Applicazioni per dispositivi mobili: Introduction

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Applicazioni Mobili

» In informatica, un **programma applicativo** (anche detto *applicazione* o, per abbreviare, *app*) non è altro che un tipo di **software** progettato per eseguire un certo compito

» Un'***app mobile*** è un'applicazione software progettata per essere eseguita su **dispositivi mobili** come *smartphone* e *tablet*

Applicazioni Mobili (2)

» Tipi di applicazioni mobili
  - Le applicazioni mobili possono essere classificate in tre tipi principali: applicazioni native, applicazioni web e applicazioni ibride

» Vantaggi delle app mobili
  - Le app mobili offrono agli utenti un modo comodo ed efficiente per accedere a informazioni, prodotti e servizi in movimento

» Sviluppare applicazioni mobili
  - Per sviluppare un'applicazione mobile di successo, gli sviluppatori devono considerare l'interfaccia utente, l'usabilità, le prestazioni e la sicurezza

Applicazioni Mobili (3)

» Piattaforme di applicazioni mobili più diffuse
  - Le piattaforme di applicazioni mobili più diffuse includono iOS, Android e Windows

» Sicurezza delle app mobili
  - La sicurezza delle app mobili consiste nella salvaguardia dell'applicazione stessa e dei dati in essa contenuta contro attacchi di qualsiasi natura

» Monetizzazione delle app mobili
  - Esistono vari modi per monetizzare le app mobili, tra cui acquisti in-app, abbonamenti e pubblicità

» Il futuro delle app mobili
  - Si prevede che le app mobili diventeranno ancora più popolari con la continua evoluzione della tecnologia

Power up —

From space landings to supercomputers to smartphones

Apollo 11 Guidance Computer

12,250 FLOPS*

CRAY-2 1980s Supercomputer

1.9 billion FLOPS*

Approximately **155,000 times faster** than the Apollo 11 guidance computer

Apple iPhone 12 Smartphone

11 trillion FLOPS*

Approximately **5,000 times faster** than the CRAY-2 supercomputer and about **900 million times** faster than the Apollo 11 guidance computer.

