

Wearables in the Wild



Exploring and Exploiting new Opportunities for
Great Mobile User Experiences

- Should we believe in the hype about wearables?
- How will they change the way we consume and interact with information and services?
- How can we leverage wearables to create greater mobile user experiences?
(hint: it's all about context)



Kasper Løvborg Jensen



Chief Wizard, Founder
Leafcastle Labs



MSc Engineering, Informatics
Multi-Agent Systems



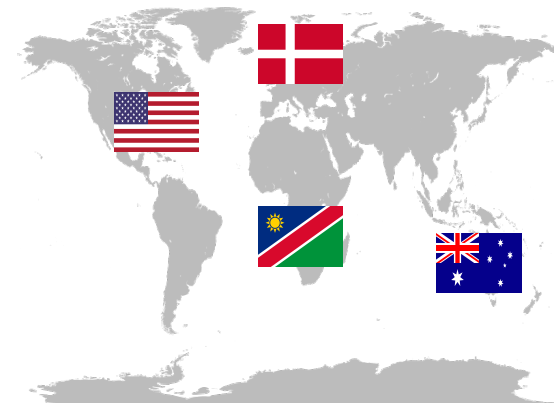
PhD Electronic Engineering:
Mobile Human-Computer Interaction,
Sensors & Context-Awareness

Software Engineer, Consultant,
Researcher, Academic, Entrepreneur,
“Interaction Designer”



✉ kasper@leafcastlelabs.com

🐦 [kasperlj](https://twitter.com/kasperlj)



Kasper Løvborg Jensen
Leafcastle Labs



Leafcastle Labs

We create world changing mobile innovations
and help others do the same

www.leafcastlelabs.com



Kasper Løvborg Jensen
Leafcastle Labs

What we do



Client projects



Partner projects



Own projects



Trainings and workshops



What we do



Skiltr



In My Steps



SAIS/InfoDev Mobile Hackathon in Namibia



Kasper Løvborg Jensen
Leafcastle Labs

Different Perspectives on UX

- Business
 - Product: what do the users want?
- Developer
 - Technical: what is possible?
- Interaction Designer
 - Practical: how can we do it?
- Academic
 - Theoretical: why?



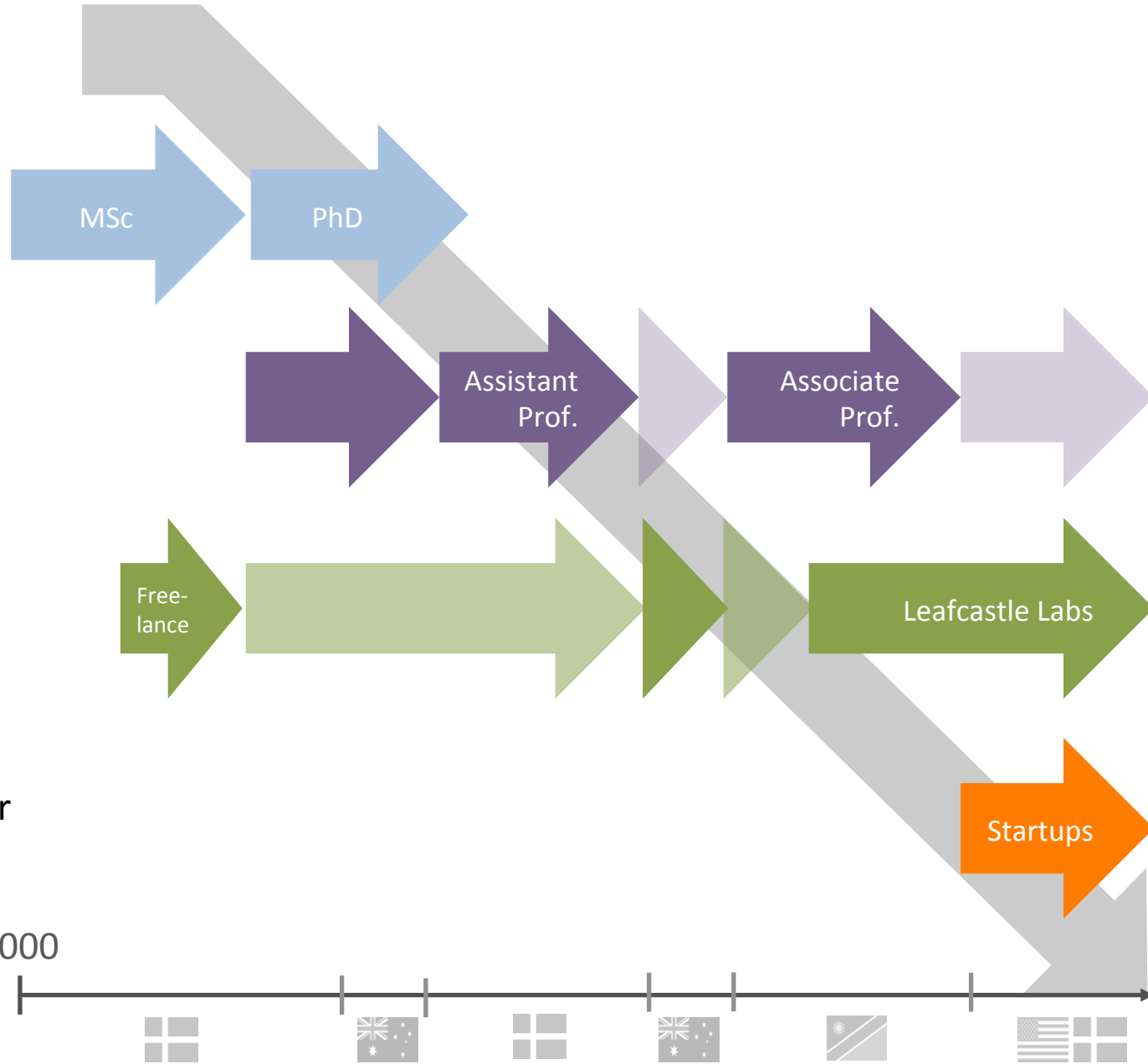
Interaction designer

Student

Academic/
researcher

Software
developer

Entrepreneur



So, who are you? 😊

- Developers, designers, managers, ...?
- Your experience with:
 - Health trackers/fitness bands?
 - SmartWatches?
 - “SmartGlasses” (Google Glass)?
- Your expectations for this talk?



Outline

- What wearables are and where they fit in
- What context is and how to leverage it
- Towards great mobile user experiences
 - Designing for watches and glasses
 - Using context
 - Using speech
- Practical take home points



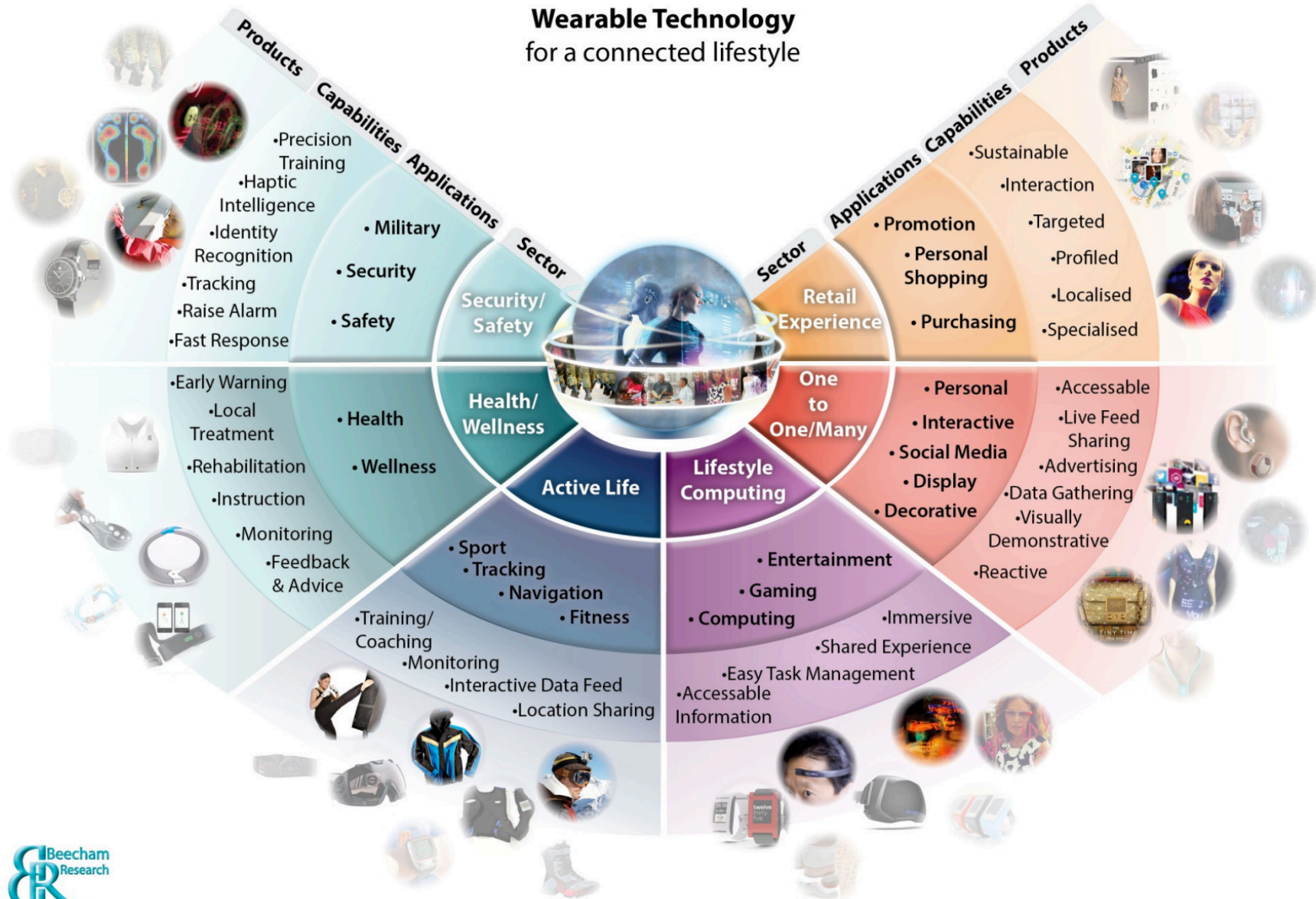
Wearables?



