

Eine eigene App fürs Unternehmen

Können wir uns das überhaupt leisten?

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DIH Süd 6.4.2022

Vorstellungsrunde

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Dozent (FH) & Projektleiter

Lehre & Forschung

- Mobile Gesamtlösungen für iOS & Android
- Softwareentwicklung und Security



Vorstellungsrunde

Dipl.-Ing. Dr. techn. Elmar Krainz

Studiengangsleiter „Mobile Software Development“

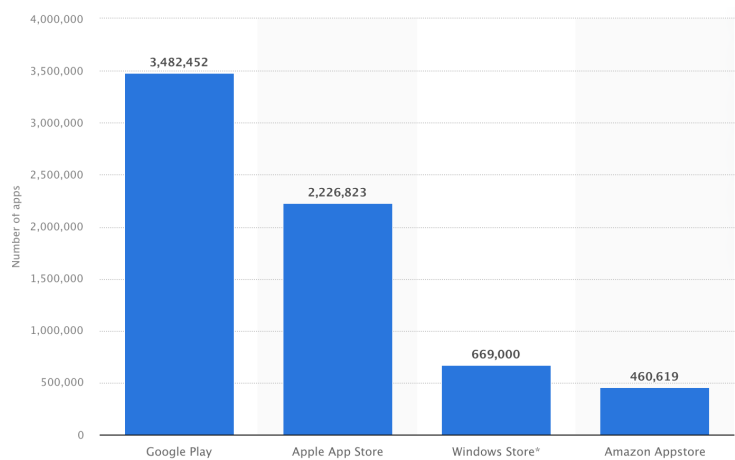
Lehre & Forschung

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

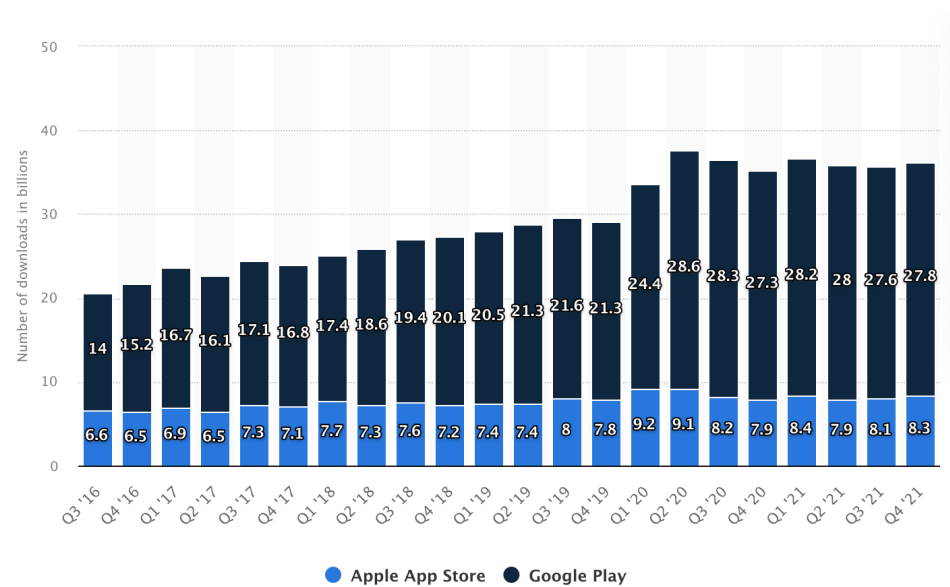


Wir haben eine App-Idee –
gibt es das schon?