FLOPS: floating point operations per second

Sizing up —

Comparing a 1980s supercomputer to a modern smartphone

CRAY-2 supercomputer — 5,500 pounds

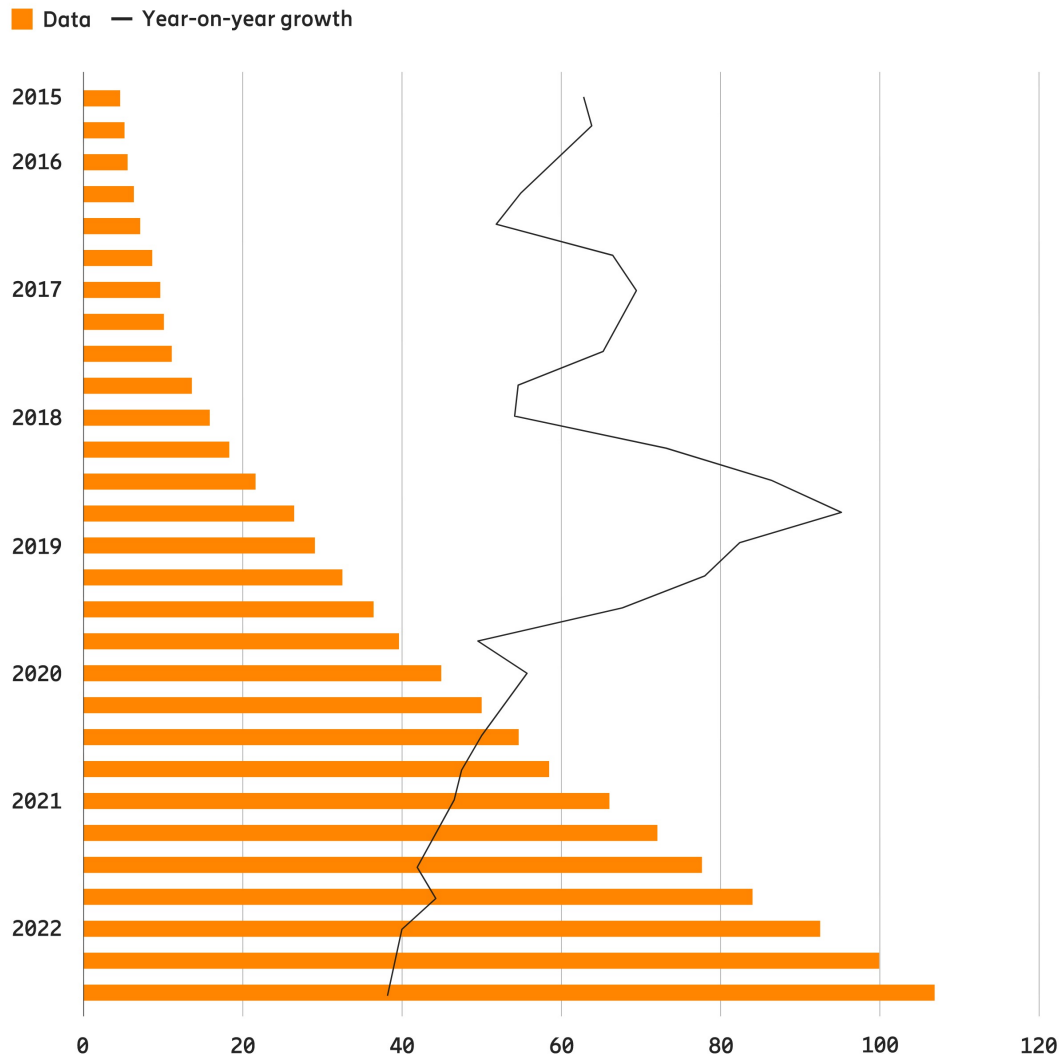
iPhone 12 — 5.78 ounces

iPhone 12
1.6 square inches

CRAY-2 supercomputer
16 square feet

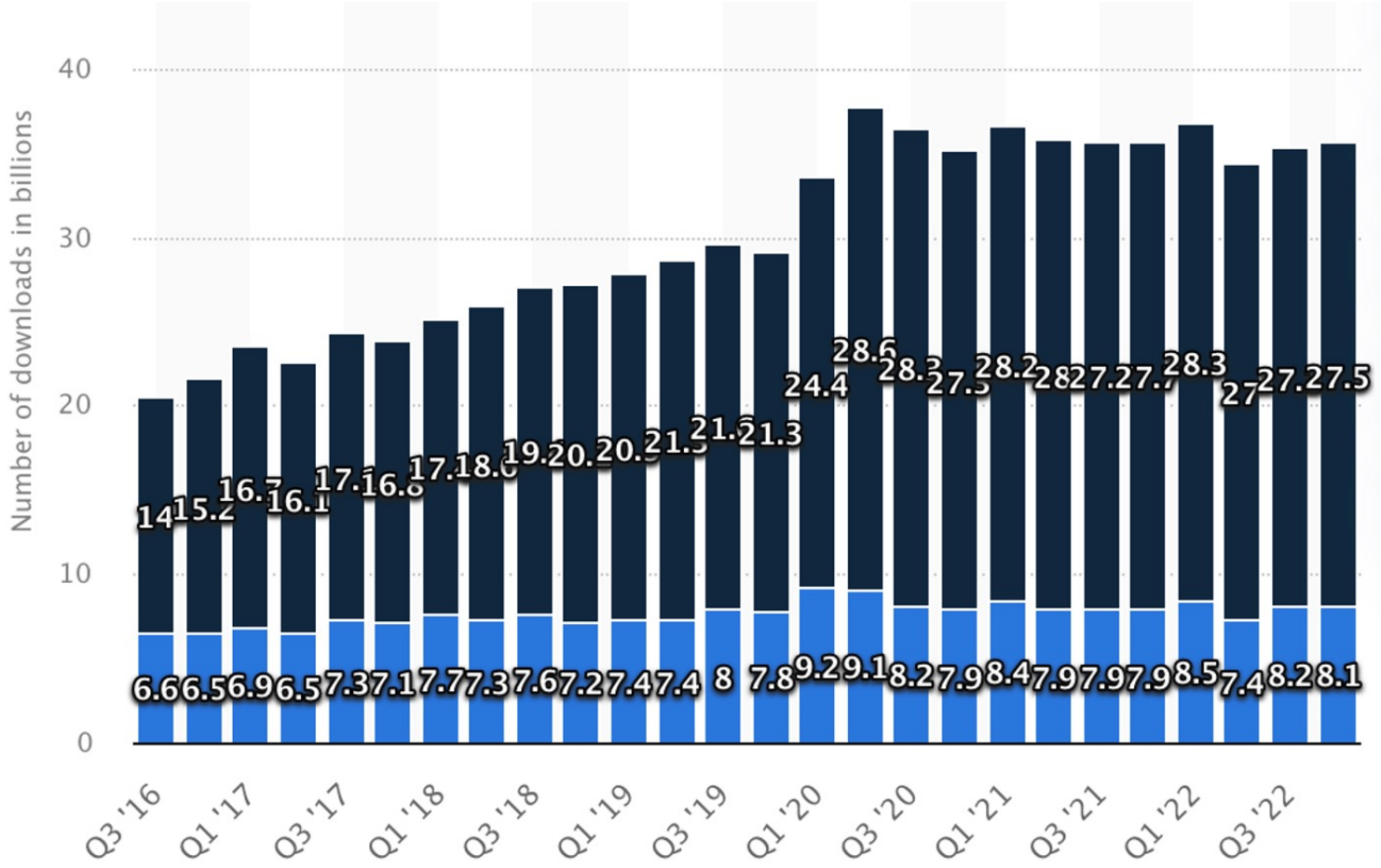
If the CRAY-2 were as powerful as the iPhone 12, it would take up a whopping **80,000 sqft** and weigh **27.5 million pounds**.

Global mobile network data traffic and year-on-year growth (EB per month)

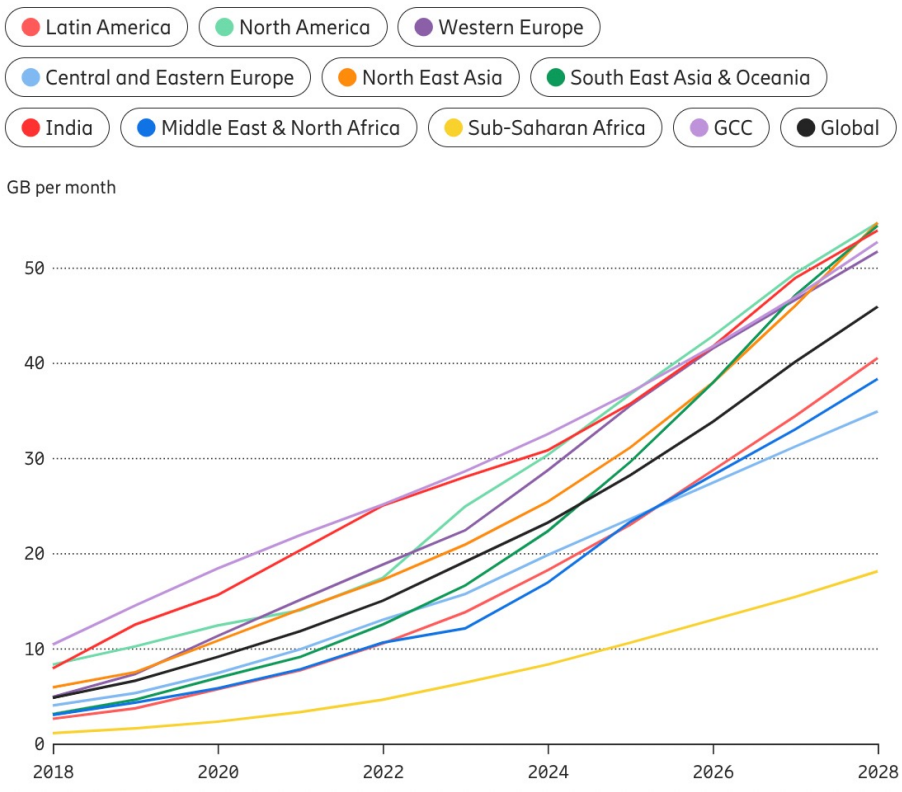


exabyte (EB) =
one billion gigabytes

Number of Apple App Store and Google Play mobile app downloads worldwide from 3rd quarter 2016 to 4th quarter 2022(in billions)



