked World

ECNET INC.

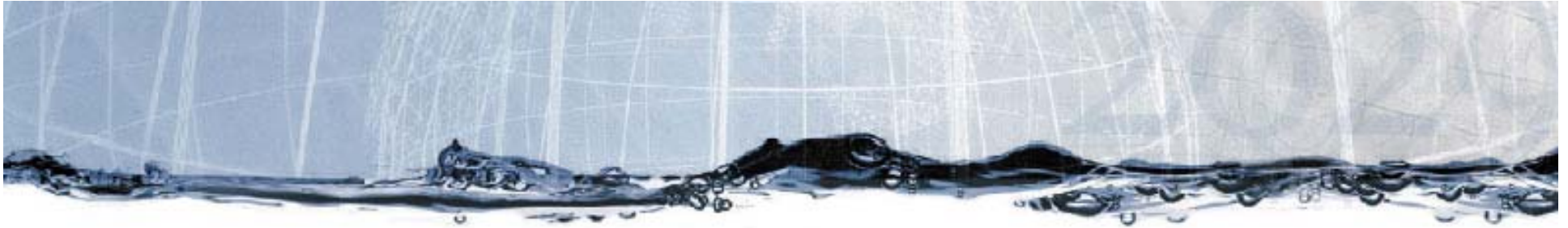
イメージアップに今話題の...  
ケータイ専用  
ホームページ  
作成します!

カメラで簡単撮影  
その情報は携帯でひとづになる

QRコードスタンプが印字してくる

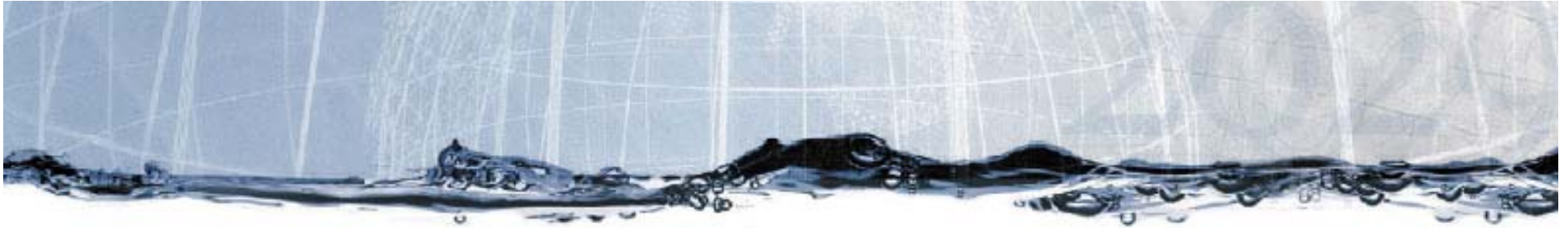
スタンプを押すだけで簡単にQRコードを印字できます

- GPS based hyperlinks
- Print based hyperlinks
- RFID hyperlinks
- Music based hyperlinks
- Image based hyperlinks



# Mobile Display Technologies

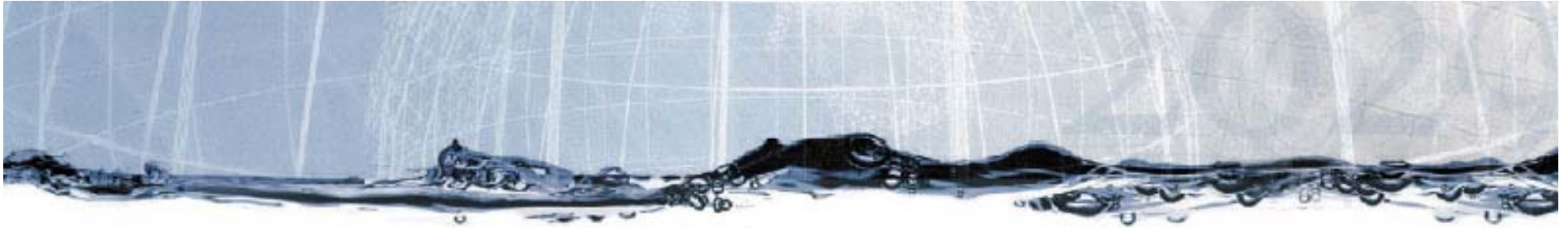




# Open, Collaborative Content

- Blogs
- Wikipedia
- YouTube
- Linux
- Public Library of Science
- Biological Information for an Open Society