Verfügbare Apps



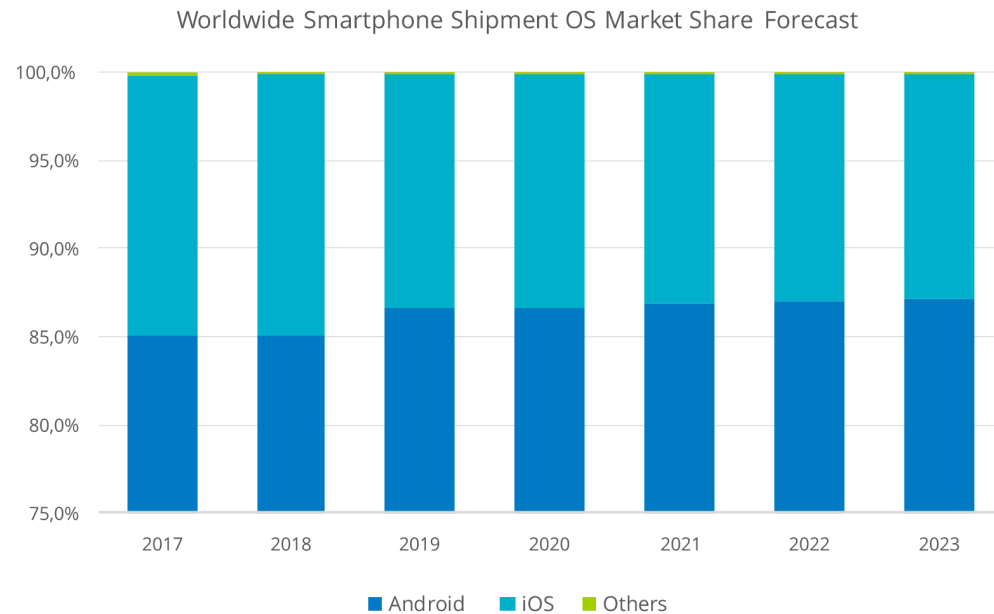
Number of apps available in leading app stores as of 1st quarter 2021, <https://www.statista.com/statistics/276623>



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



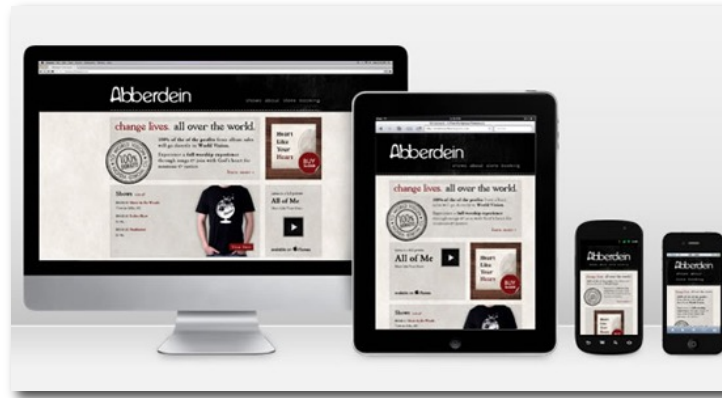
*US RiderNews
David Beckham*

<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-stopp-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?

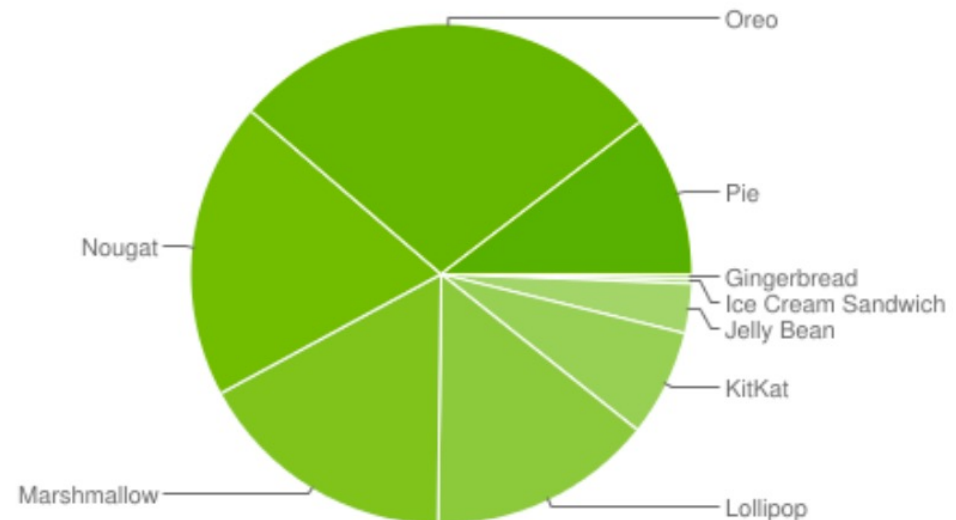
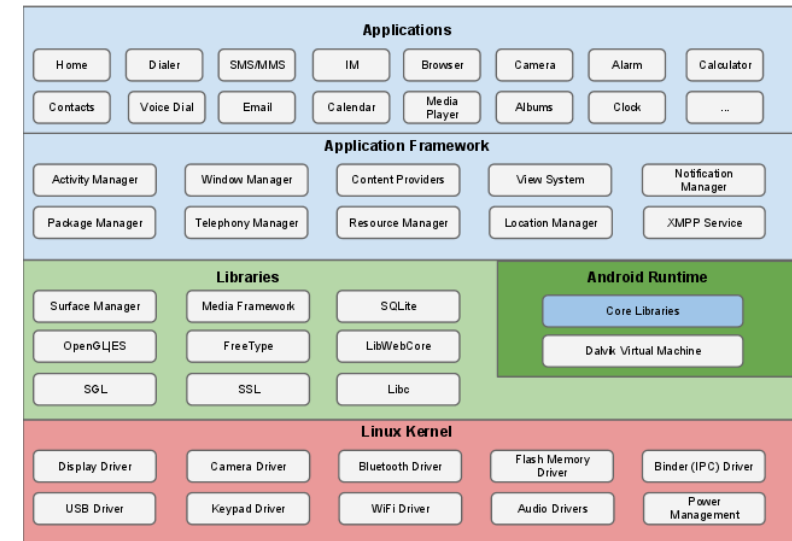