Source: Mimo Baby Monitor



Wearable Technology for a connected lifestyle



Source: Beecham Research



Kasper Løvborg Jensen
Leafcastle Labs

Wearables are NOT new



Who is it for?



From hardcore techies to... everybody?



What has changed?

- Technology
 - Improvement and miniaturization of HW
 - Wireless networks
 - Mobile SW Platforms opening up to developers
 - SDKs and APIs
 - Cloud
- Consumers
 - Smartphone boom
 - Social networks
 - Always on culture
- Business ecosystem
 - Easy distribution and market access



Focus for this talk

Wearables that:

- Are designed to be **worn**
- Allow **user interaction**
- Allow developers to create, deploy and **run software**





Source: Samsung, LG, Pebble, Google, Motorola, Sony, Apple, Recon Instruments, Fitbit, Microsoft, Asus, Epson



Apple WATCH EDITION



blocks
your device. your way.



Source: Apple, Blocks

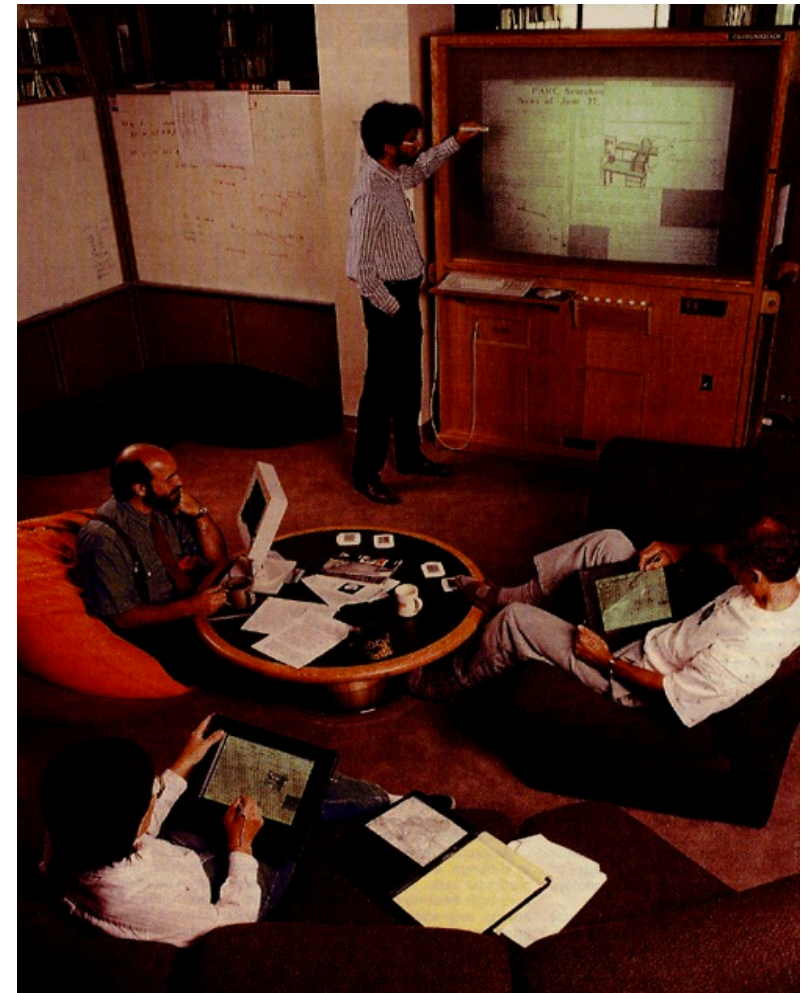


Kasper Løvborg Jensen
Leafcastle Labs

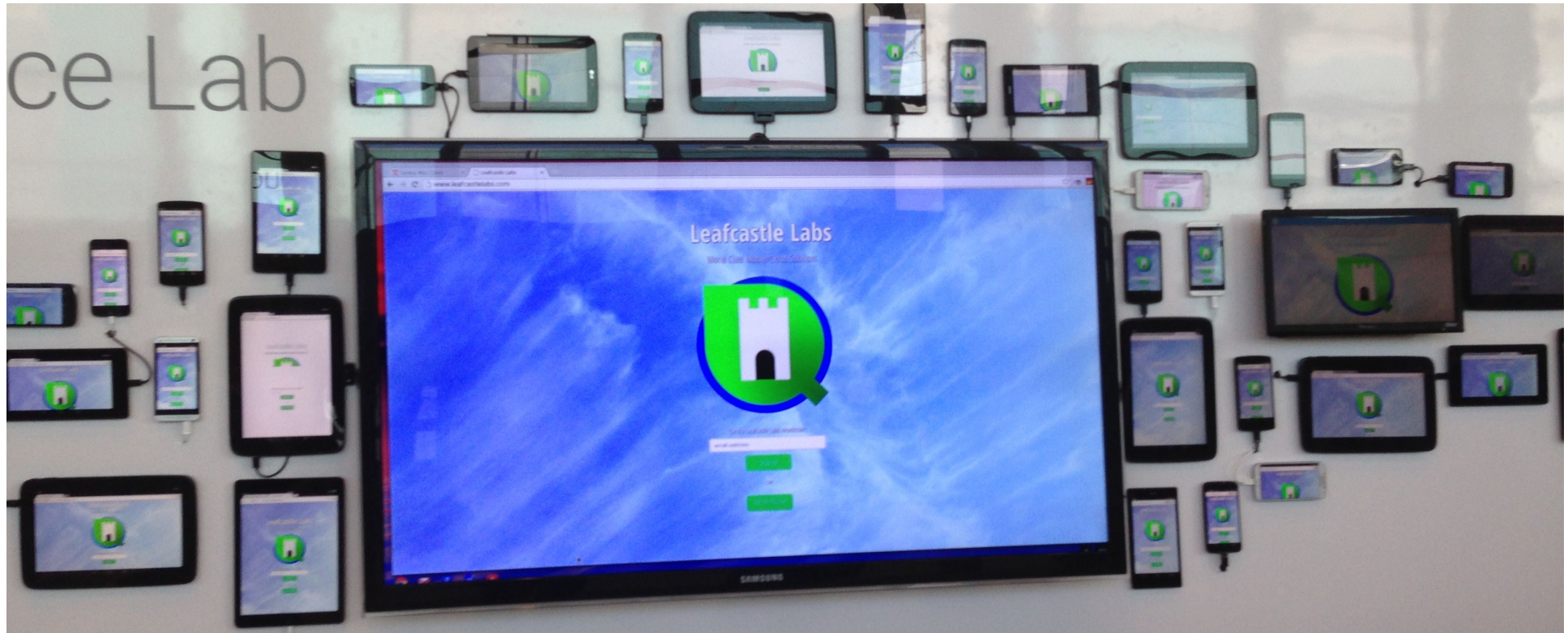
Ubiquitous Computing



Mark Weiser, Xerox PARC
“invisible computing”
“calm computing”



