



maxim
integrated™

Sensor technologies leading a convergence of human interface and product differentiation

Ian Olsen, Executive Director, Optical Sensors
Business

Cell Phone Darwinism:



Social Connection
“The Cigarette”

Sensors:

Optical – One’s Eyes

Tactile – Fingers

Audio – Mouth

Talking



Social Connection
“The Cell Phone”

Sensors:

Optical – One’s Eyes

Tactile – Phone in hand

Audio – Phone

Calling



Social Connection
“The Smart Phone”

Sensors:

Optical – Camera

Tactile – Touch Screen

Audio – Music/Phone

Text.mailing

The Growth Engine:



Apps Drive Technology and Sales:



Mobilewalla breaks down the four mobile marketplaces:

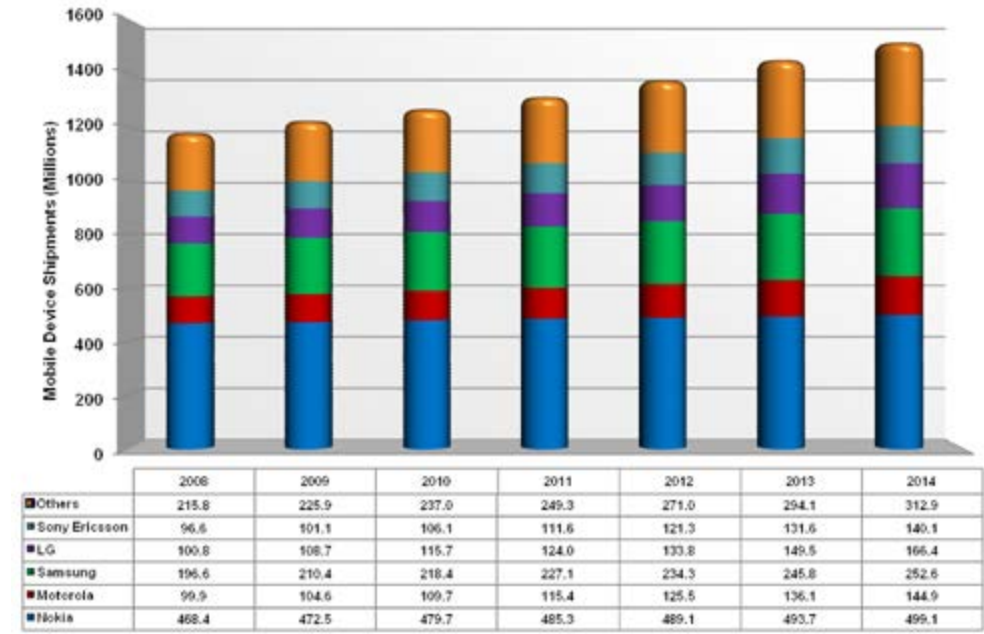
- Apple – 590,138 (59.95%)
- Android – 320,315 (32.54%)
- BlackBerry – 43,544 (4.42%)
- Windows – 35,479 (3.60%)

Sensors Drive Apps and Sales:



