

Eine eigene App fürs Unternehmen

Können wir uns das überhaupt leisten?

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Vorstellungsrunde

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Dozent (FH) & Projektleiter

Lehre & Forschung

- Mobile Gesamtlösungen für iOS & Android
- Softwareentwicklung und Security



Vorstellungsrunde

Harald Schwab

Wissenschaftlicher Mitarbeiter

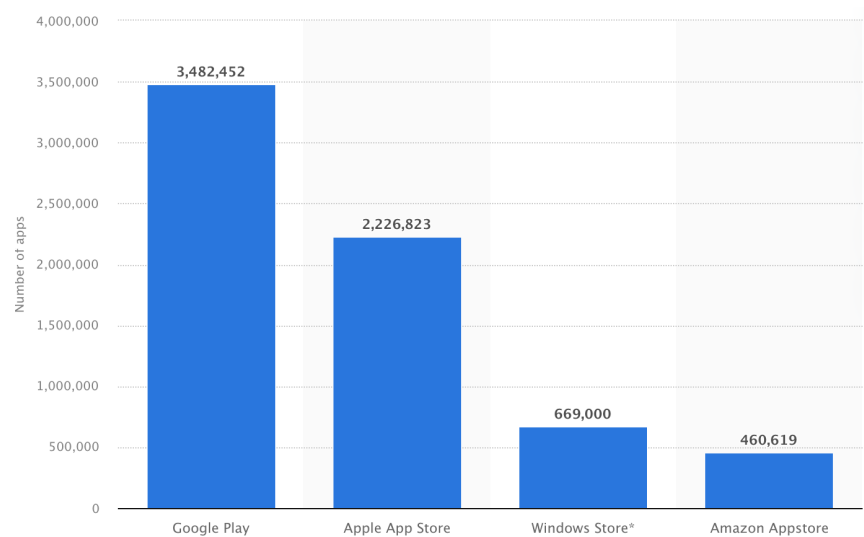
Lehre & Forschung

- Mobile Gesamtlösungen
- Mobile Applications & Mobile Security
- Human Computer Interaction, Usability, Accessibility

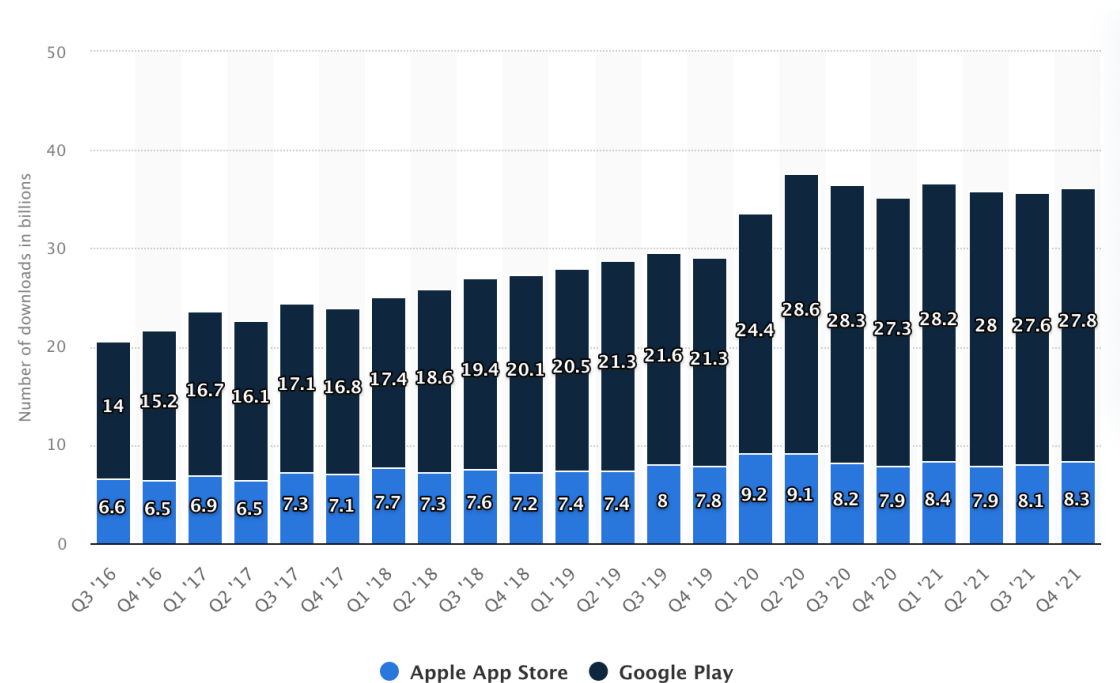


Wir haben eine App-Idee –
gibt es das schon?