Mobile data traffic per smartphone



Regions	2022	2028	CAGR 2022–2028
Latin America	10.5	41	25%
North America	17.4	55	21%
Western Europe	19	52	18%
Central and Eastern Europe	13	35	18%
North East Asia	17	55	21%
South East Asia & Oceania	12.5	54	28%
India	25	54	14%
Middle East & North Africa[1]	11	38	24%
Sub-Saharan Africa	4.6	18	26%
GCC	25	53	11%
Global	15	46	21%

Prospettive del traffico dati mobile

- Nel 2028, tutta la crescita del traffico dati mobile proverrà dal 5G, poiché il traffico 4G è destinato a diminuire.
- Si prevede che l'utilizzo medio mensile globale per smartphone sarà di 19 GB nel 2023 e che raggiungerà i 46 GB entro la fine del 2028.
- Nel 2028, si prevede che la quota del traffico dati mobile del 5G crescerà fino al 69%.

Main trends in mobile

- 5G Global Adoption
- Progressive Web Apps
- Mobile Payments
- m-Commerce / Mobile Commerce
- Wearables
- Foldable Devices
- Mobile Virtual Reality
- Mobile Augmented Reality
- Beacon Technology
- Super Apps
- Mobile Security: Two-step Authentication, Biometrics
- The Internet of Things
- Customization, Optimization
- Artificial Intelligence & Machine Learning
- Localization

Impatto delle App Mobili sulla vita quotidiana

» Ha reso il nostro mondo molto più piccolo
» Non c'è bisogno di portare libri con te
» La distanza non è più un problema
» La ricerca di un luogo è stata molto semplice
» Lo shopping non è più limitato al mercato

App mobile e società

» Nella società odierna, le app mobili sono diventate parte integrante della nostra vita quotidiana
  - Sia che stiamo controllando le notizie, ordinando cibo o connettendoci con gli amici, le app mobili hanno rivoluzionato il modo in cui interagiamo con il mondo che ci circonda

» Perché la società ha bisogno di app mobili?

» Quali sono i principali vantaggi dell'utilizzo di app mobili oggi?

Sbloccare il potenziale: esplorare i vantaggi dell'utilizzo delle app mobili

» Convenienza e accessibilità
» Produttività
» Intrattenimento
» Risparmio sui costi
» Comunicazione migliorata

Sbloccare la crescita aziendale: esplorare il ruolo vitale dello sviluppo di app mobili nel panorama digitale odierno

» Maggiore visibilità
» Maggiore coinvolgimento dei client
» Vendite migliorate
» Maggiore fedeltà dei client
» Vantaggio competitivo

Sviluppo di applicazioni mobili

» Lo sviluppo di applicazioni mobili è il processo per realizzare software per smartphone e assistenti digitali, più solitamente per Android e iOS. Il software può essere preinstallato sul dispositivo, scaricato da un app store mobile o accessibile attraverso un browser web mobile

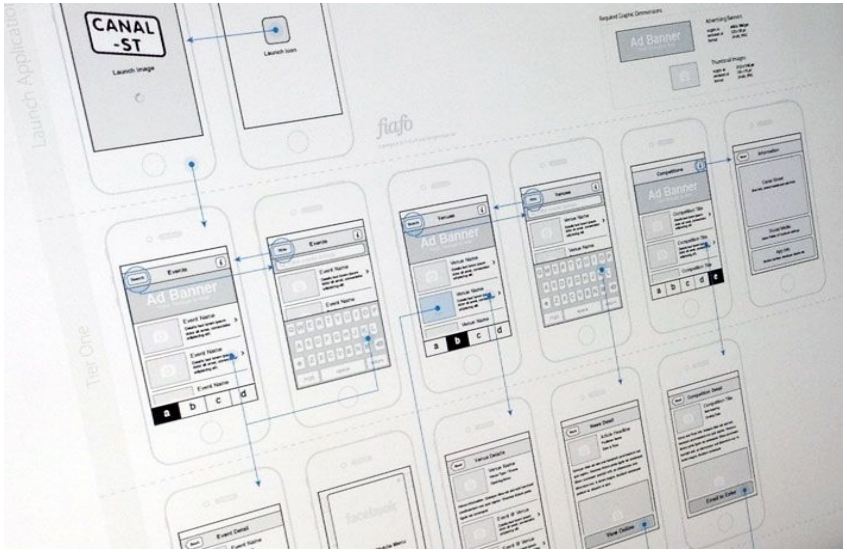
MOBILE APP Development

App design

» A detailed description of your app in terms of its information architecture, experience design, UI design (up to 15 pages)

» I will provide you a **word** template that you **have to use and follow**

50%



App development

» Implementation of your app

» + technical discussion during the exam

50%

Mobile thinking

Unique traits of Mobile

» First truly personal mass media
  - We don’t share our phones with our friends
» First always-on mass media
  - Information is always available 24/7, even when idle
» First always-carried mass media
  - 7 out of 10 people sleep with their phones within reach
» Built-in payment channel
  - Universal click-to-buy + credit cards
» At the point of creative impulse
  - Ability to create or consume content whenever the mood strikes

Context

» Mobile apps have the amazing capability to add

CONTEXT

» to information, adding immediate relevance
» to what we are doing right here, right now