<https://medium.com/@mehulp89/android-vs-ios-a-comparison-of-concepts-b631d2c2e465>

Android

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

<https://developer.android.com/about/dashboards>



https://www.opensignal.com/sites/opensignal-com/files/data/reports/global/data-2015-08/2015_08_fragmentation_report.pdf

iOS

- **Closed System**
 - App Development
 - Devices, Cloud Services
 - App Store

- Software Development)
 - Compile to native code
 - ~~Objective C~~, Swift

- Devices
 - iPhone & iPad & iWatch

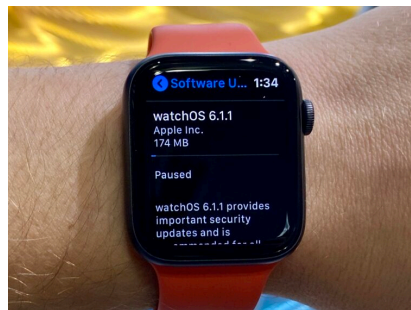
Introducing Xcode Cloud
Build and ship high-quality code using continuous integration and delivery.



Documentation
Use Xcode Cloud to Deliver Apps
Automatically build, test, and distribute your apps.

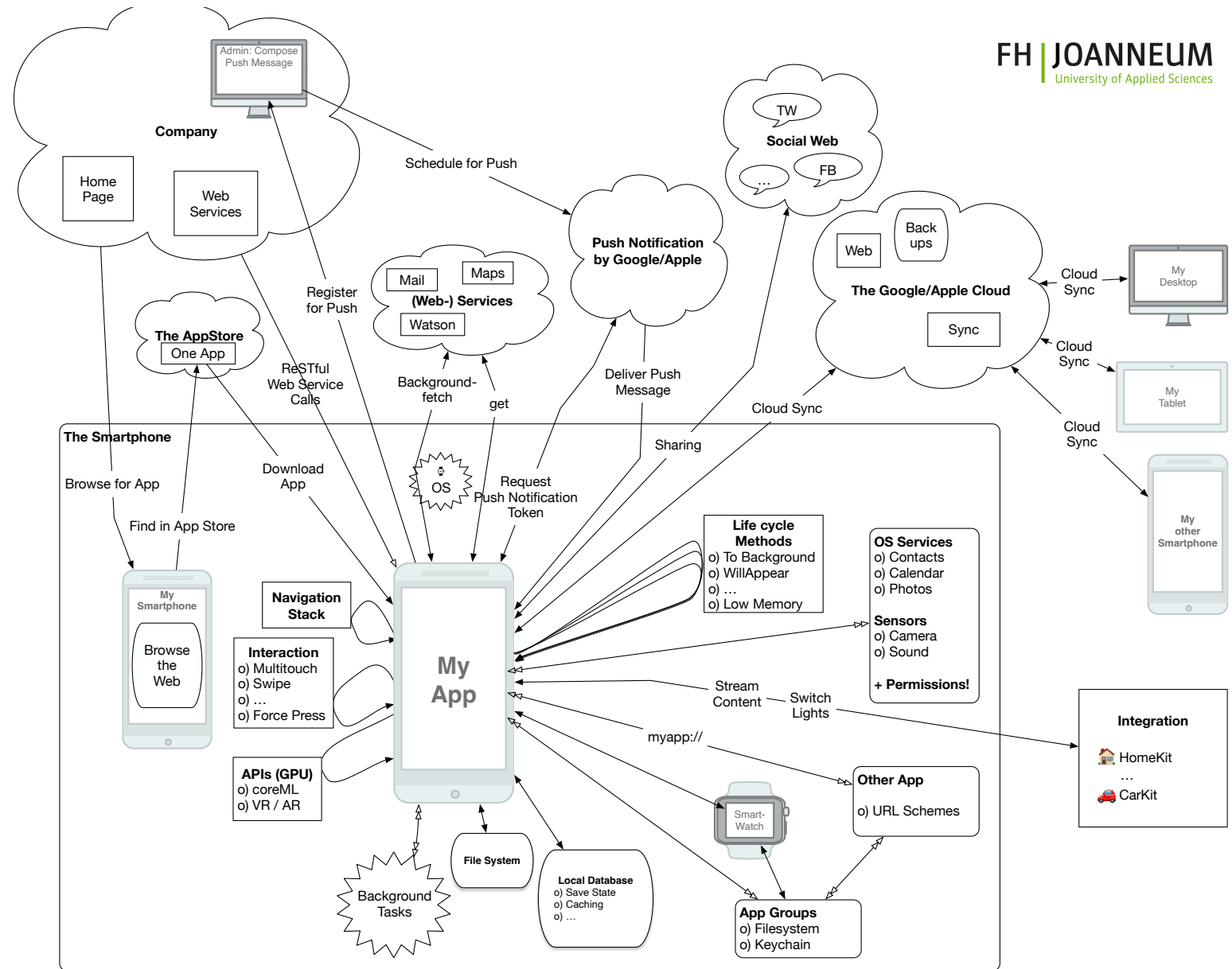
[Read documentation](#)

<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”?

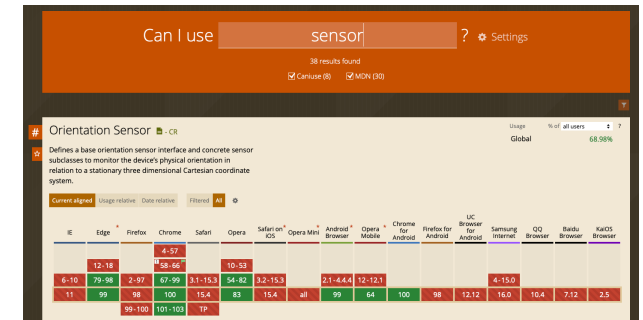


Alternativen zur App

- **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.



Can I use sensor

38 results found

Can I use (8) MON (30)

Orientation Sensor · cr · Global 68.98%

Defines a base orientation sensor interface and concrete sensor solicitors to monitor the device's physical orientation in relation to a stationary three dimensional Cartesian coordinate system.

Browser	Support	Support	Support	Support	Support	Support	Support	Support	Support	Support	Support	Support	Support	Support	Support	Support	Support	Support	Support
IE	Edge	Firefox	Chrome	Safari	Opera	Safari iOS	Opera Mini	Android Browser	Opera Mobile	Chrome for Android	Firefox for Android	UC Browser for Android	Samsung Internet	QQ Browser	Baidu Browser	Xiaomi Browser	Others	Others	Others
			4-57																
6-10	12-18	2-97	58-66	10-53	4-57	3-1-153	54-82	3-2-153	21-44,4	12-12,1									
11	99	98	100	15,4	83	15,4	all	99	64	100	98	12,12	16,0	10,4	7,12	2,5			
		99-100	101-103	TP															