Verfügbare Apps



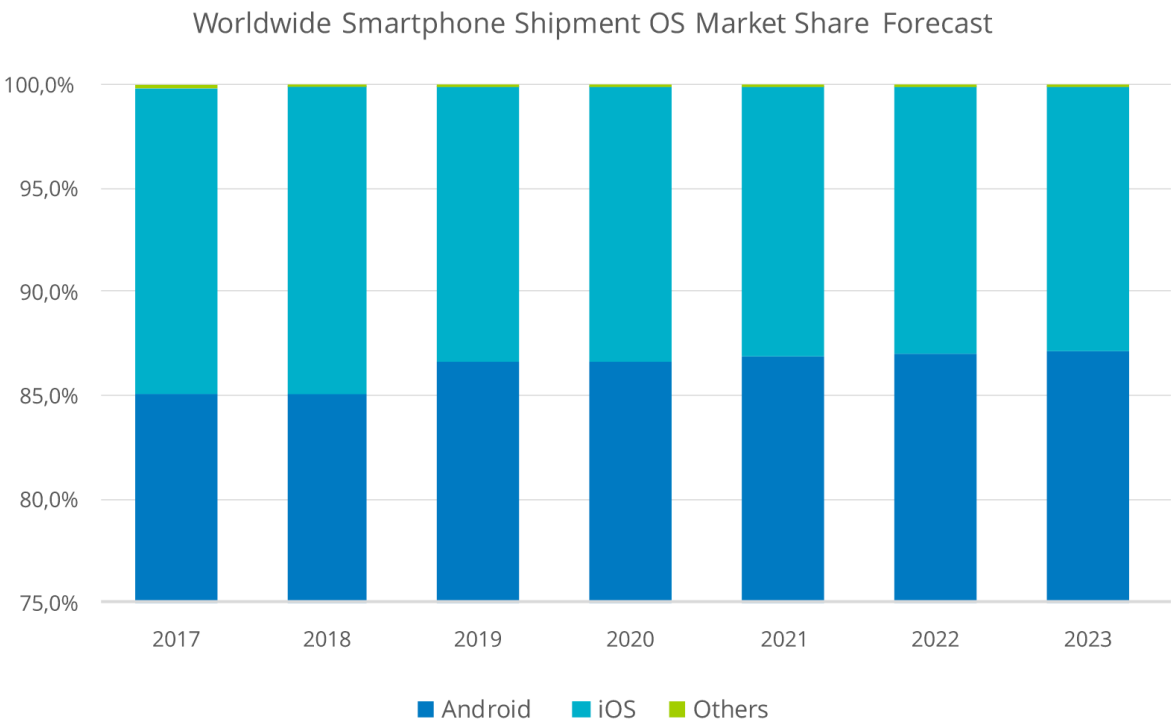
Number of apps available in leading app stores as of 1st quarter 2021, <https://www.statista.com/statistics/276623>



Number of iOS and Google Play mobile app downloads worldwide
<https://www.statista.com/statistics/695094/>

Marktanteil 2022

Android	84,1%
iOS	15,9%
Others	0.0%



<http://www.idc.com/prodserv/smartphone-os-market-share.jsp>

THERE'S AN 'APP'

FOR THAT

Warum brauche ich dazu eigentlich eine App?