Two kinds of Context

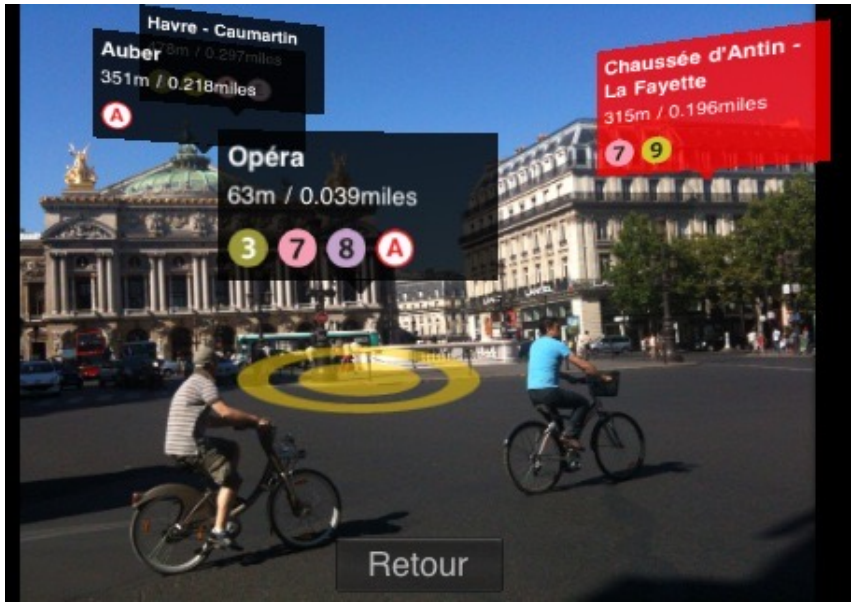
» Context
with a big “C”

vs

» context
with a little “c”

Context **VS** context by example (1)

context



Context

The app works in a specific context depending on the current location of the user

The app gives Context by providing additional info

http://bit.ly/wXGpNA

Context **VS** context by example (2)

Context who is here?

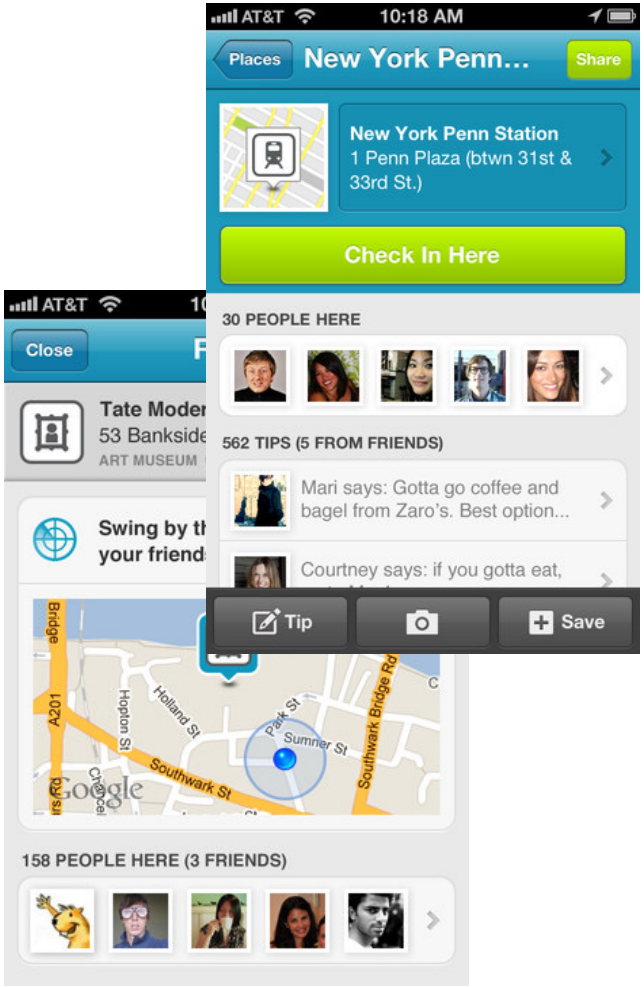
VS

context where I am

Context answers users' questions

VS

context is a fact



https://foursquare.com

Context with a big “C” (1)

» How users will derive value from something they are currently doing

» For example
- info on restaurants
- rate places
- GPS navigator

Context with a big “C” (2)

» The information provided by the app gives Context

» A better understanding of what this moment in time means to the user

» Recurrent targets

- people, places, things, situations, ideas

context with a little “c” (1)

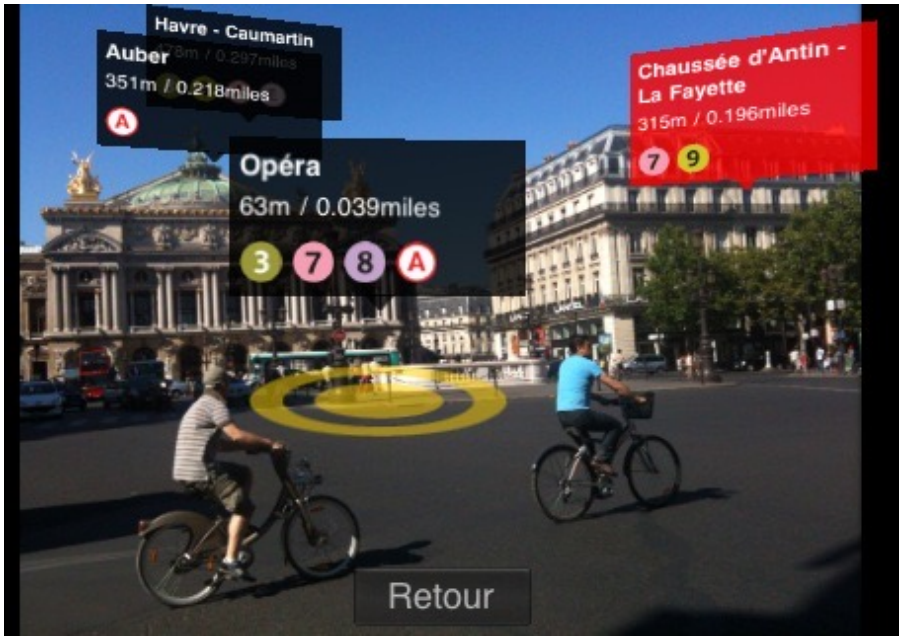
» The mode, medium and environment in which we perform our tasks or the circumstances od understanding

» There are 3 different types of context
- Physical context
- Media context
- Modal context

context with a little “c” (2)