The Ecosystem

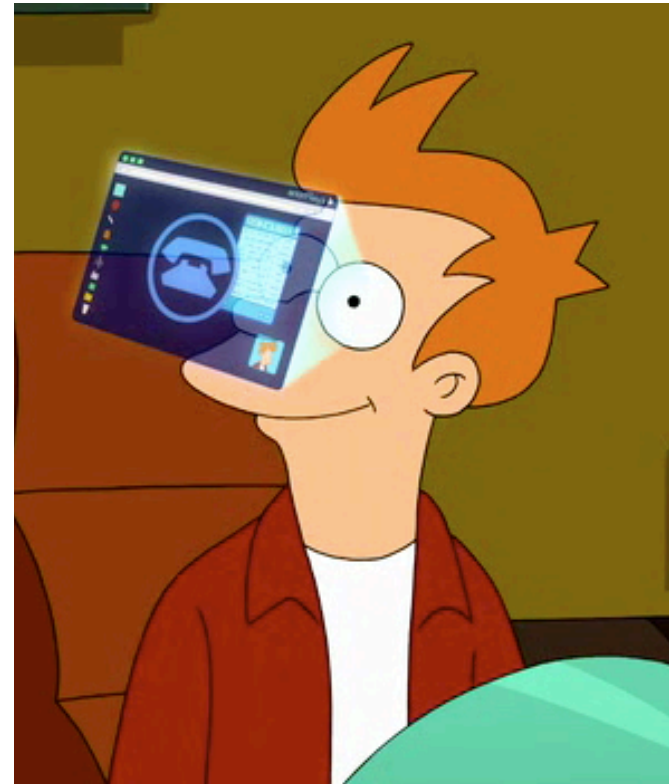


- We cannot look at wearables alone as they are part of our ever evolving computing ecosystem



Scale of “Intimacy” for Devices

- Stationary
- Transportable
- Mobile
- Wearable
- Augmentable
- Implantable



Source: Futurama



\$

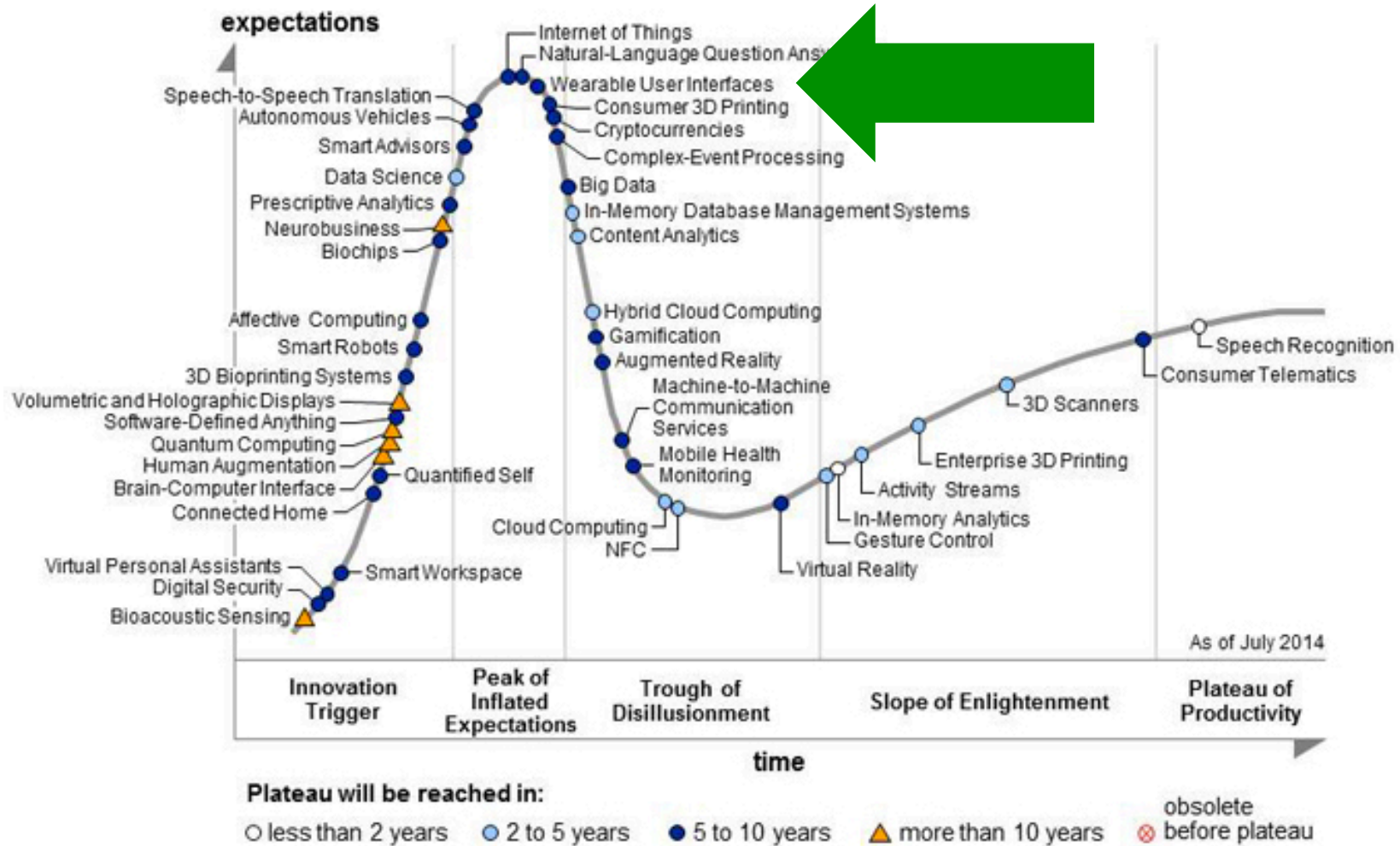


Business Perspective

- Will wearables see the same adoption boom as smartphones?
- What are the key market drivers?
- Is it worth it for our company to get into wearables at this point?
- Is it worth it for me to get into wearable development now?



The Hype



Source: Gartner (August 2014)