<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/>

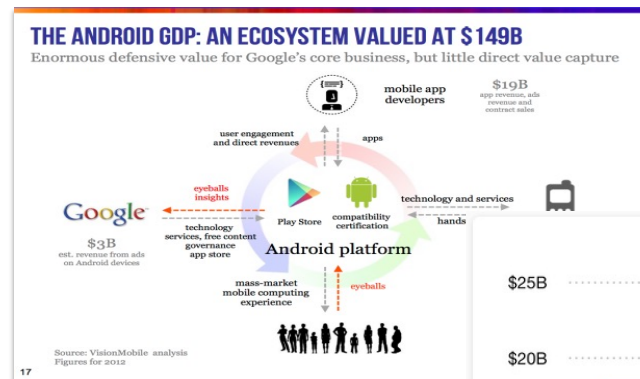
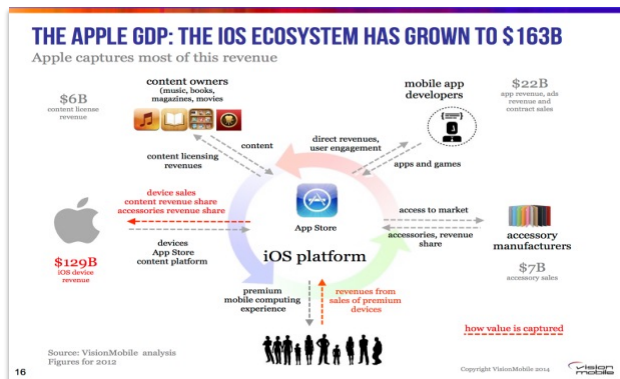
Service Development

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

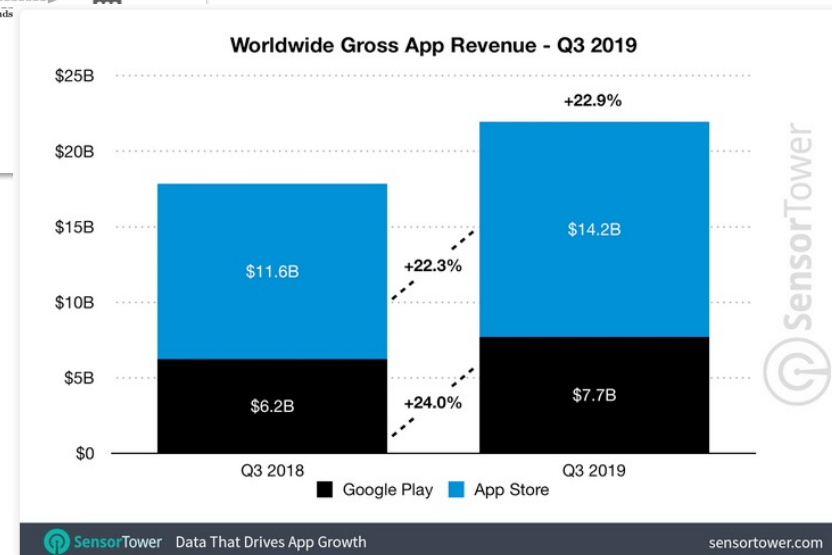
<https://www.itforbusiness.org>



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.

Tinder - Dating

Tinder

Google Play

Sensor Score A+ **100**

Visibility **91**

Internationalization **83**

Downloads

4m

Mar 2022 Worldwide

Revenue

\$12m

Mar 2022 Worldwide

Keywords found

iTranslate Translator

iTranslate

Google Play

Sensor Score A+ **85**

Visibility **83**

Internationalization **80**

Downloads

200k

Mar 2022 Worldwide

Revenue

\$100k

Mar 2022 Worldwide

willhaben

willhaben.at

iTunes

Sensor Score D **72**

Visibility **40**

Internationalization **22**

Downloads

40k

Mar 2022 Worldwide

<https://app.sensortower.com>

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

Privatsphäre

- Wertvolle Daten über User

- Tracking
- Usage/Statistics
- Analytics

Original sentence	"Bruce Schneier gave a talk about 'Data is the pollution problem, age, and protecting privacy challenge.'"
Outcome of the processing chain using stemming	bruce schneier gave better analog said : 'data pollut problem inform age , protect privacy environment challeng.
Outcome of the processing chain using lemmatization	bruce schneier give well analogy say : 'data pollution problem information age , protect privacy environmental 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)