Physical context

where I am

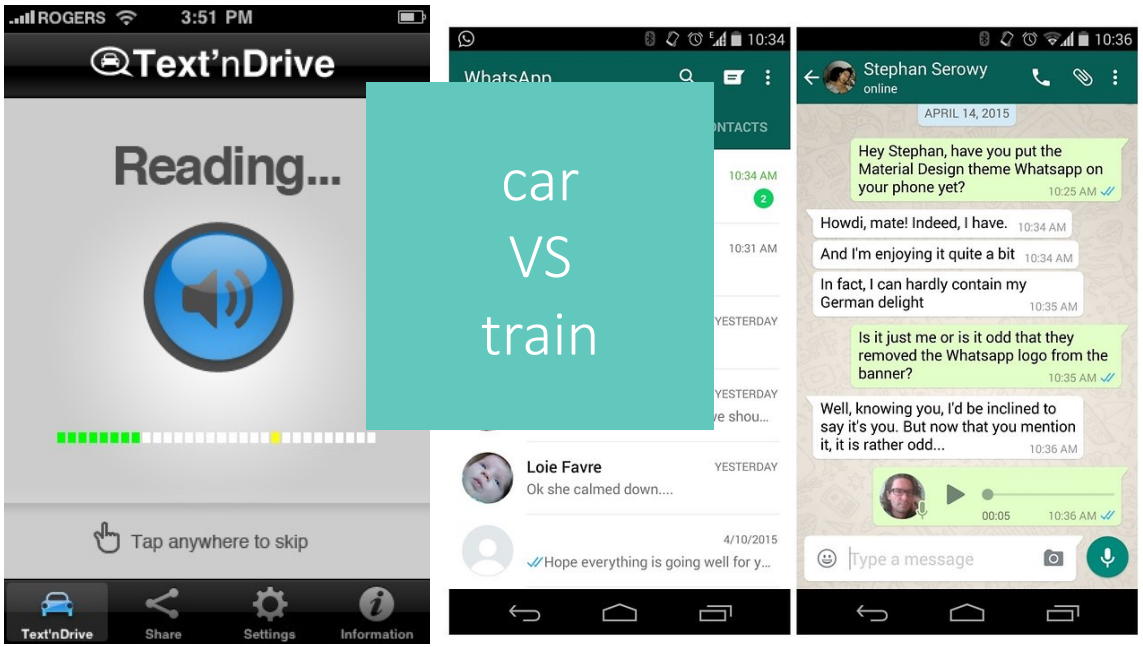


http://bit.ly/wXGpNA - Métro Paris

context with a little “c” (3)

» Physical context
  – in which environment I am

» at home
» on a bus
» in the streets
» in my office
» in a shop



http://www.textndrive.com
http://www.whatsapp.com

context with a little “c” (4)

» Media context
  – the device I am using

» Connectivity
» Screen size
» Camera
» etc …

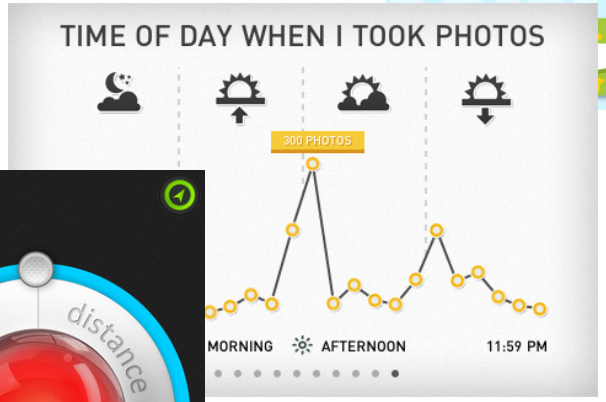
http://www.facebook.com

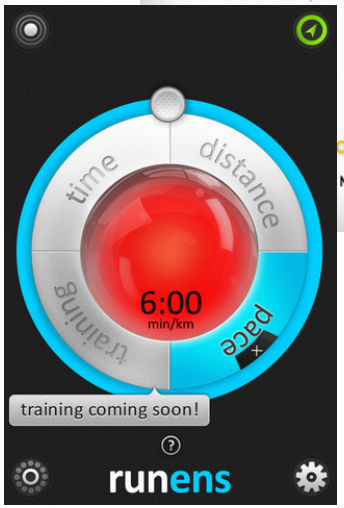
context with a little “c” (5)