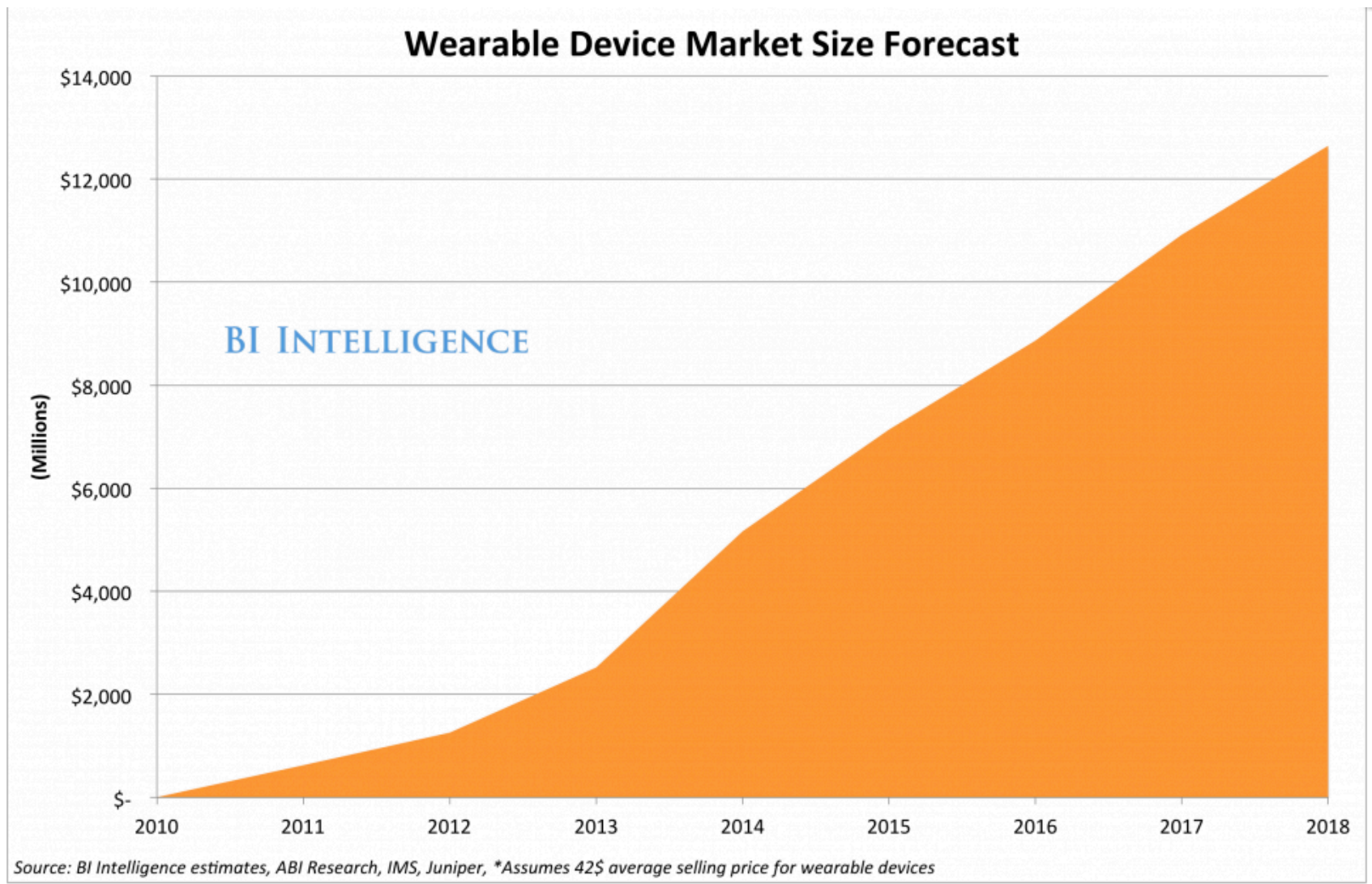
Everybody is Guessing

“According to IMS Research, the wearables market is poised to **grow from 14 million devices shipped in 2011 to as many as 171 million units shipped by 2016**. In a more recent estimate, ABI Research pegs the wearables market at **485 million annual device shipments by 2018**.

We believe this number is too high because of the uncertainty surrounding eyewear and smartwatches. We see **global annual wearable device unit shipments crossing the 100 million milestone in 2014, and reaching 300 million units five years from now.**”

- Business Insider (2013)





BI Intelligence

Source: Business Insider (August 2013)



Some Trends

“...**nine out of the top 10 smartphone vendors** have entered the wearables market to date or are about to ship a first product, while a year ago only two vendors were in that space.”

“By **2015**, Android-Based Smartwatches Will Drop to **\$30 Retail Price** as Chinese OEMs and ODMs Capture the Consumer Mass Market in China and Internationally”

“...by **2016 smartwatches** will comprise about **40 percent** of consumer wristworn devices.”

- Gartner (Sep 2014)



Application Domains

- Military (used for decades)
 - Real-time, mission critical
- Medical / Emergency response
- Enterprise
 - Field work, information heavy, physical environments
- Consumer
 - Health/fitness, education, games, personal productivity



Success will depend on Value

- What are the “killer apps” for watches and glasses?
- Is it enough to extend and augment the mobile experience from the phone?
 - Relaying notifications
 - Making current tasks faster/easier
- Or will it depend on entirely new use cases?



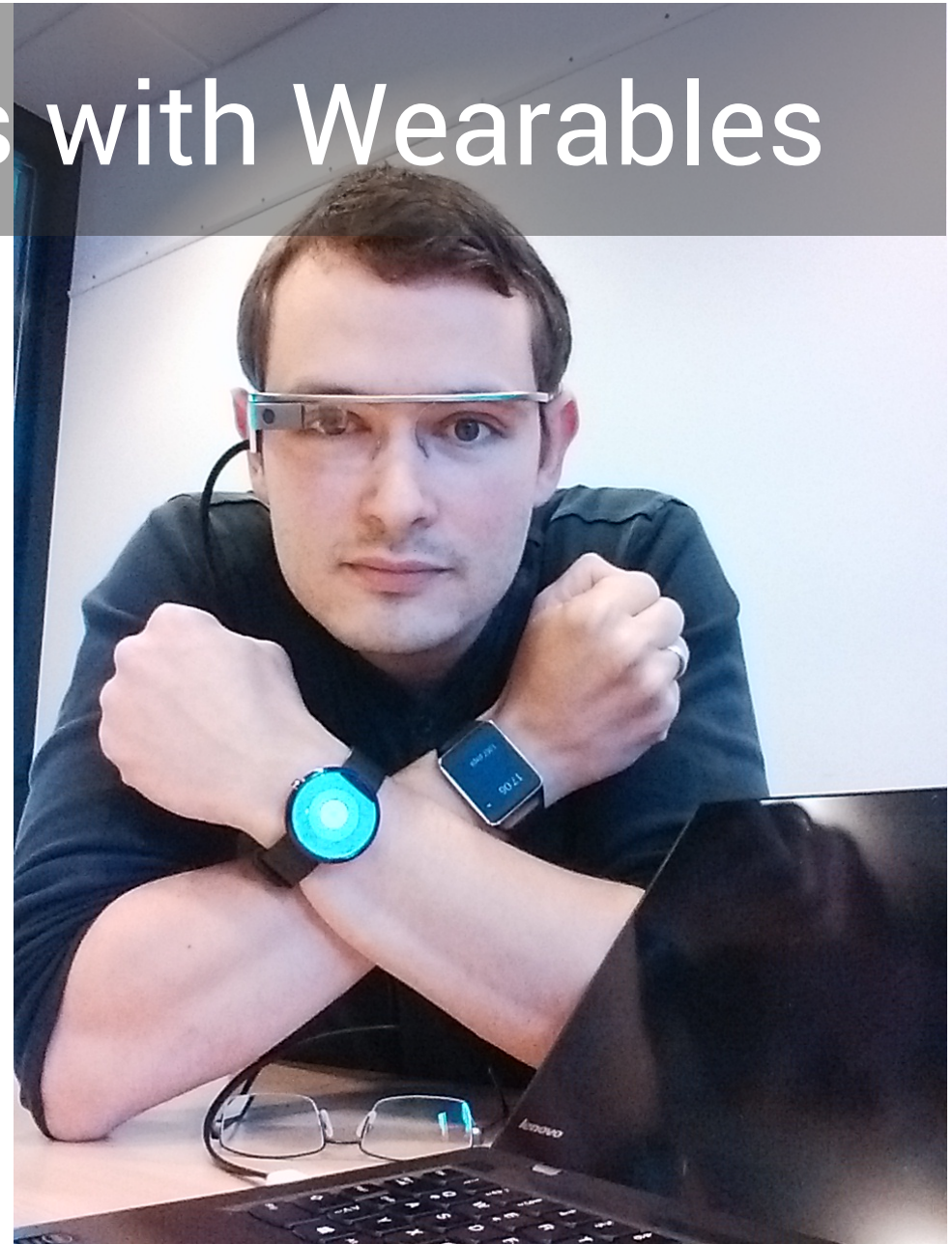
My Experiences with Wearables

ANDROID wear

- Since Google I/O
- Almost every day for 4 months
- Samsung Galaxy Live/
Motorola Moto360