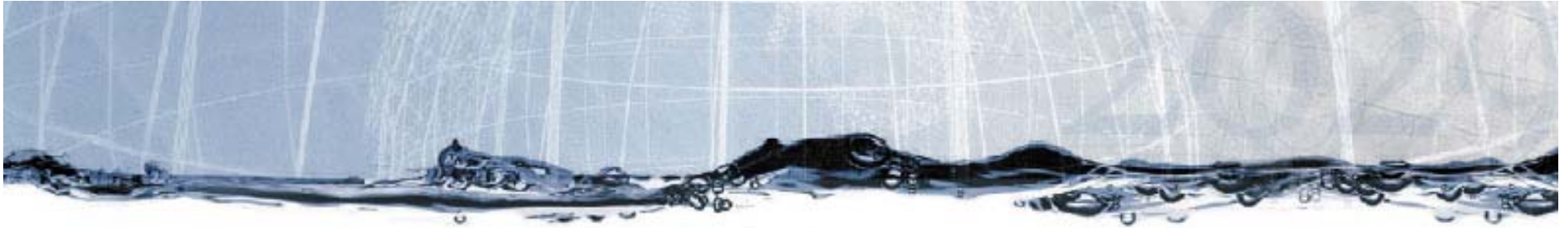




# A Glimpse of the Future



- Digital Natives
- Future Technology
- Cultural Coast 2018



# Cultural Coast - 2018

## Technology Changes

- Always online
- Ubiquitous computing
- Physical hyperlinks



## Capture Their Imagination

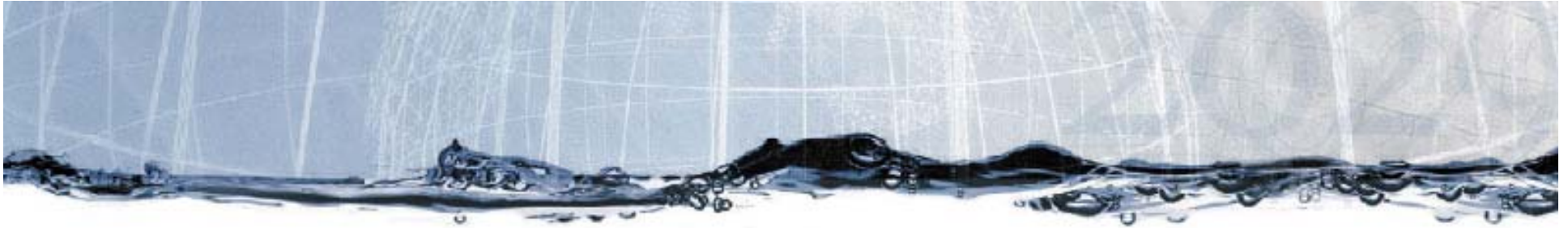
- Interactive media
- Self generated content
- Interactive learning



# Dropping by the Visitor's Center

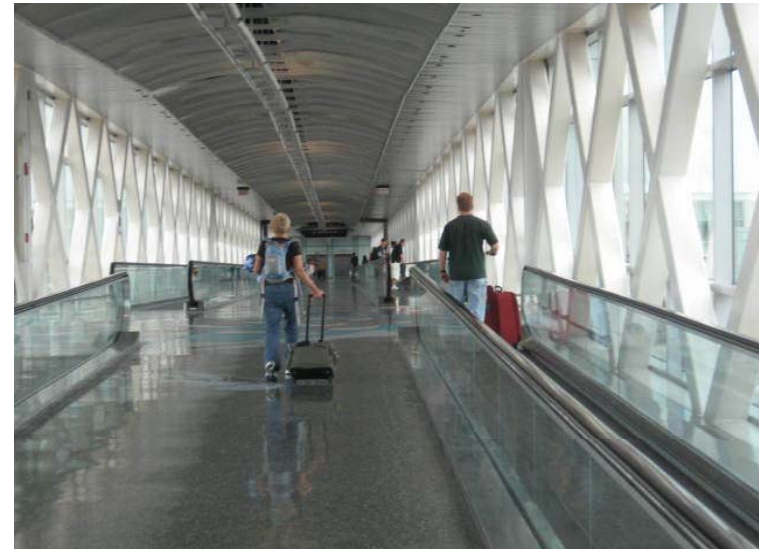
- Explore Virtual Sites
- Visit a Virtual Docent
- Join a Virtual Community
- View Restaurants, Rooms & Rentals
- Make Reservations
- View Webcams

