Augmented Reality:
Digital Data *in* and **on** the Real World

Why am I here?

- Consultant/analyst
- Management consulting
  - Strategy
  - Partnerships
- Market research
- Market development
- Technology scouting and transfer

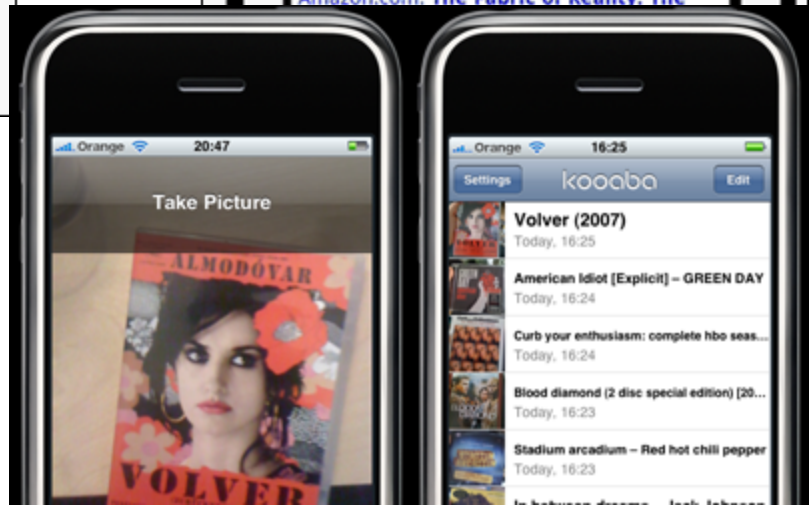
- 1991
  Personal multimedia
- 2004
  Mobile multimedia
- 2006
  Mobile Augmented Reality
- 2011
  “Things of Interest”

Topics

- What is AR?
- What are the use cases?
- Obstacles to growth
- Future directions