» Modal context
  – my present state of mind

» What I am doing right now

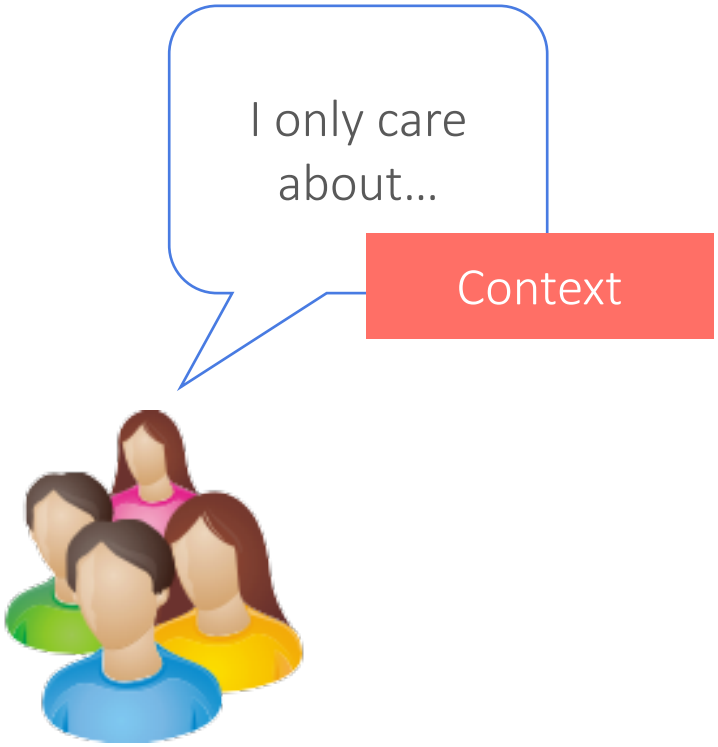
» How I feel right now





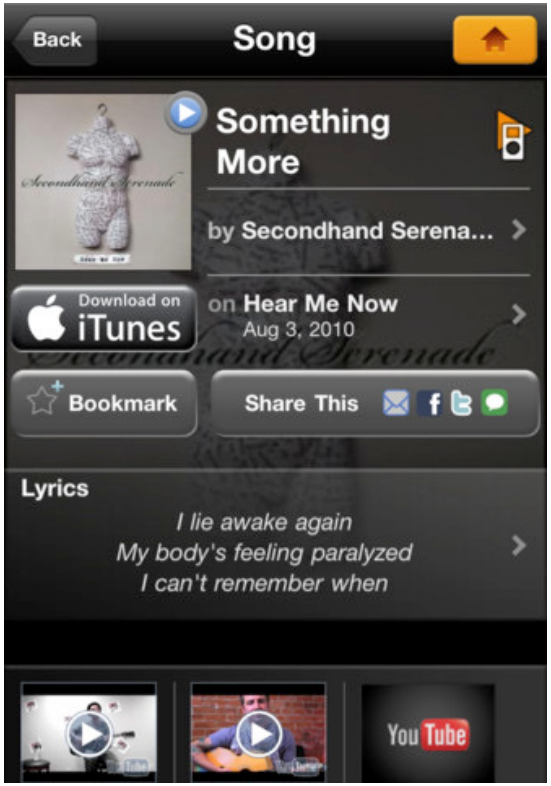
http://www.runens.com
http://photostatsapp.com/
http://babypad.mezmedia.com

…again on “big C” **VS** “little c”



Examples


SoundHound
?
Title or Artist
Scrivi il titolo della canzone o il nome dell'artista...
premi il pulsante e poi pronuncia a voce il titolo o il nome...
Cerca di usare un accento nordamericano quando pronunci i titoli o nomi
What's that song?
Tap Here
Tocca per identificare la musica che senti suonare o cantare.
Testi e la condivisione

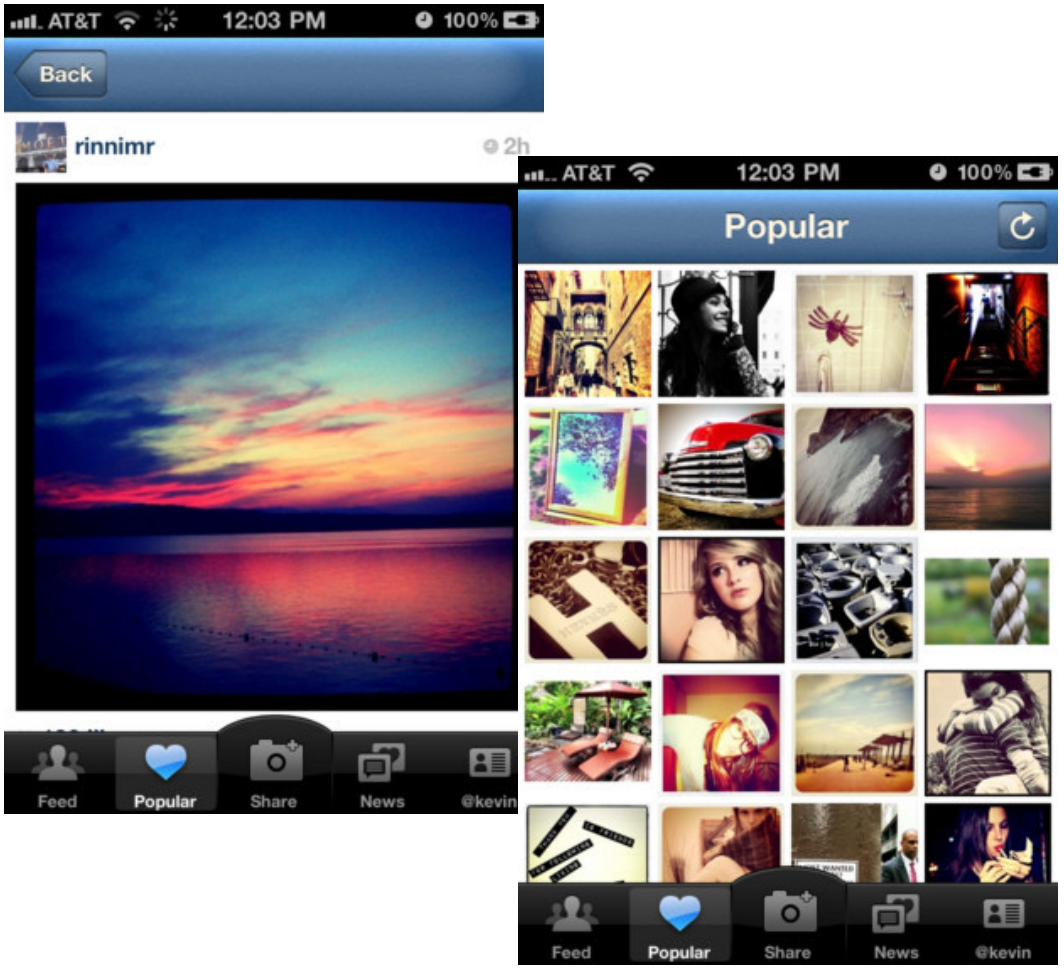

Back
Song
Something More
by Secondhand Serena...
Download on iTunes
on Hear Me Now
Aug 3, 2010
Bookmark
Share This
Lyrics
I lie awake again
My body's feeling paralyzed
I can't remember when
YouTube

Examples 2


endomondo
RUNNING
DURATION
0:12:51
DISTANCE
miles
1.72
SPEED
min/mile
7:36
AVG. SPEED
min/mile
7:28
GPS: OK
DISTANCE GOAL
5.0 mi
START
COUNTDOWN
Workout
Friends
History
Settings