Mobile Thinking



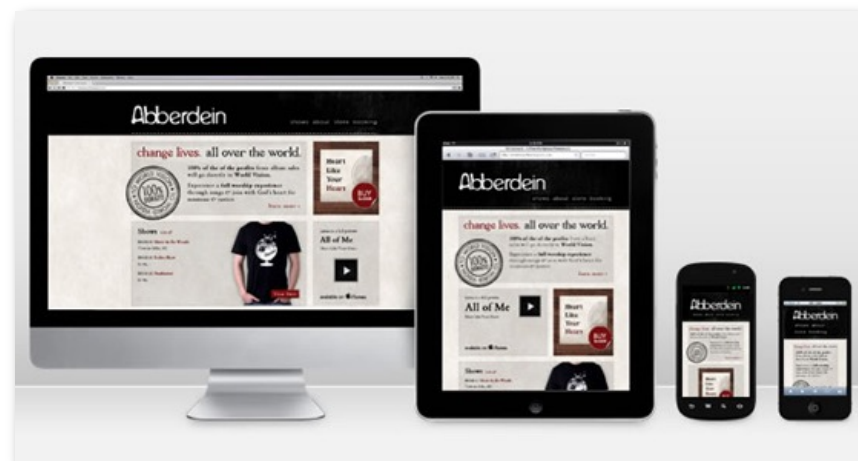
*US RiderNews
David Beckham*

<http://www.usridernews.com/2012/10/multi-talented-soccer-star-show-texting-and-riding-skill/>

Mobile Thinking



Mobile First!



<http://www.shadowsongdesigns.com/assets/responsive02.jpg>

Input/Output	Location	Connect	Power
Vibration	GPS	Contacts, Share	QR, Videoclips
Swipe, Multitouch	Gyro	Bluetooth	AR/ML
Biometrics, FaceID	Accelerator	RFID	GPU Power
Flashlight	Routing	Smart Home	Voice-Input
Ambient Light	Maps	Smartwatch	Secure Element



Wie viel kostet eine App?

Beispiele für App Kosten

- Stopp Corona App (Rotes Kreuz, Bundesregierung)

- 1,7 Millionen Downloads
- 4 Millionen Euro
- <https://www.derstandard.de/story/2000133483085/das-ende-der-stop-corona-app-ist-da>



- Grüner Pass App

- Ca 3 Millionen Downloads
- Ca. 2 Millionen Euro
 - 1,5 Mio für Webservice Zertifikate
 - 300.000 Projektmanagement
 - 180.000 Greencheck App
 - 100.000 Grüner Pass App
- https://www.parlament.gv.at/PAKT/VHG/XXVII/AB/AB_06720/index.shtml



Kosten für Appentwicklung

- Einfache App 15.000€ bis 50.000€
- Durchschnittliche App 30.000€ bis 150.000€
- Komplexe App 100.000€ bis ..

<https://spdload.com/blog/app-development-cost/>

<https://www.businessofapps.com/app-developers/research/app-development-cost/>

- App Store Kosten
 - Android 25\$ einmalig
 - Apple 99\$ jährlich
 - Android & Apple 30% aller Umsätze