GLASS

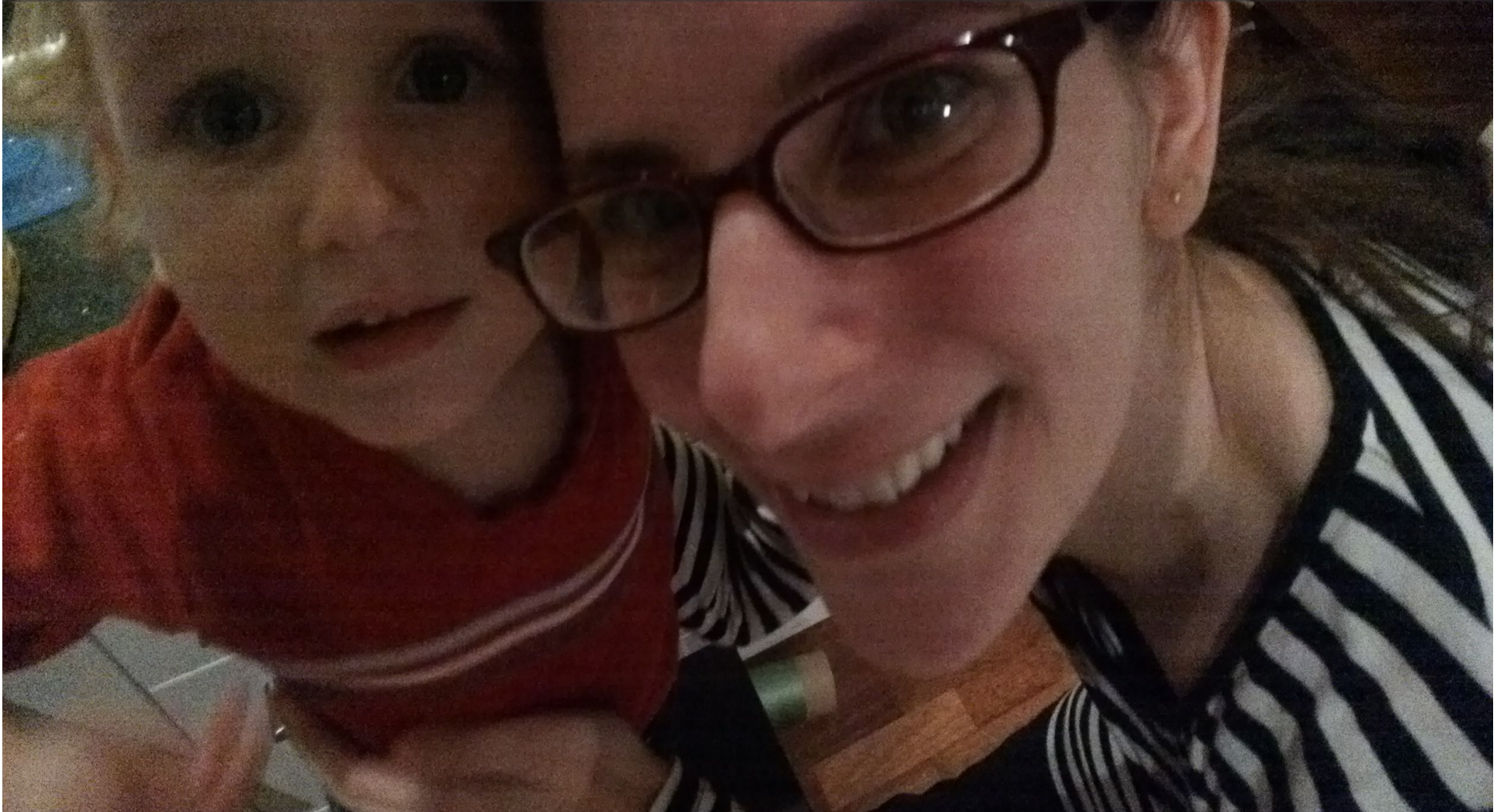
- First time: Google I/O
- Longest continuous
use: 4 days



What is it like to use Wear and Glass?



People take Notice!



Hands Free



Intimate and Personal



1+1=3



Social Implications

- Privacy concerns
 - Don't be a "Glasshole"
- Cyborg look
 - Unusual, alienating at first
- Conversation starter
- Banned in many places



Source: Terminator



Cyberspace vs. Meatspace



Where do you want to live your life?



Towards “new” Mobile Experiences

- More calm experiences where the devices fade into the background
- Better balance between digital and real life
- Focus on immediate content and action
 - then back to real life
- Applications that leverage the strengths of all platforms
 - User “chose” the device that fit the situation
- It is all about context!

