

Comparing Privacy Label Disclosures of Apps Published in both the App Store and Google Play Stores

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Do Android and iOS privacy labels show discrepancies for the same apps?



01 Introduction

Why privacy labels?

The screenshot shows a web page titled "Política de privacidad y protección de datos" (Privacy and Data Protection Policy) from the Ministry of Economic Affairs and Digital Transformation. The page includes social media sharing icons, a breadcrumb navigation path ("Inicio > Ministerio > Política de privacidad y protección de datos"), and a note about the policy's validity until May 20, 2022. It also contains a section on data protection principles and a contact email for the Data Protection Officer.

方投数据隐私政策

2022年05月20日版本

Inicio > Ministerio > Política de privacidad y protección de ...

Política de privacidad y protección de datos

El Ministerio de Asuntos Económicos y Transformación Digital es la entidad responsable del tratamiento de los datos de carácter personal suministrados por los usuarios en los Portales Web y Sedes Electrónicas.

En conformidad con lo establecido en el Reglamento General de Protección de Datos, Reglamento (UE) 2016/679 del Parlamento Europeo y del Consejo de 27 de abril del 2016, el Ministerio se compromete al cumplimiento de su obligación de secreto con respecto a los datos de carácter personal y al deber de tratarlos con confidencialidad. A estos efectos, adoptará las medidas necesarias para evitar su alteración, pérdida, tratamiento o acceso no autorizado.

Este aviso legal es de aplicación a las páginas de los Portales Web y Sedes Electrónicas, no se garantiza en los accesos a través de enlaces con estos sitios, ni a los enlaces desde estos sitios con otras webs.

Puede dirigirse al Delegado de Protección de Datos a través de: dpd@economia.gob.es

Política de protección de datos

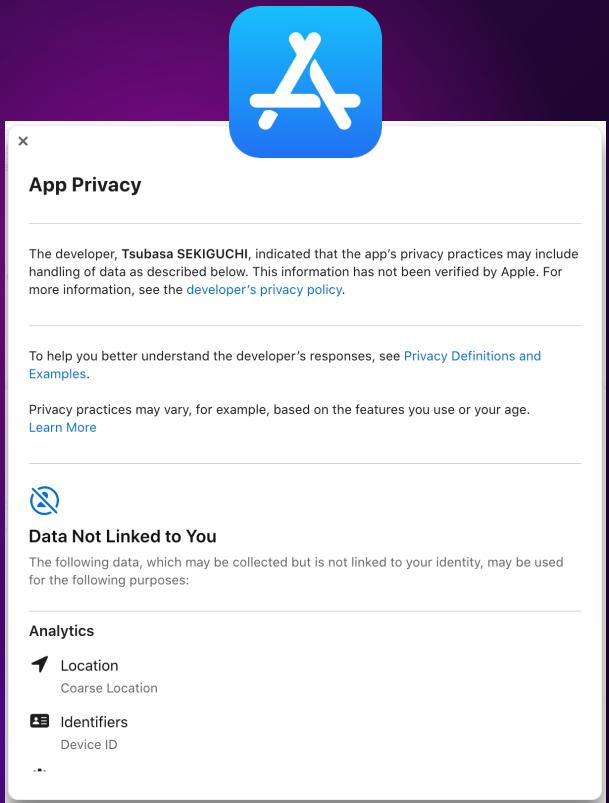
Recogida de datos personales

البيانات الشخصية التي يتم جمعها وتخزينها ورسانها وبياناتها •

<https://www.fineboost.cn>)、万投数据SDK、API、插件、组件、代码、工具以及不断创新研发的产品及服务，均适用本隐私政策。我们及关联公司就其向您提供的产品或服务单独设有隐私政策的，则相应产品或服务适用相应隐私政策。

SDK服务的适用范围

我们的SDK面向中国境内开发者提供服务，我们将在中国境内储存您的数据。为了避免您由于不了解您的最终用户所在国或所在地区关于数据保护相关法规政策而触犯当地的监管规定，我们强烈建议您仅在中华人民共和国大陆地区内使用方投