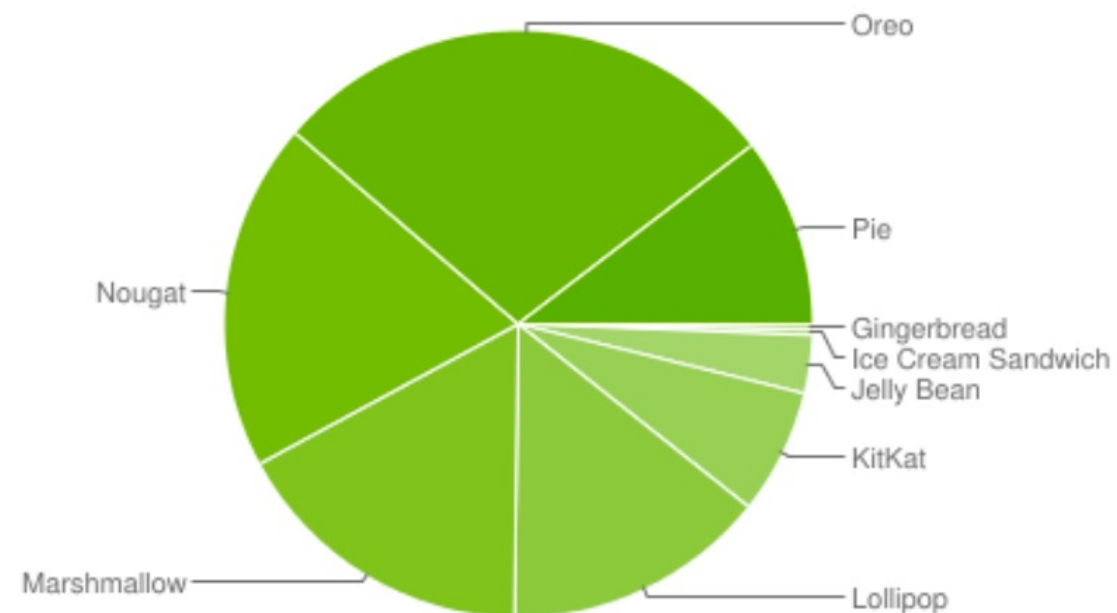
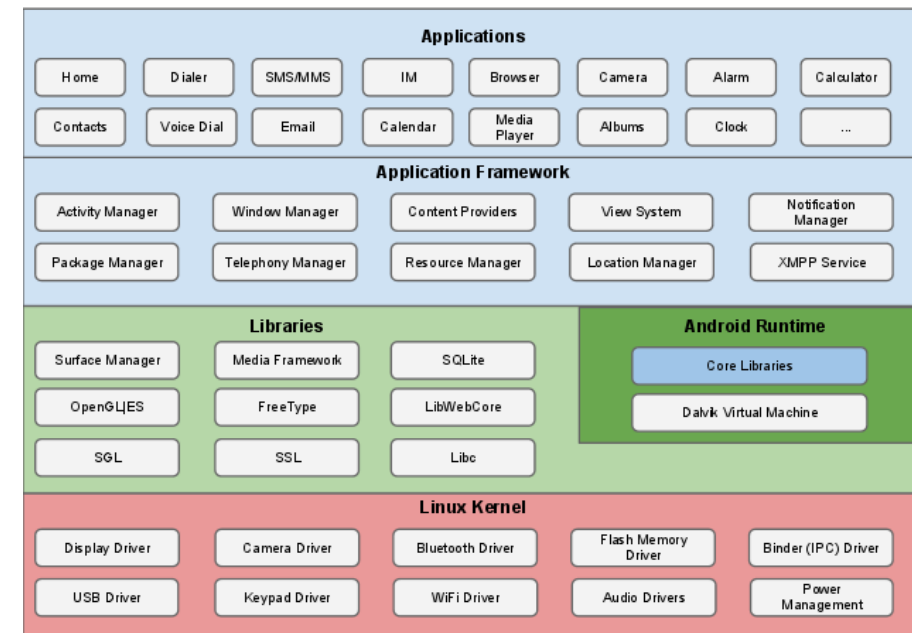
Warum kostet eine App soviel?



<https://medium.com/@mehulp89/android-vs-ios-a-comparison-of-concepts-b631d2c2e465>

Android

- **Open Source System**
 - Linux
- **Software Development**
 - Java Virtual Machine (JIT, AOT)
 - ~~Java~~, Kotlin
- **Lots of devices**
 - **Fragmentation**
 - more 24.000 different Devices



iOS

- **Closed System**

- App Development
- Devices, Cloud Services
- App Store

- Software Development)