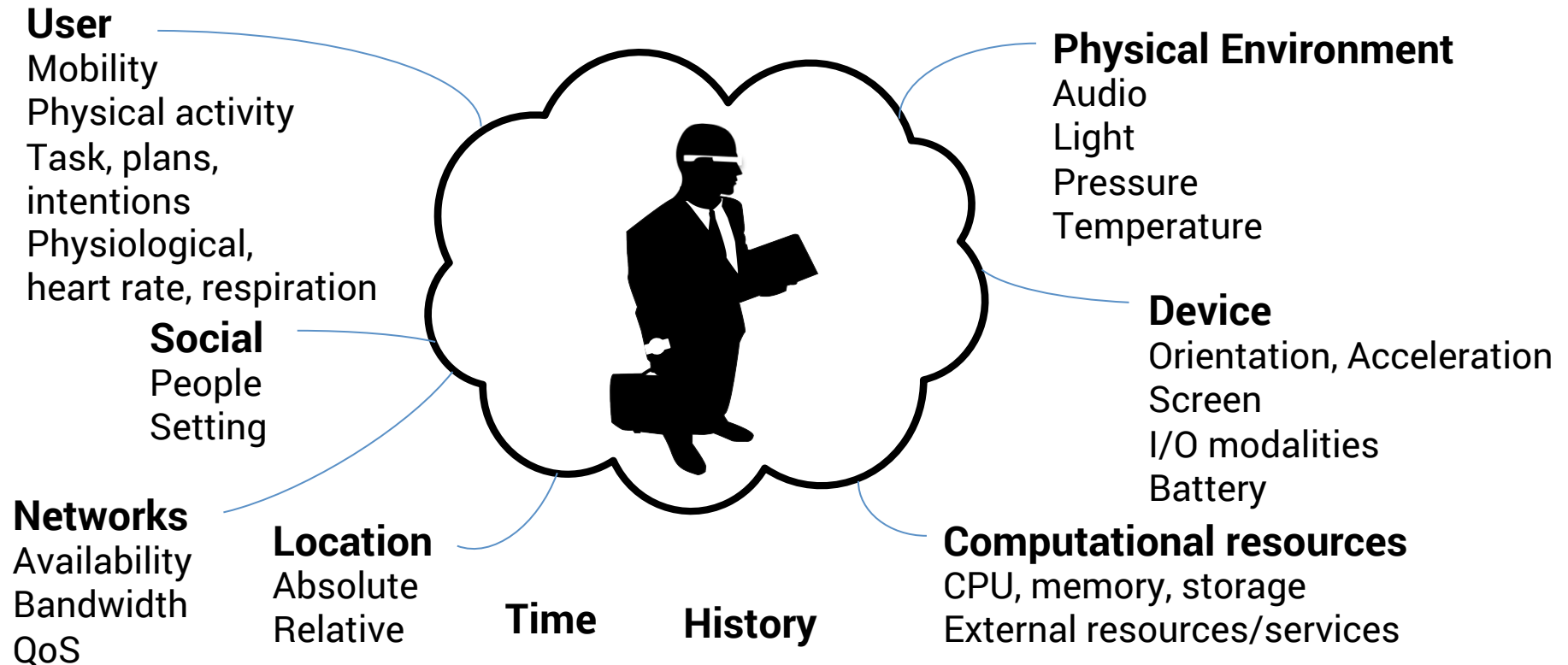


CONTEXT



What it entails and how to leverage it

Interacting in (and with) Context



Source: modified from my PhD Thesis

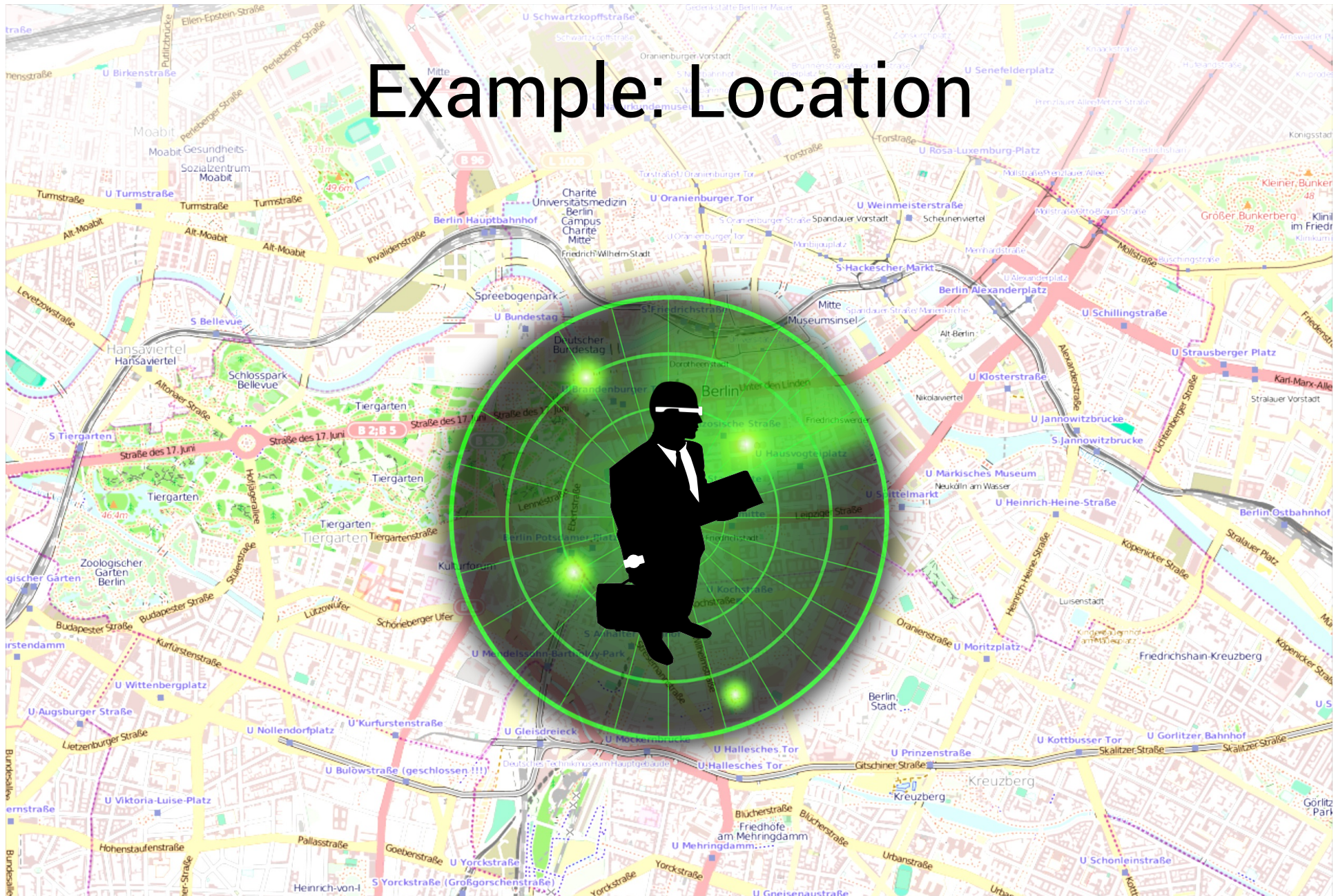


Contextual

- Contextual / context-aware
 - Being clever and using information about the context to drive application behavior
 - Guess what the user would want to see/do
- Think about your app in terms of
 - What is important and relevant?
 - Are there feasible ways to obtain this information?
 - Will it be robust, timely and reliable?



Example: Location



Role of the Phone

- From a developer point of view
 - Phone will often be the hub for context and communication
 - Importance of apps and services
- From a UX point of view:
 - Wearables extends the phone's services and information to the users wrist or glasses
 - OR: Wearable act as a stand alone and have no interaction ties to the phone



Downside of Context-Awareness

- When the context recognition gives you trouble
 - Noise
 - False triggers
- Potentially invasive to the user's privacy
- Needs to be proactive, but impossible to predict everything
 - Tradeoffs
- Individuality of users and use cases
 - One solution will not fit all
 - Specific models perform better
- Expensive to build and train models/recognition engines



Good news everyone!

- A lot is built-in and continuously optimized for the platforms (through Google Play Services)
 - Sensors
 - Activity recognition
 - Speech intents
 - Etc.
- Increasingly powerful APIs will be available
- Cloud infrastructure can do a lot of the heavy lifting



Source: Futurama



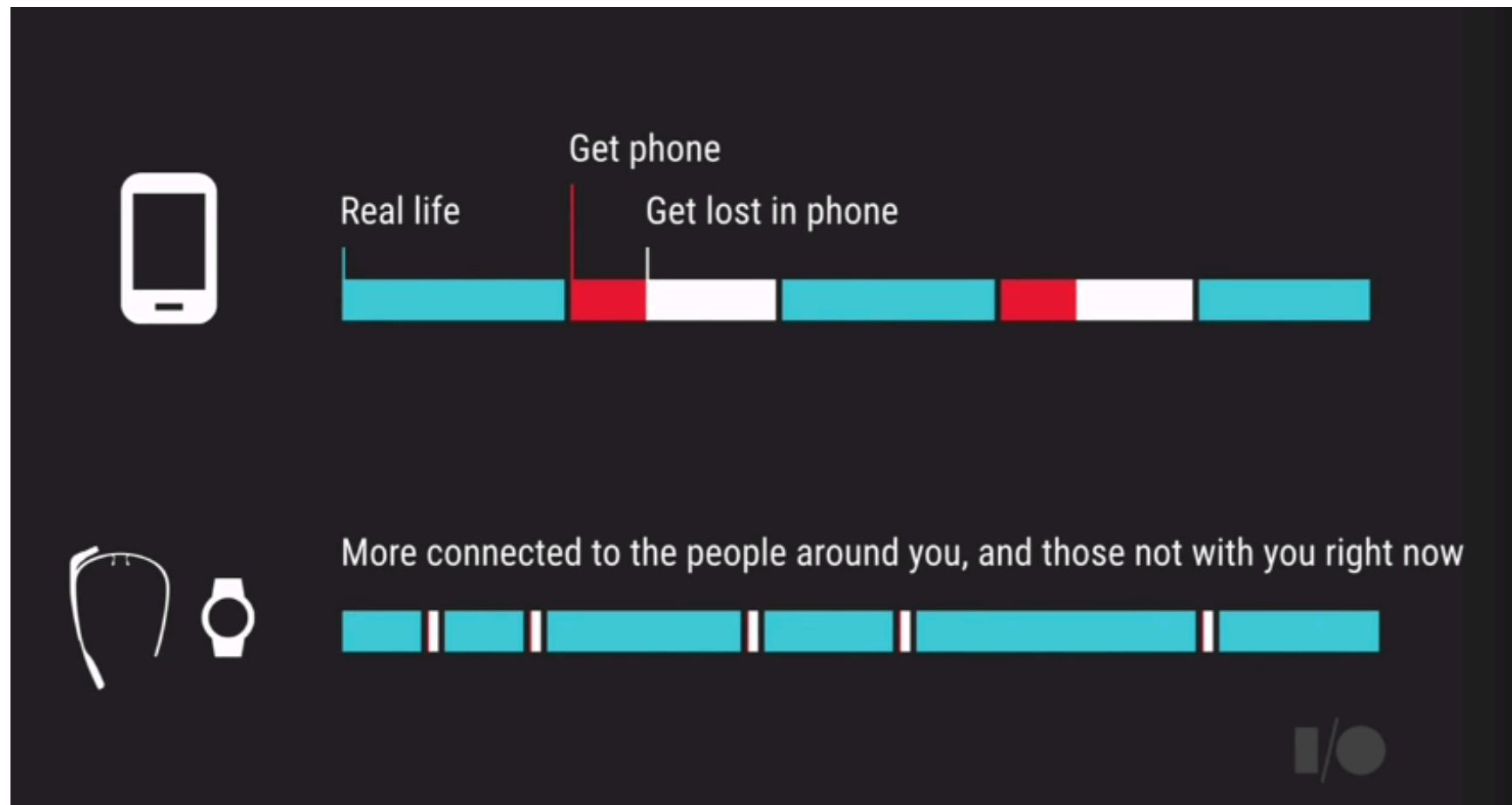
“The World is the Experience”