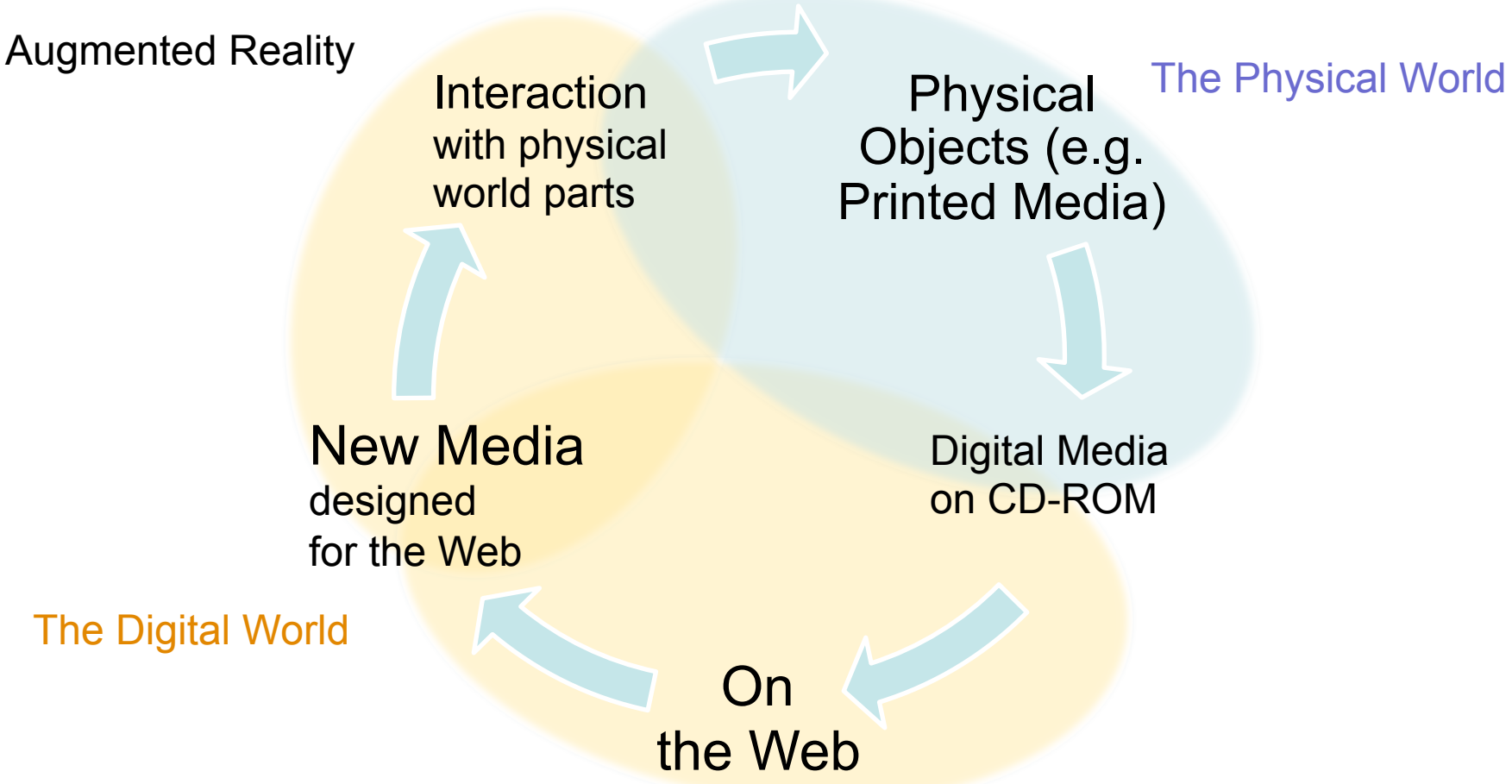
Often confused with Visual Search

- Google Go
- Nokia Poi
- kooaba Int
- Ricoh iCandy (iPhone)