- Compile to native code
- ~~Objective C~~, Swift

- Devices

- iPhone & iPad & iWatch



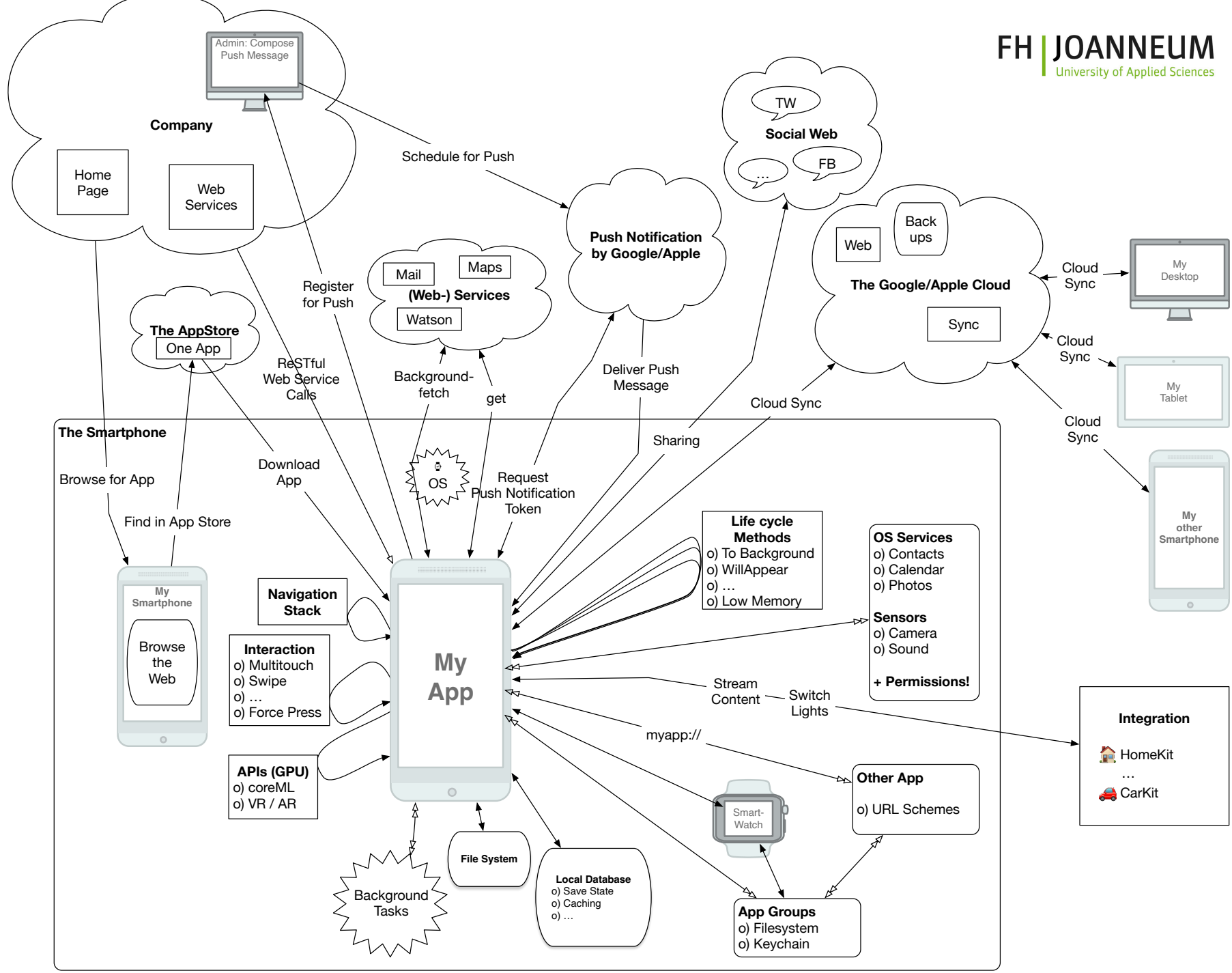
<https://developer.apple.com/documentation/>



<https://www.gottabemobile.com/wp-content/uploads/2018/12/iOS-12.1.2-Update-iPhone-1.jpg>

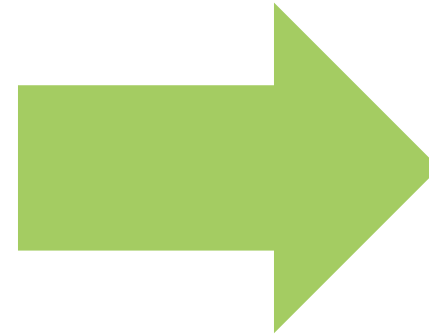
<https://www.gottabemobile.com/5-things-to-know-about-the-watchos-6-1-1-update/>

Overall Architecture



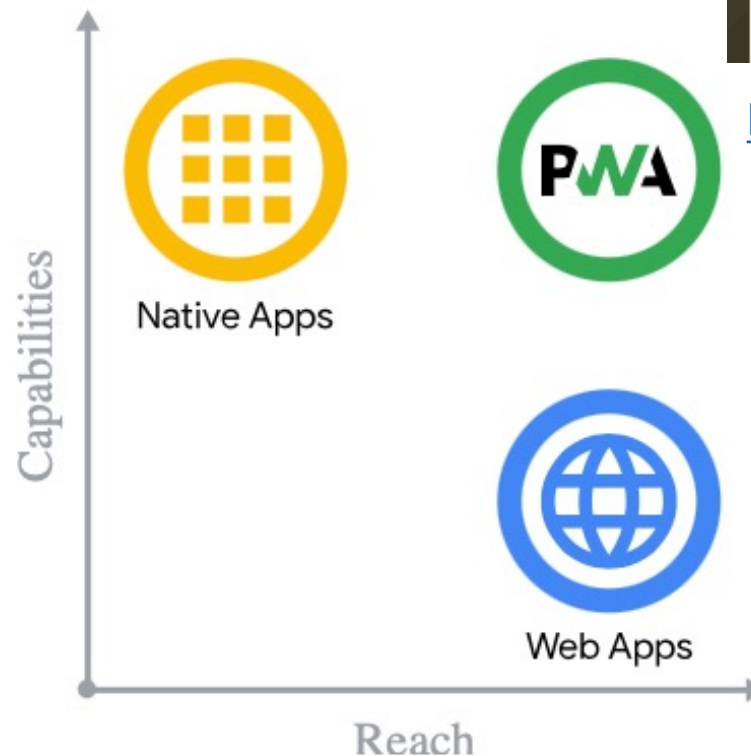
Gibt es auch eine
Alternative zur App?