- Google



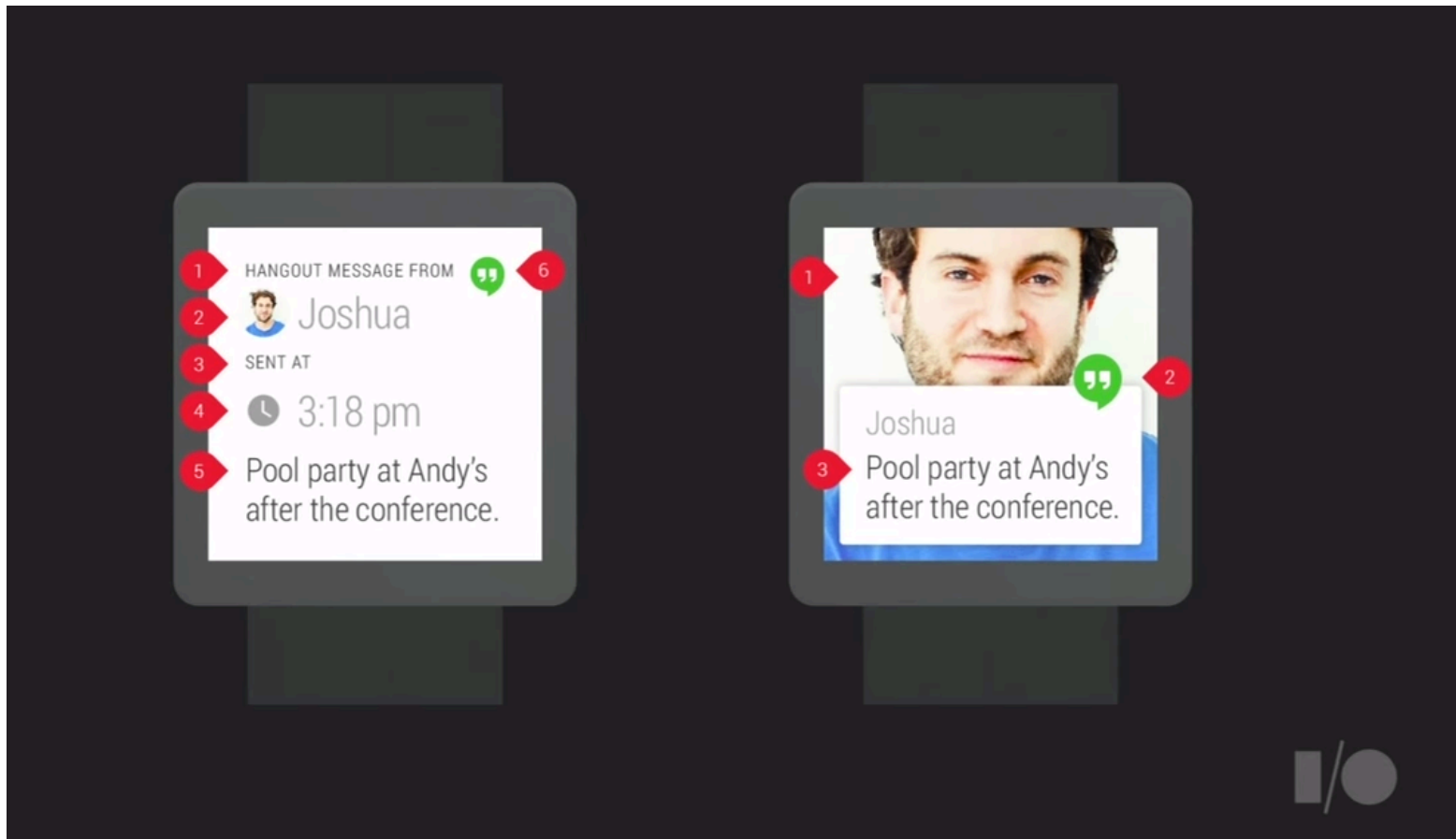
Micro-interactions



Source: Google I/O talk on Wearable Design



Less is More



Source: Google I/O talk on Wearable Design





Source: Google



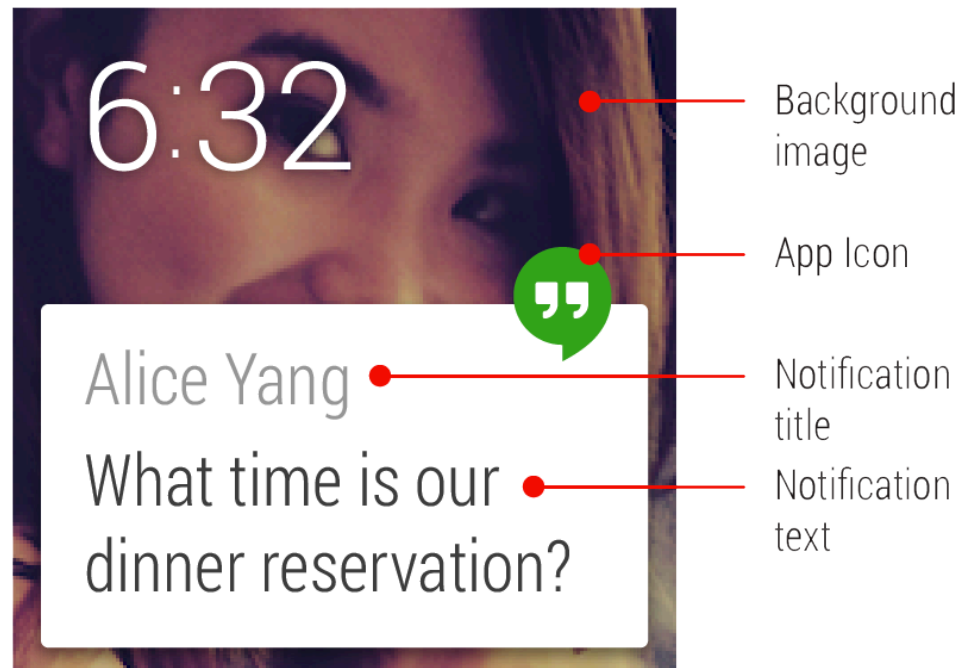


Contextual Stream

Source: Google



Cards



Source: Google



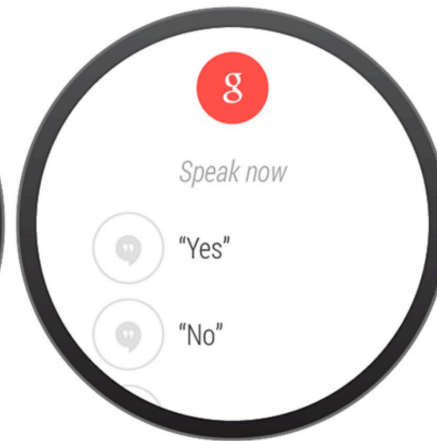
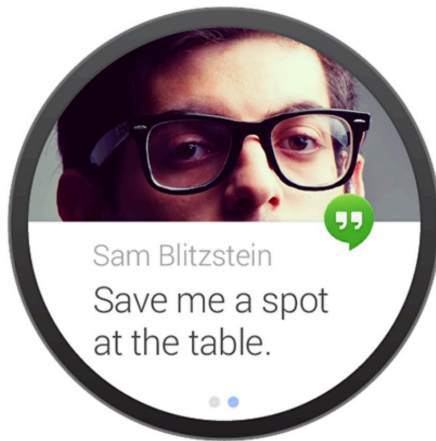
Interaction



- Small form factor (potentially on the move)
 - Use big tap targets
 - Big gesture areas
- Avoid too many screens/cards/swipes

Source: Google, Android Wear Patterns





Source: Google





Source: Google



Contextual Timeline



Source: Google



Interacting with Glass

- Gestures
 - Look up to activate
 - Move head up and down to scroll list
 - Blink to take a picture
- Voice/speech
- Touchpad on side