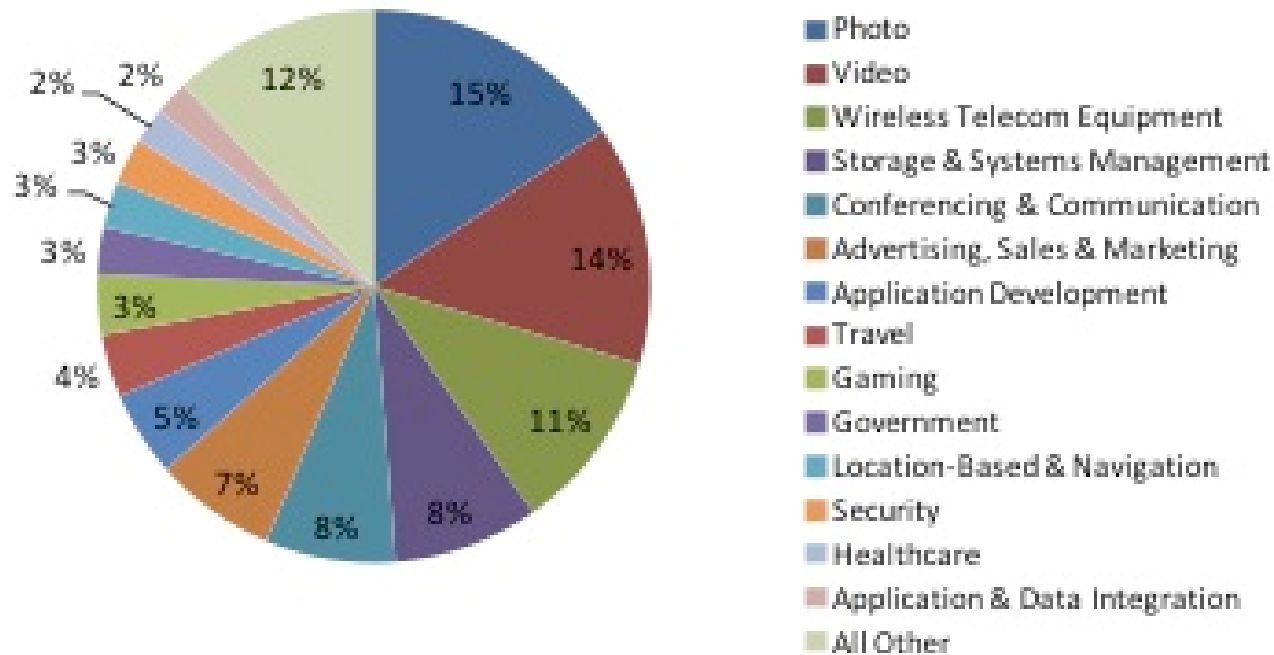
Mobile Phone Market: Continues to grow

- Driven mainly by ubiquitous low cost carrier service
- The dominant Smart Phone driver has been mainly apps
- Apps driven by human interface and sensory awareness
- Sensors enabled by process and technology



Investors Fuel the Apps Dev:

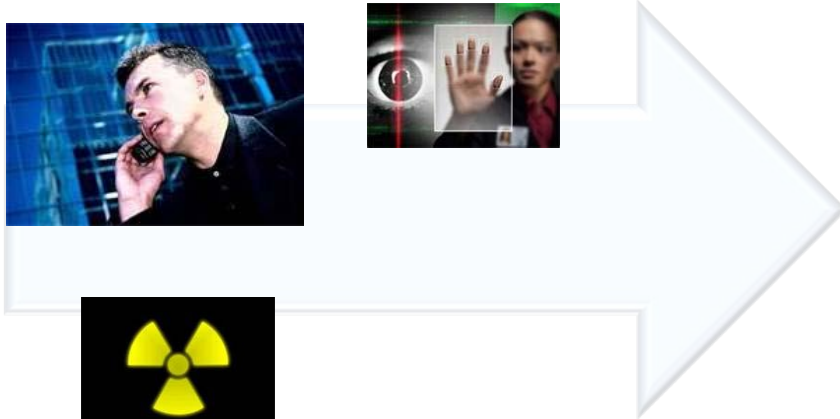
VC Investment (\$) in Mobile & Telecom by Sub-Industry, Q2 2012



The Enabler:



The Human Interface



Sensors

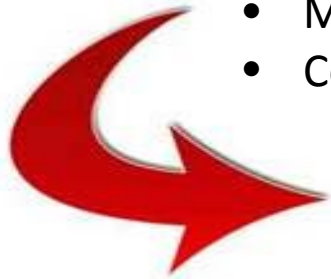


The Environmental Interface



Evolution of the Human Interface:

- Messenger
- Mail
- Telephone
- Video
- Multimedia (Peak)
- Contextual Motion / Text-email