Ersatz für “All-in-one”?

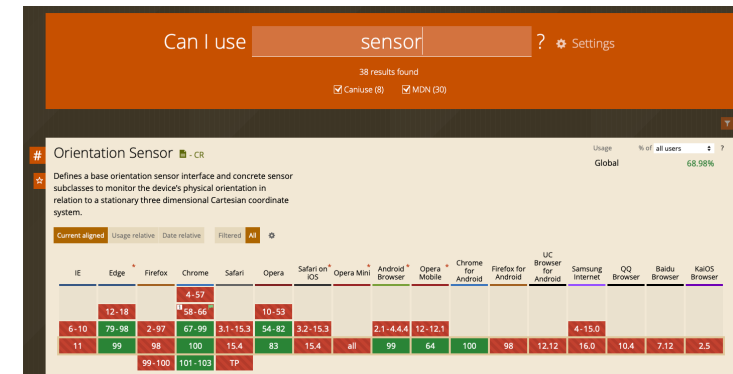


Alternativen zur App

- **Progressive Webapp (PWA):**
Add to home screen, push notifications, offline with service workers, ...
- **Hybrid:**
Desktop + Web + Mobile (Ionic/Cordova)
- **Excel:**
 - = No App at all ?



Capabilities vs. reach of platform-specific apps, web app, and progressive web apps.



<https://caniuse.com/?search=sensor>

<https://web.dev/what-are-pwas/>

Warum brauche ich trotzdem eine App?

Smartphone als UI

Smartphone ist das neue universelle UI

- Digitaler Service meines Produkts
- Kundenbindung
- Mobile Features
- Effizienz



<https://techland.time.com/2013/11/18/the-smartphone-is-the-swiss-army-knife-of-gadgets/>

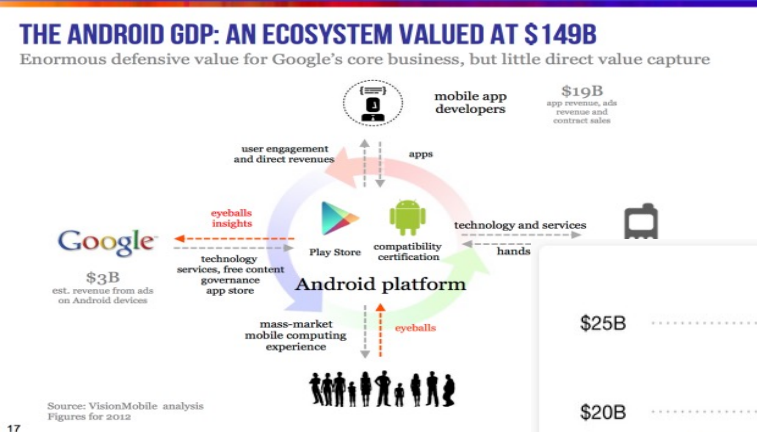
Service Development

The purpose of Service Development is to introduce new services and service development initiatives for the business.