Notifications

- Pops up in Timeline

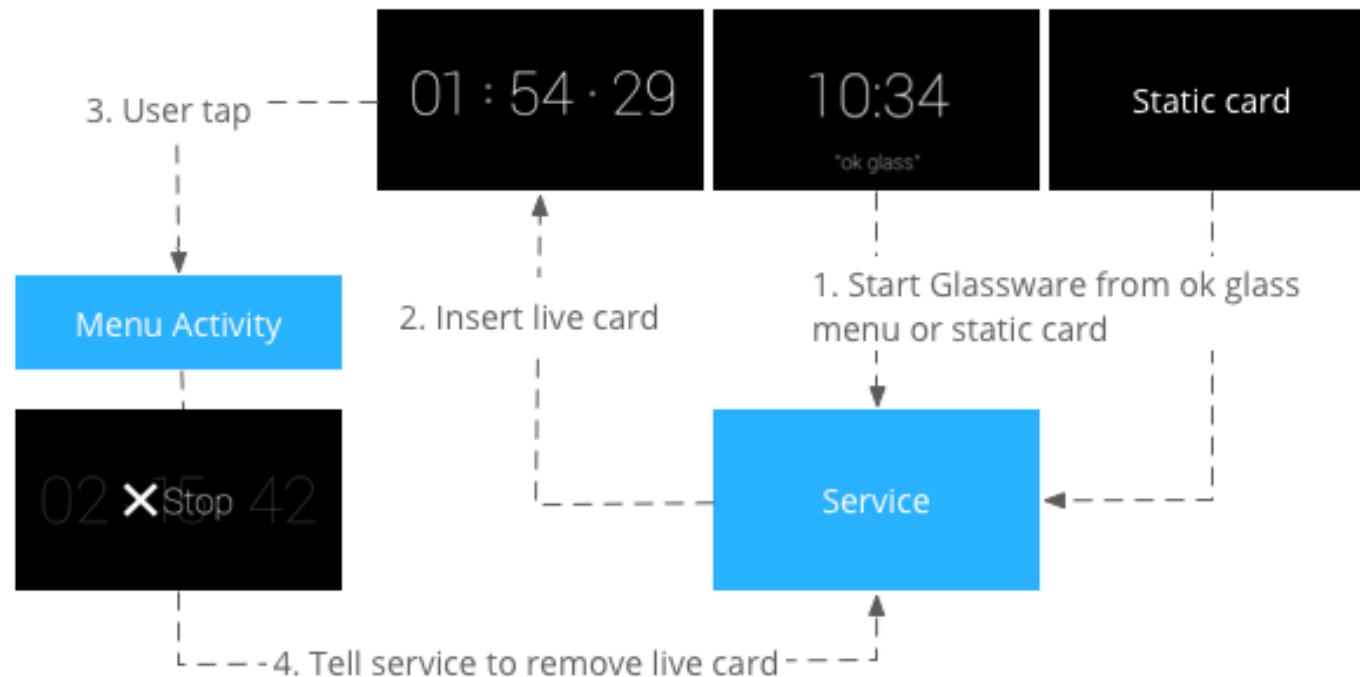


Source: Google



Ongoing task

- Stays in Timeline

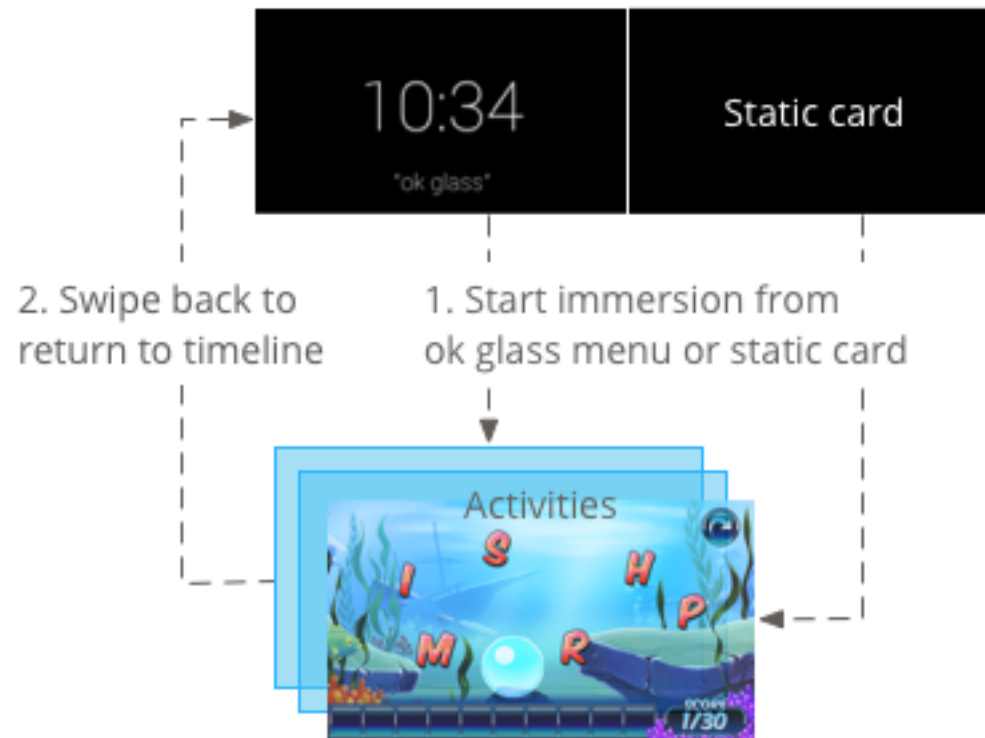


Source: Google



Immersion

- Takes over temporarily



Source: Google





Speech



Voice Interaction

- Natural language speech recognition
 - Speech as if it were to a person
 - Keywords
- Can be further powered by context
 - “share this”
 - “what can I get?”
 - “nearest place for dinner?”
 - “how much?”

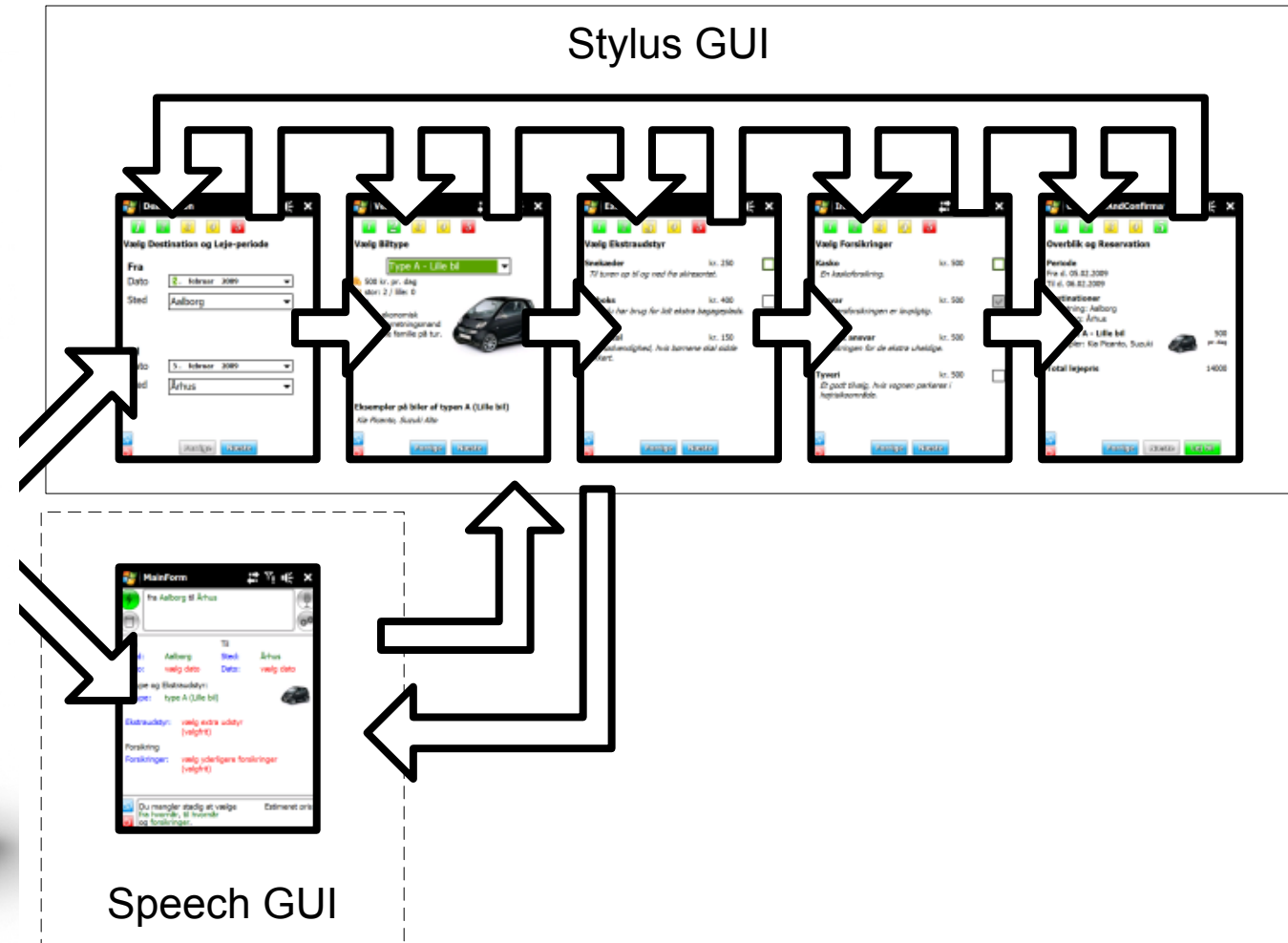


Thinking in Speech

- Imagine you are the app: how would the user talk to you?
- App should adapt to users, but users will also learn how to talk to the app



Horror Story: Speech (anno ~2007)



9 Keys to Greater Wearable Experiences

- 1. Contextual:** Use context is a key driver
- 2. Efficient:** In and out fast
- 3. Glanceable:** Don't steal the show
- 4. Proactive:** Help the user
- 5. Focused:** One thing at a time
- 6. Essential:** Limit information to a minimum
- 7. Nonintrusive:** Don't hassle the user
- 8. Synergetic:** Support/complement devices
- 9. Optimized:** Conserve resources



Don't

- Get stuck in old interaction paradigms
- Copy flow from app
 - Rethink it into the wearable context
- Be afraid to “butcher” your perfect mobile app into a very simplistic wearable experience
- Break expected behavior of the platform
 - even more important for wearables



Do

- Try out as many wearables as you can
 - talk to people who use them
- Try out Glass
 - ideally for at least 3 ‘normal’ days
- Play with the APIs
 - You will be amazed at the powers in your hands
- Think your app into context
- Think context into your app
- Have fun and be creative!



The Future of Wearables?

“We can only see a short distance ahead, but we can see plenty there that needs to be done”

– Alan Turing





Thank you!
Questions?



kasper@leafcastlelabs.com



[kasperlj](https://twitter.com/kasperlj)



www.leafcastlelabs.com/wearables