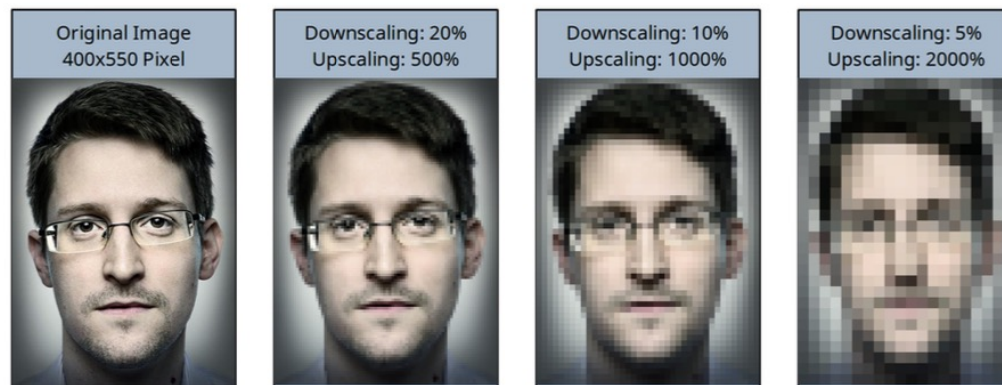


Figure 2.5: Exemplary results of image obfuscation through scalable pixelization.

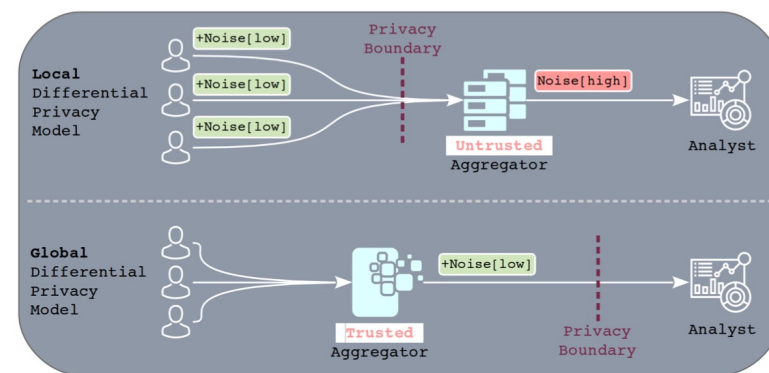
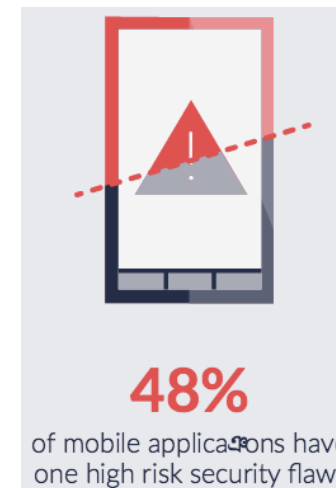
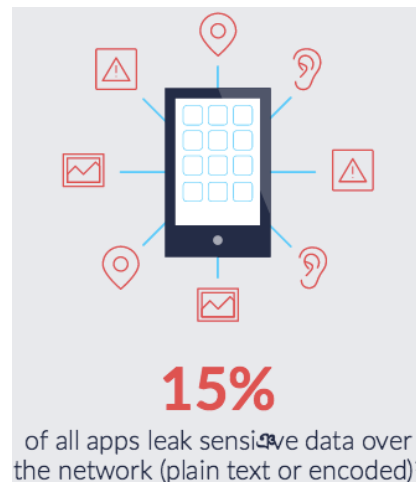


Figure 2.1: Depending on the site where noise is added, approaches to differential privacy can be categorized into local and global models.

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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Können wir uns das überhaupt leisten?

3 Take-Aways

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

Evaluierung des Vortrags



https://fragebogen.joanneum.at/dihsued_feedback/?q=base&r=AX365971