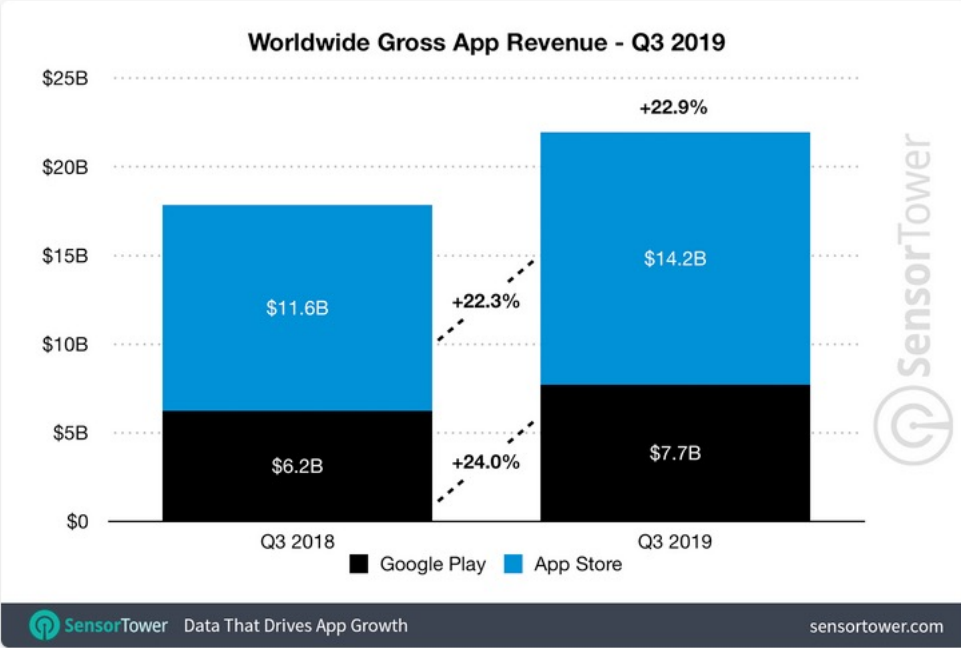
<https://www.itforbusiness.org>



App Stores



<http://readwrite.com/2014/07/03/ios-developer-android-developer-earnings-gap>



<https://sensortower.com/blog/app-revenue-and-downloads-q3-2019>

Data That Drives App Growth

Sensor Tower equips you with the data and insights needed to master the mobile app ecosystem.

How is your app doing? Enter an app name...



Tinder - Dating
Tinder
Google Play

Sensor Score	100
Visibility	91
Internationalization	83

Downloads
4m
Mar 2022 Worldwide

Revenue
\$12m
Mar 2022 Worldwide

Keywords found

A+



iTranslate Translator
iTranslate
Google Play

Sensor Score	85
Visibility	83
Internationalization	80

Downloads
200k
Mar 2022 Worldwide

Revenue
\$100k
Mar 2022 Worldwide

A+



willhaben
willhaben.at
iTunes

Sensor Score	72
Visibility	40
Internationalization	22

Downloads
40k
Mar 2022 Worldwide

D

Aber die DSGVO? Wie steht es mit Security & Privacy?

Privatsphäre

- Wertvolle Daten über User

- Tracking
- Usage/Statistics
- Analytics

Original sentence	"Bruce Schneier gave a b 'Data is the pollution p age, and protecting pri challenge."
Outcome of the processing chain using stemming	bruce schneier gave better analog said : 'data pol- lut problem inform age , protect privati environment challeng.
Outcome of the processing chain using lemmatization	bruce schneier give well analogy say : 'data pollu- tion problem information age , protect privacy envi- ronmental challenge.

Table 2.8: The output of the processing chain for text anonymization varies considerably, depending on whether the technique of stemming or lemmatization is utilized.

- Individuen schützen?

- Machine Learning (ML)
 - Bilder, Texte, Daten (**Differential Privacy**)
- Homomorphic Encryption (HE)