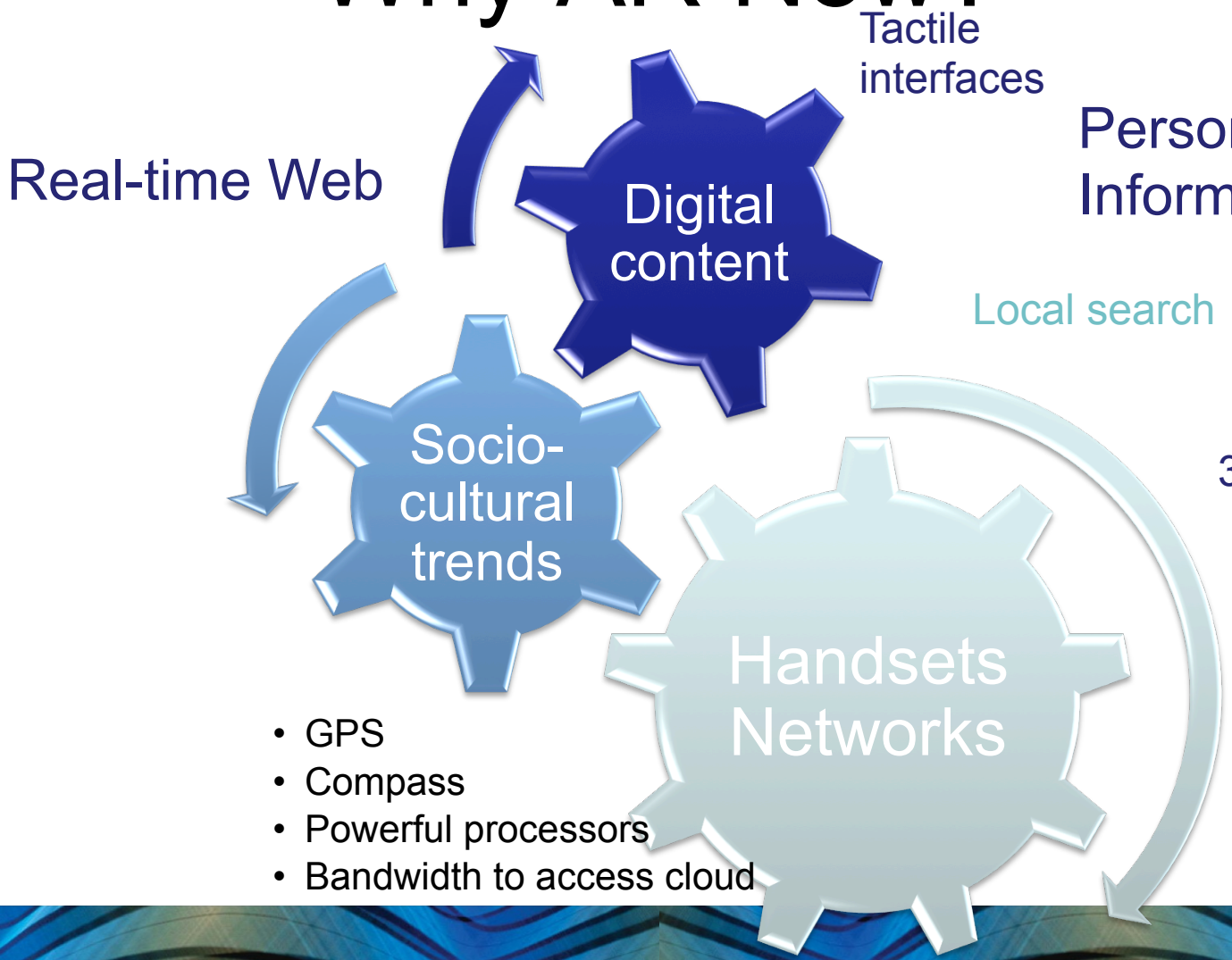


Mont Blanc
Geneva
Thonon-les-Bains
Lake Geneva
Arriving in Montreux in 15 min
Overlay (Text, images, graphics, 3D objects) on the real world
camera, GPS, compass, accelerometer, microphone

AR Continues what the Internet Began



Why AR Now?



- GPS
- Compass
- Powerful processors
- Bandwidth to access cloud

Classifications of AR

Industrial AR

Desktop AR

Mobile AR

Professional Applications

Enterprise Applications

Consumer Applications

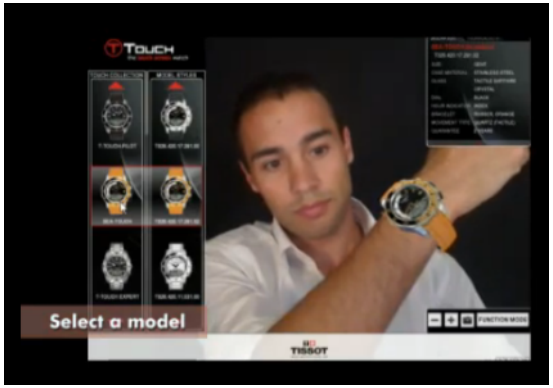
Augmented Reality Applications

Finding your way

Acrossair Nearest Tube application for iPhones
http://www.youtube.com/watch?v=U2uH-jrsSxs

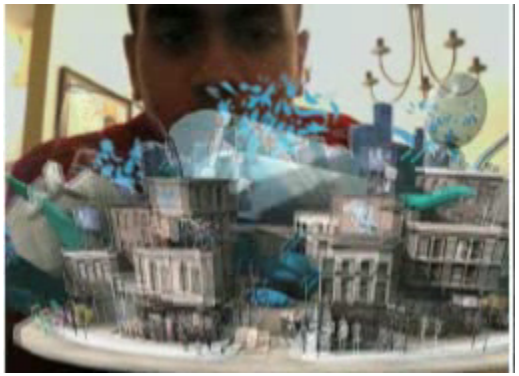
IBM Seer application for Android
Note that live tweets are embedded in the pop-up screen
http://www.youtube.com/IBMScout#p/a/u/2/BMLgHGV4zWM

Retail Shopper



Tissot Watch
campaign on High Street in GQ and T3
http://www.youtube.com/watch?v=sM70yME1OLk&

Hostage Wear
http://site.layar.com/company/blog/layer-of-the-week-shop-till-you-drop-in-the-new-hostage-virtual-shopping-layer



Adidas Neighborhood
http://www.adidas.com/campaigns/originals_ss10/content/microsites/neighborhood/default.aspx

Entertainment/Game applications

Sosro (Indonesia)

DNP Japan
http://augmentedblog.wordpress.com/2010/04/09/metaio-and-dnp-japan-develop-first-augmented-reality-iphone-app-for-the-collectible-card-market/