History
Map
Data
Splits
Prøvesten
Statens
Copenhagen

Examples 3



http://www.instagr.am

Types of mobile apps

» Mobile apps can provide different experiences to the user
  - Utility
  - Locale
  - Informative
  - Productivity
  - Immersive

Utility

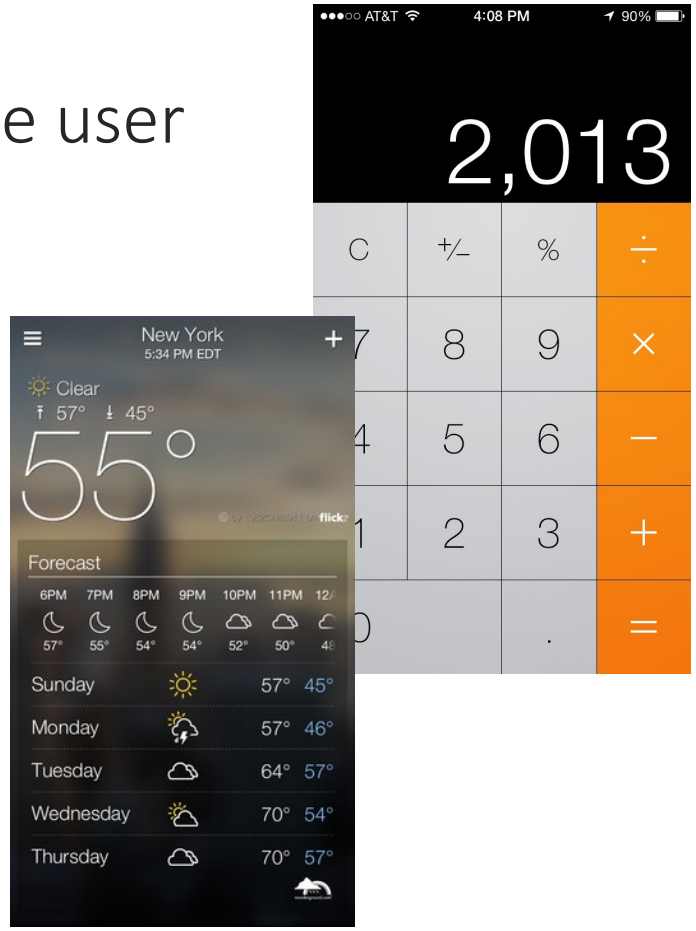
» short, task-based scenarios

» minimal information from the user

» minimal design

» ex.

- calculator
- alarm clock
- weather forecast



Locale

» it provides info about “what’s around”

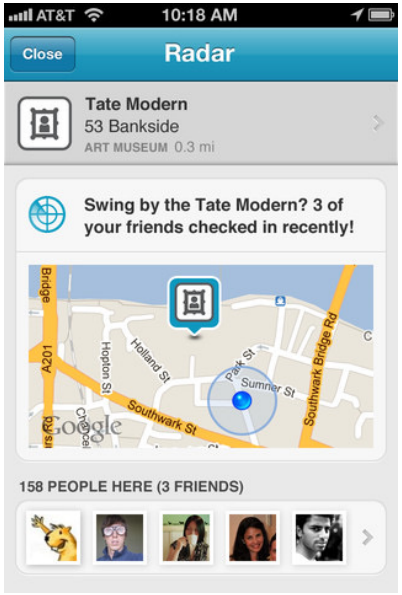
» recurrent feature: a map on which data is displayed

» goal of the user: to find additional

- info about his present location

» example

- find friends around
- find pubs around
- get route directions



Informative

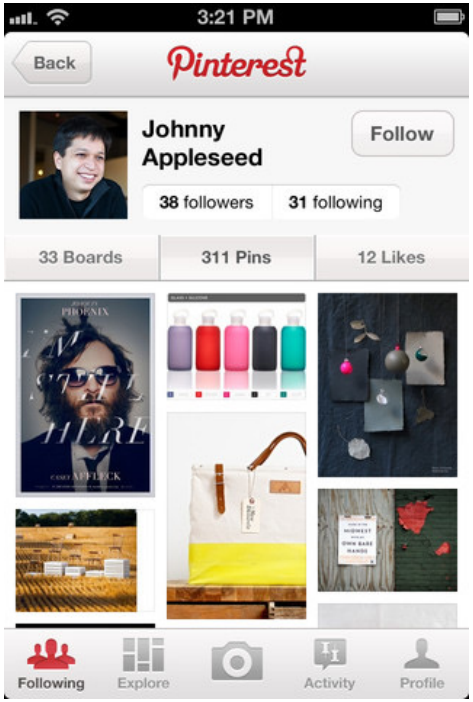
» Goal: to provide information to the user

» Task of the user: to read and understand

» not necessarily to interact

» user's tasks are **short** and can be **interrupted**

» example
  - news
  - online directory
  - mobile commerce
  - social network



https://www.pinterest.com

Productivity

» Meant to increase user's sense of efficiency

» Users have a clear goal in mind

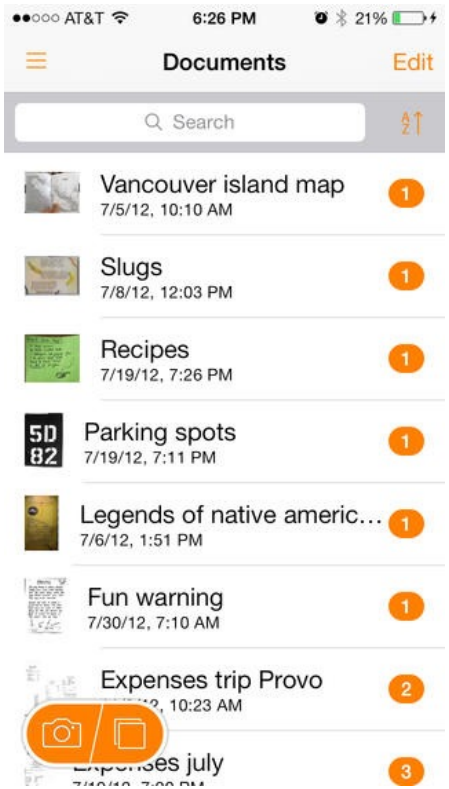
» Very structured (with folders)