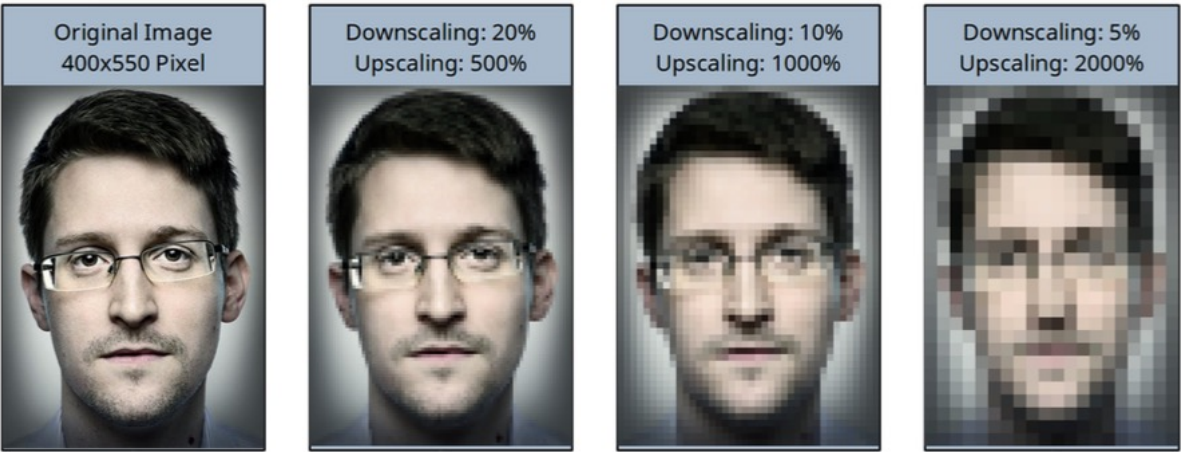


Figure 2.5: Exemplary results of image obfuscation through scalable pixelization.

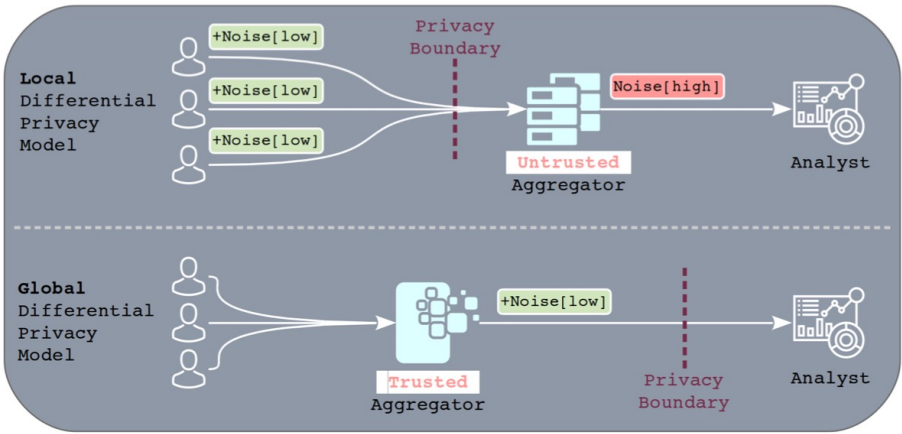
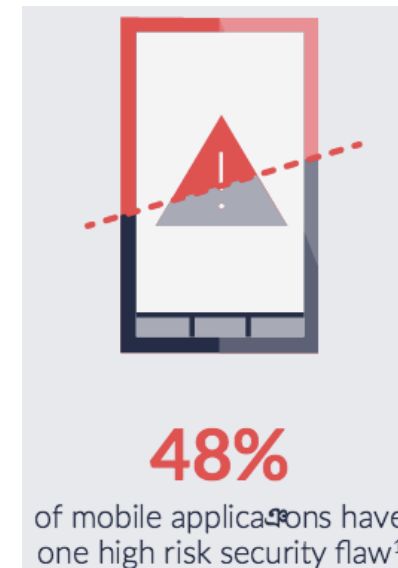
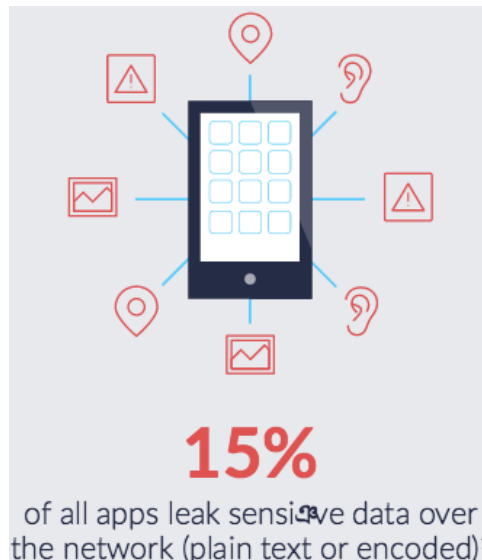


Figure 2.1: Depending on the site where noise is added, approaches to differential privacy can be categorized into local and global models.

Sichere Software am Smartphone



But many apps aren't secure. They store unsecured data, leak sensitive data and make the user vulnerable to targeted attack.

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3 Take-Aways

- (neues) Digitales Produkt oder Service
- Mehr als nur eine 1€ App
- App IST das UI für alles ...