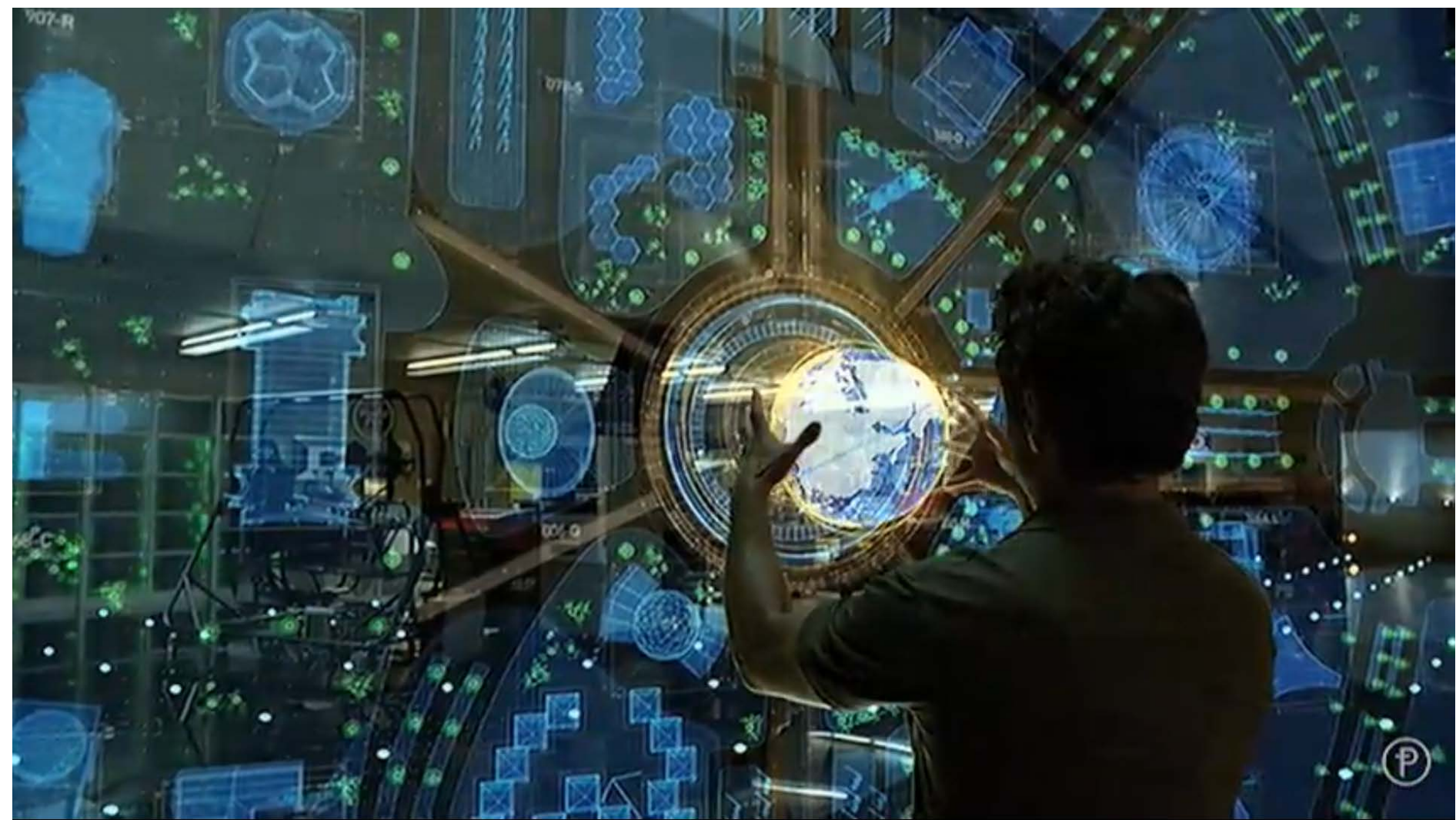


Immersion Media

User interacts with the content
User becomes part of the media
User is immersed in the media

Sensor collaboration and matrixing

Immersion Experience:



Evolution of the Environmental Interface:

- Finger/Nose/Ear/Eye
- Thermometer/telescope /compass
- Barometer/Altimeter
- Geiger counter/Dosimeters
- Blood Pressure/Heart Rate/Glucose/CO₂/NO_x/etc
- UV/IR/Ambient light/Color Temperature/etc



Environmental Awareness

Users become in touch with their physiology

User become in touch with the environment

Early Warning & Remote diagnostics

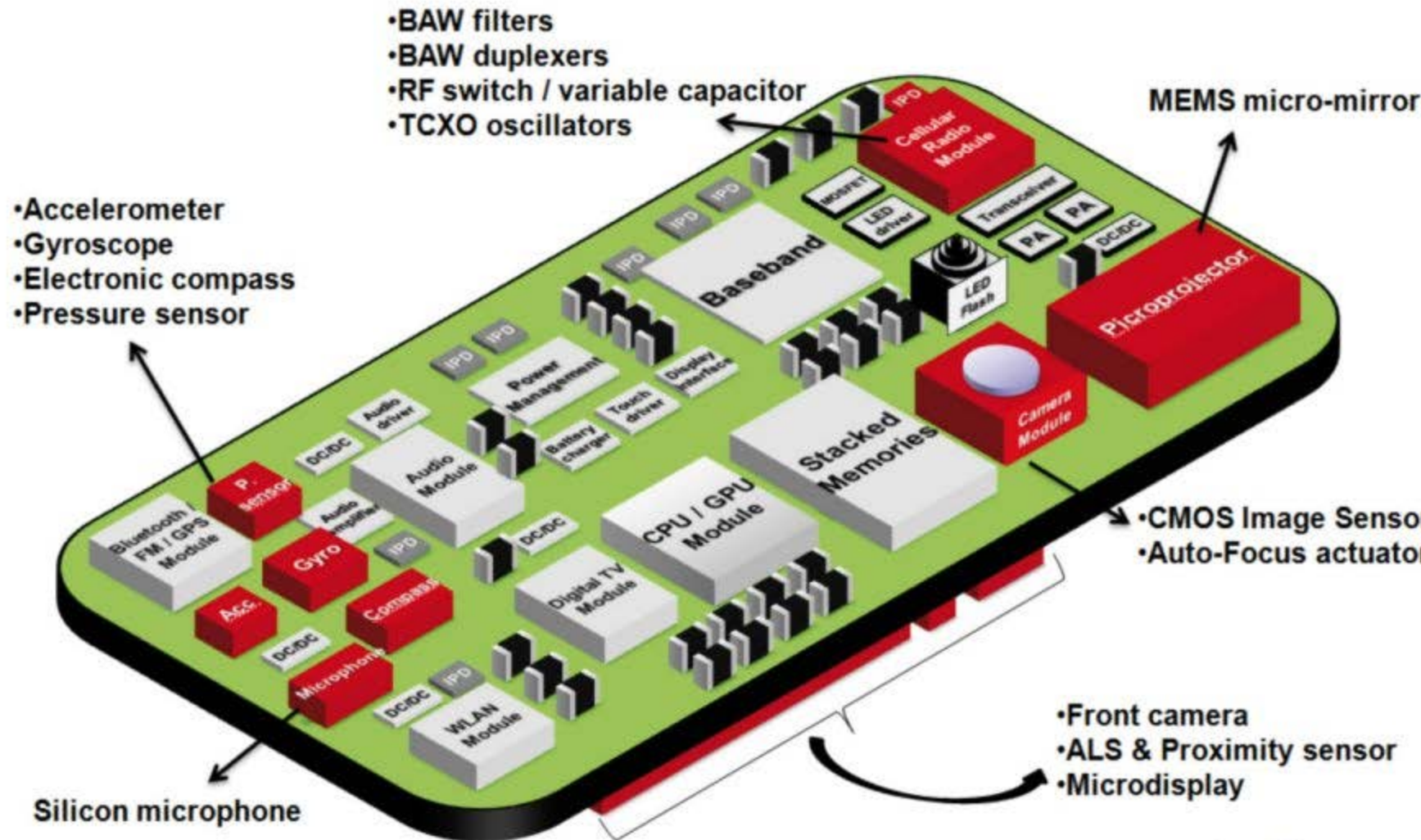
Sensor protecting and diagnosing people

The Sensory Ecosystem:



Simplified view of a smart-phone board

MEMS & Sensors in red (scope of this report)



Are Mobile Devices Stalled?