  – it gives a sense of order

» Clear workflow

» Examples: mail, scanning, todo lists…

» TIP: focus on the main task only, and only after start adding other features



http://www.thegrizzlylabs.com/genius-scan

Immersive

» immersive, full-screen app

» meant to consume the user's focus

» Examples
  - games
  - media players
  - entertainment

» TIP: you can use it as alternative to other app contexts

http://www.rockstargames.com/grandtheftauto3

Summary

	User experience type	Task type	Task duration
Utility	At-a-glance	Information recall	Very short
Locale	Location-based	Contextual information	Quick
Informative	Content-based	Seek information	Quick
Productivity	Task-based	Content management	Long
Immersive	Full screen	Entertainment	Long

How to create a high-quality mobile app

Rule #1

» **Focus on context, goals and needs**

» Defining the users' context is the first thing to do
  - without it, you don't have a strategy, you have only a plan of action

» Uncover the users' goals
  - and then understand how the users' context alters their goals

» With goals understood, figure out the tasks the users want to perform

» Look for ways to filter content by context
  - for example: location, media, and mode

Rule #2

» **Constraints never come first**

» Avoid talking about constraints at an early-stage brainstorming session

» There will always be constraints in mobile, accept it!

» Focus on strategy first, what the user needs, and lay down the features

- Then, if the constraints are an issue, fall back to the user goals

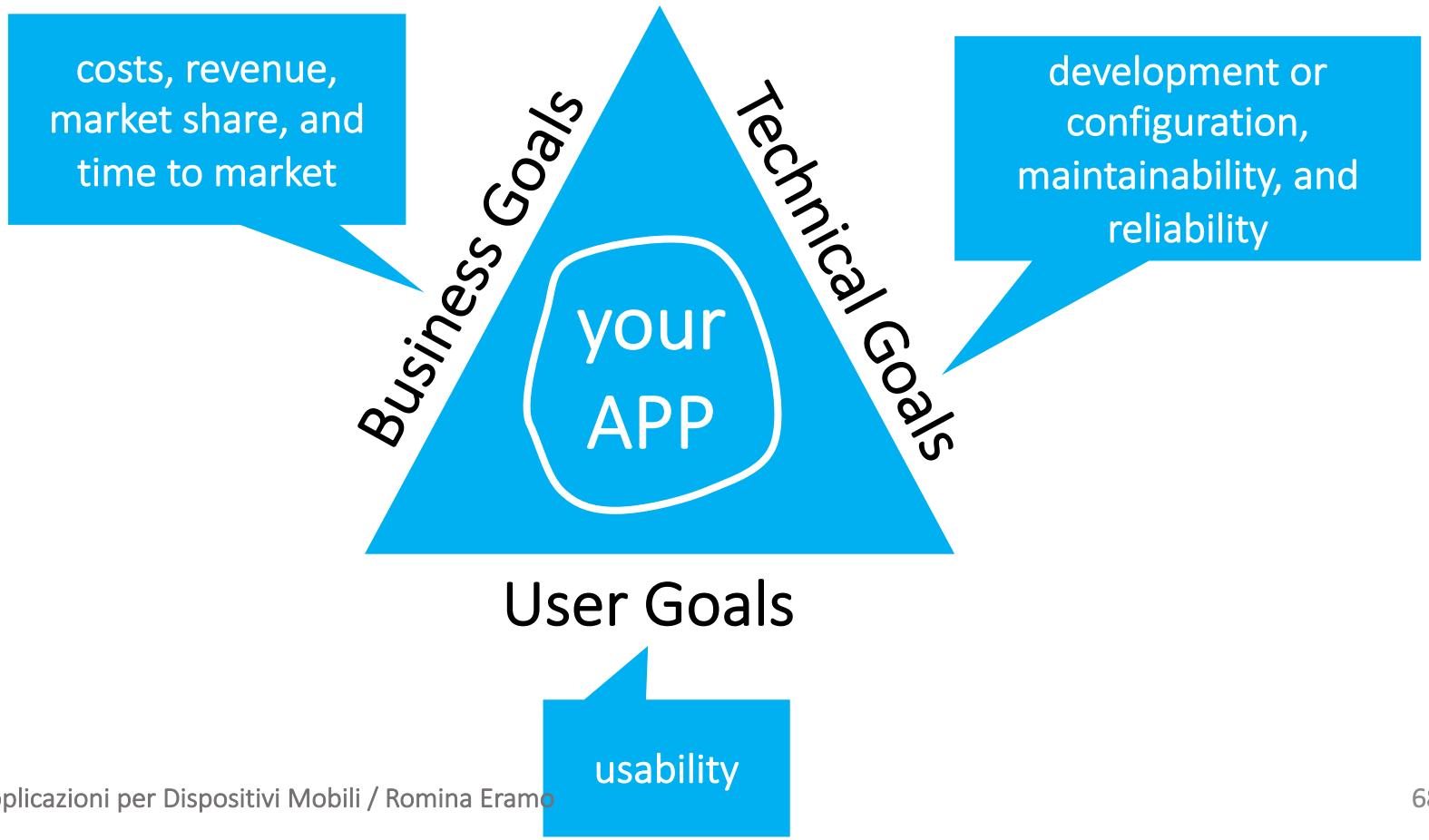
Rule #3

» **Keep it simple**

» People want to use mobile devices in a simple way
» Simplicity → fewer technical problems
» Easier to iterate and evolve your app
» Don’t try to create a desktop software on a mobile
» Adding feature after feature is an easy trap to fall in

The sweet spot

There is no “perfect app”, you have to find the **sweet spot**



App strategy workflow

1. Find a REAL NEED first
2. Find your GOAL to fill the need
3. Reverse engineer the goal into a potential app
4. Remember the unique benefits of mobile
5. CONTEXT CONTEXT CONTEXT
   - Location, camera, always-carried, accelerometer
   - WHO is your typical user???? Define usage scenarios

LAB

1. Imagine an app for accessing ads for buying or renting apartments

2. Define the main strategic aspects of the app:
   - Goal
   - Prioritized tasks
   - Context