Acrossair Virus killer 360
http://www.youtube.com/watch?v=qssUKAVN2kI

Coke Zero and Avatar
http://www.youtube.com/watch?v=APQ2OxgCNzE

Automotive/Aerospace

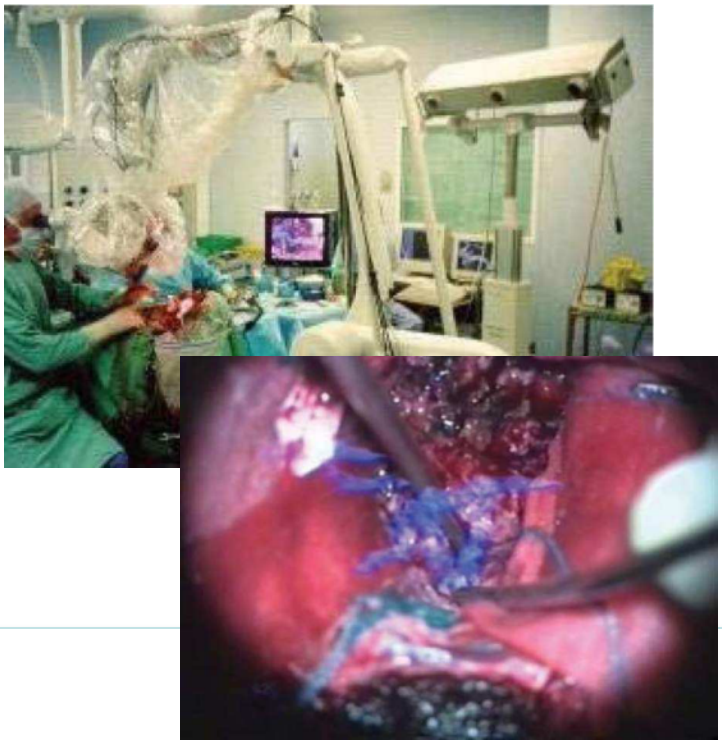
BMW interface for the car

Boeing, Airbus and others in aviation use Augmented Reality for design, manufacturing, repair/maintenance and training.

General Motors and Carnegie Mellon University

Medical/Healthcare

http://www.readwriteweb.com/archives/how_augmented_reality_helps_doctors_save_lives.php



Above, operating room with the MAGI system. Below, enhanced view perceived by the surgeon with overlaid virtual anatomical structure in blue.
Source: Edwards et al. Guy's Hospital, London

Design/Architecture

Novartis campus and the river
Urban Design and Planning Department
of Basel-Stadt and LifeClipper project
http://www.lifeclipper.net/EN/general2.html

Digital Marketing Suite
http://www.seac02.it/

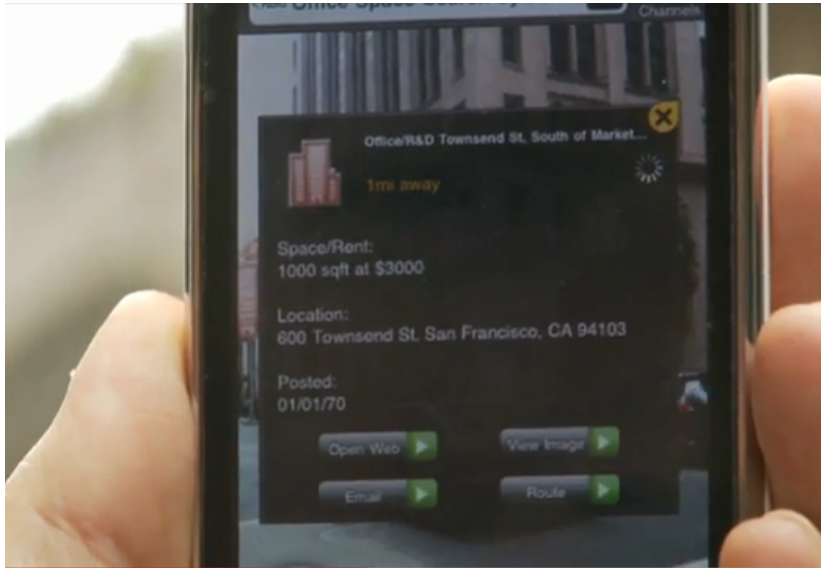
iLiving application for furniture
http://www.metaio.com/iliving/
http://www.youtube.com/watch?v=pM_tXqH-vVM

Banking

ING ATM finder (SPRX mobile)

http://www.sprxmobile.com/ing-launches-augmented-reality-atm-finder-on-android/

Real Estate



Metaio, HotPads, Rofo

http://www.youtube.com/watch?v=zctcPrQ4h-g

Funda and Layar

http://www.youtube.com/watch?v=b64_16K2e08

Defense

ARMAR , Marine Corps
Steven Feiner, Steve Henderson at Columbia University
http://www.youtube.com/watch?v=LaJxNw4-GXo

Glass Turret Visualization of mine fields
Pathfinder Systems

Public Sector

Emergency response systems:

- fire fighting
- police
- natural disaster recovery

Public utilities (energy, water) using AR to aid with infrastructure deployment and maintenance

Bay Area Rapid Transit and metaio
Many others (e.g., Tokyo, Portland's Transit Agency)

Other industries

- Learning and Training (Education)
- Tourism/Visitor virtual tours
- Urban planning

All industries?