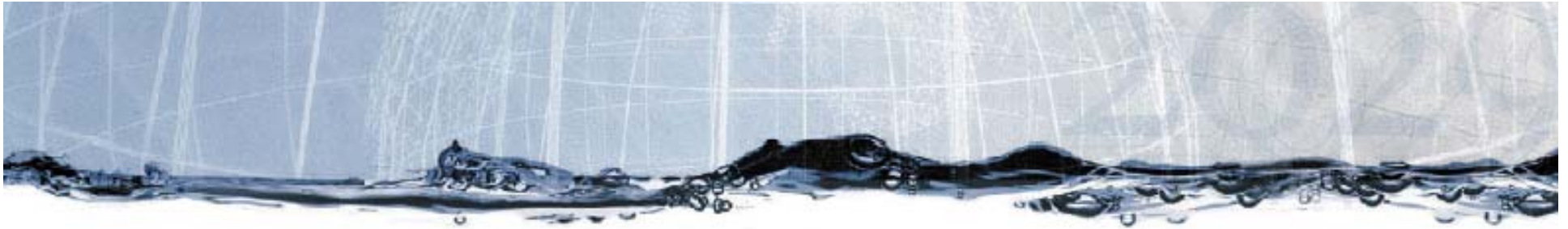




## Arriving in Boston

- GPS Enabled Maps
- GPS Enabled Hyperlinks
- Better Visual Displays
- Self Identification