Need Enabling Hardware



?

Drivers Enabling Apps



?

Drives Market Growth

Game developer Rovio has announced that Angry Birds, the game which was propelled into stardom by mobile platforms such as Android and iOS, has been downloaded more than 500 million times, making it the most downloaded game in history.

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No – We are at the a unique inflection point

Sensor Collaboration

Data integration
Functional enhancement
Collective computation

3D Display

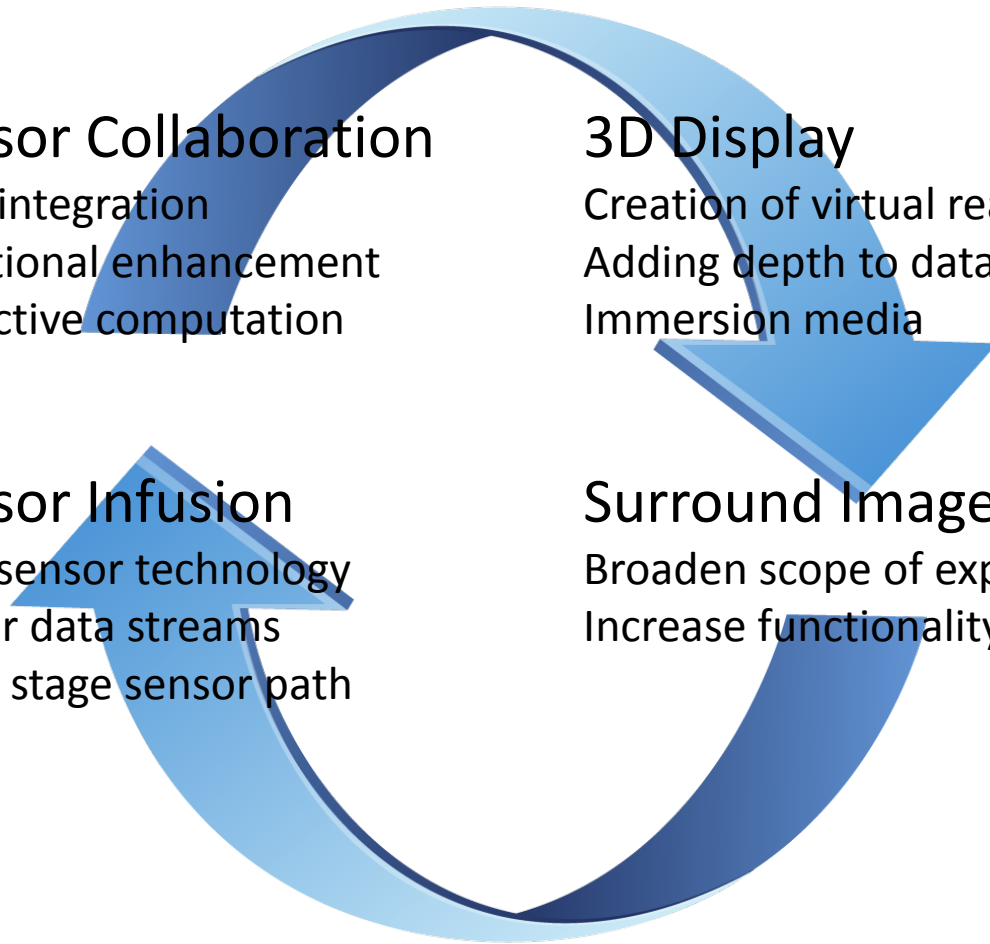
Creation of virtual reality
Adding depth to data and media
Immersion media

Sensor Infusion

New sensor technology
Richer data streams
Multi stage sensor path

Surround Images and sound

Broaden scope of experience
Increase functionality by multi object View



The Mastermind: Gene Roddenberry?



= ?