Print/Publishing

Dragonology published by Templar
http://www.youtube.com/watch?v=hv3d0wnSWLg

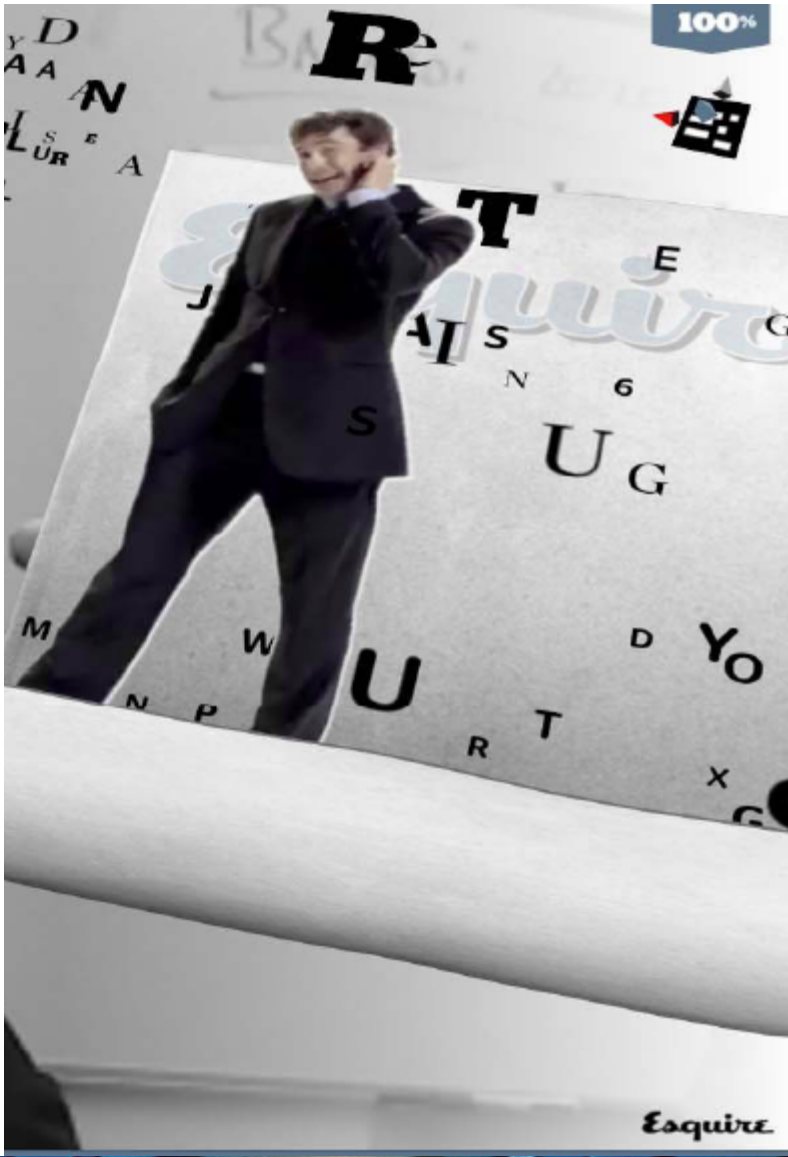
How to books
HIT Lab New Zealand

Augmented (3D) Atlas metaio

Esquire Augmented Reality issue
http://www.youtube.com/watch?v=LGwHQwgBzSI

Breathing new life

- “Magic books” using AR with a webcam or camera phone and printed paper
  - Templar Dragonology
  - 3D Atlas
- Interactive magazines
  - Popular Science
  - Esquire magazine
  - InStyle
  - Others



Marketing for publishers and brands

- Help customers and prospects find and purchase CDs, Books and DVDs using natural feature recognition (visual search)

Unlocking 3D from the Page

Shape recognition for individual elements on page

Moving the shape off the page. Example – Include a washable tattoo or sticker with book

Background images from *Shape Recognition and Pose Estimation for Mobile Augmented Reality*, The HIT Lab NZ

Workflow

Using a mobile phone with a camera:

1. User opens the application and the book
2. Snaps or scans a photo of the page
3. Receives the enriched materials on the display of the phone or can hear the book being read