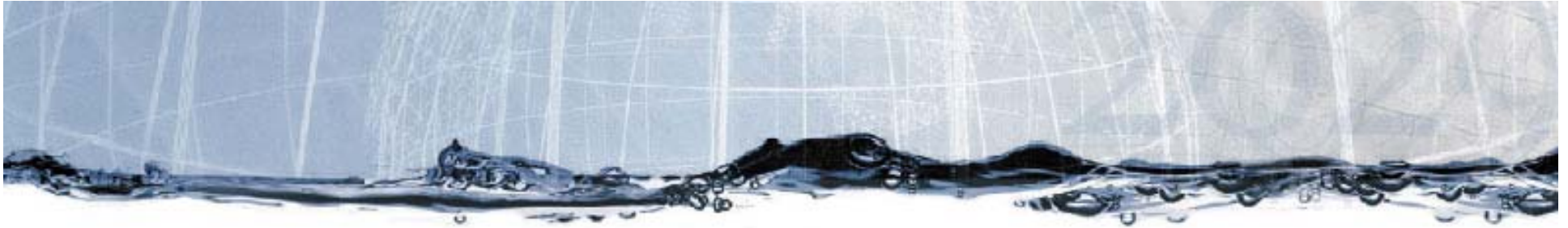




Turn Left for the Harbor  
Express Shuttle

Welcome Mr. Bettles!  
Your Rental Car is this Way

Click Here to Explore the  
Massachusetts Cultural Coast

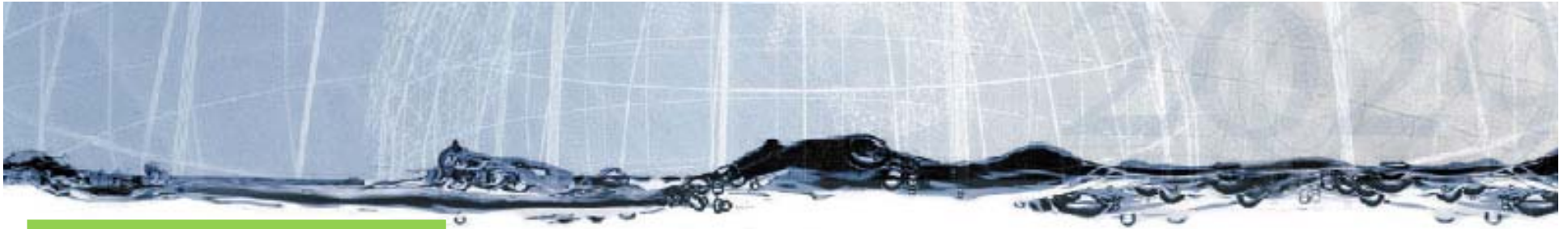


## At the Site

### Blending Digital & Physical

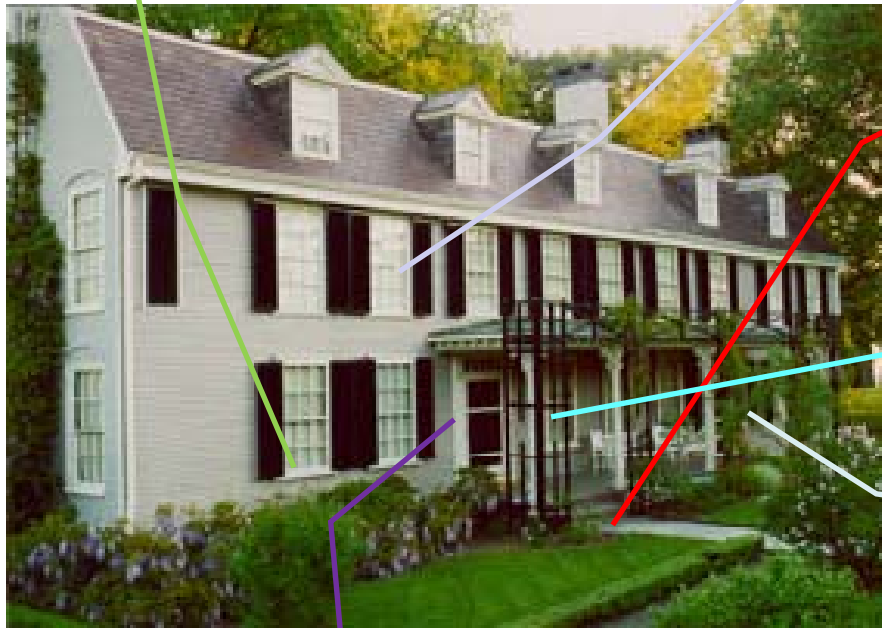
- Collaborative Tours
- Virtual Kiosks
- Interactive Tours
- Serious Games
- Virtual Souvenirs





See a virtual recreation of the house during John Adams time

Take the Adams family quiz to unlock the Gilbert Stuart portrait of John Adams

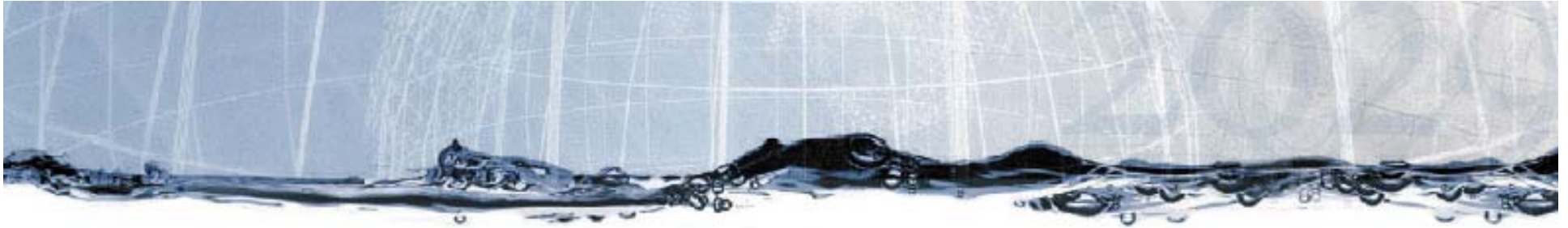


Your Park: Upload a Webvideo or Write in Our Virtual Journal

Leave a Question for the Virtual Ranger

Open the Adams Family Picture Album

Invite a friend with streaming video



# National Parks - 2018

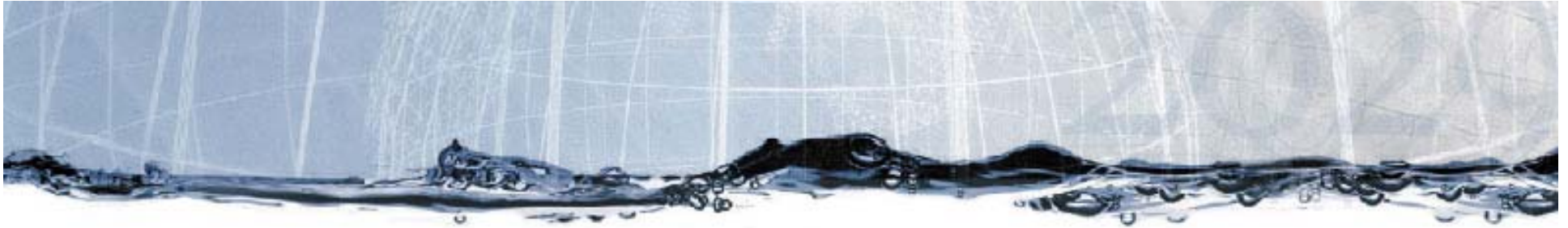
## Technology Changes

- Always online
- Ubiquitous computing
- Physical hyperlinks



## Capture Their Imagination

- Interactive media
- Self generated content
- Interactive learning



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Institute for Alternative Futures