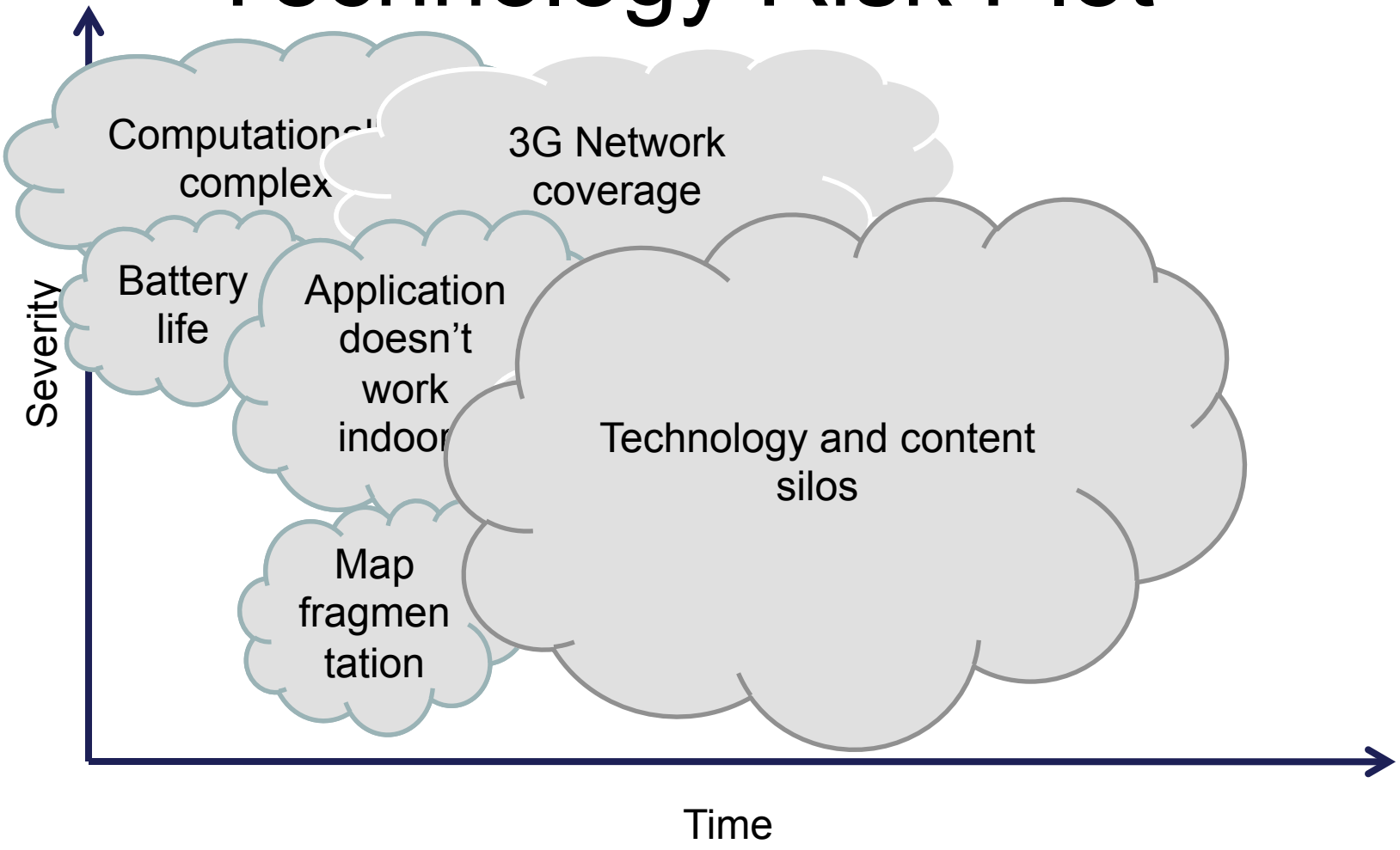
Not eReader or eBook

- It’s not a different version of the same work
- Its new content, uniquely designed to be used in combination with the existing printed page

Obstacles to Growth of Augmented Reality

Categories of Obstacles

Technology Risk Plot



The Role of Standards

- Lowering “friction” between content publishers and users
- Interoperable platforms and apps
- Increasing the speed of development
  - Content
  - platforms
- Lowering the cost

New Directions in Augmented Reality

Eyewear for mobile AR

Augmented Reality:
Continuing what the Internet Began

Reality
Improved

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