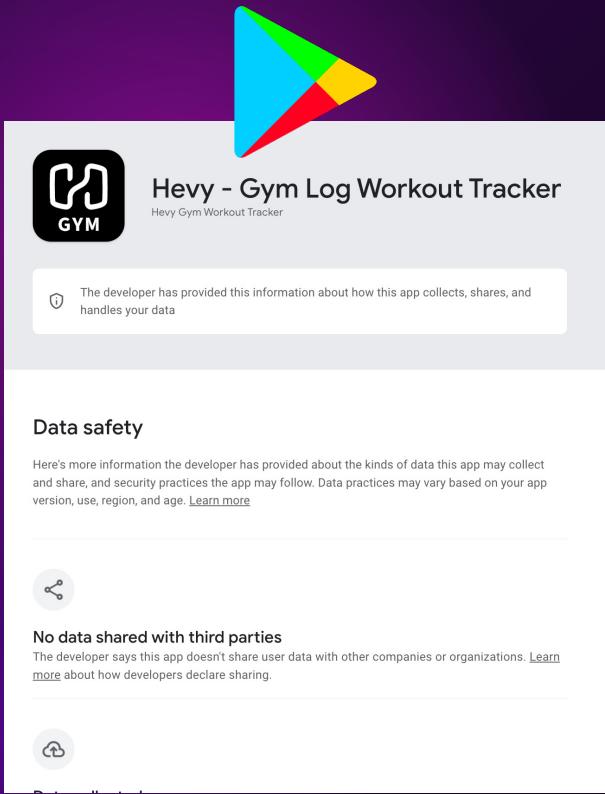


Why privacy labels?

- Standardized format
- Easily readable and understandable

Obligation of Privacy Labels:

December, 2020



Why privacy labels?

- Standardized format
- Easily readable and understandable

Obligation of Privacy Labels:

April, 2022

Two research questions

RQ1



Does the same iOS
and Android app
disclose the
collection of
identical info?

RQ2



Can we trust in the
privacy labels
disclosures?

02 Methodology

Finding identical Android and iOS apps

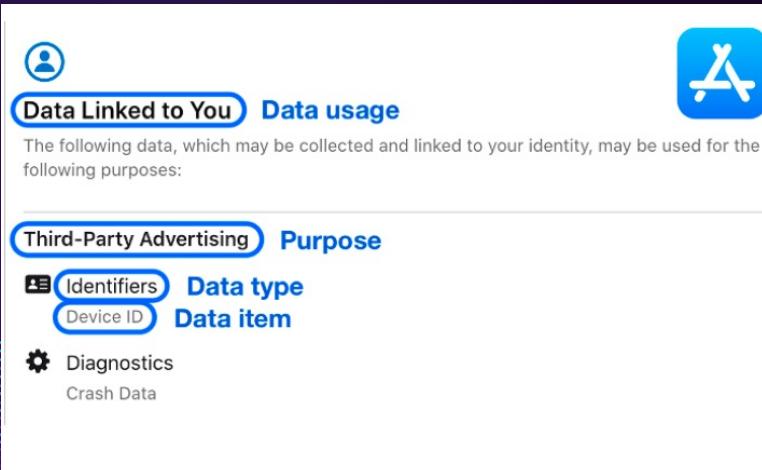
- Scrapped published apps in App Store
- Searched the app name in Google Play Store search bar
- Downloaded apps' logos and compared them using SSIM
- Filter to those apps with exactly the same privacy policies



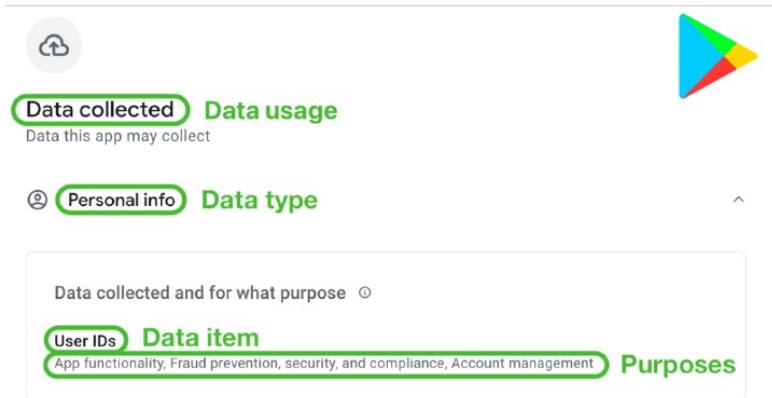
The image shows a side-by-side comparison of the 'Medisports Etten-Leur' app pages on the App Store and Google Play Store. Both pages feature the same logo, which is a green circle containing a stylized white 'hi' shape. The App Store page includes a note that the app is only available for iPhone. The Google Play Store page notes that the app is not available for the user's device. Both pages show four iPhone screenshots displaying different features of the app, such as 'Medisports Etten-Leur', 'My movement', 'Open Workout', and 'Results'. At the bottom of each page, there is a 'Developer contact' section listing other apps developed by Mywellness srl, including 'mywellness' and 'YMCA Central Florida'.

SSIM - Structural Similarity Index Measure

Privacy labels mapping



	iOS Label	Android Label
Data practice	Data Linked to You Data Not Linked to You	Data collected
	Race and ethnicity Sensitive Info	Political or religious



Health	Health info
Fitness	Fitness info

03 Results

Experiment numbers

35K

iOS apps looking for
Android match



1,423

Apps with identical
privacy policy



11K

iOS and
Android apps
duet



822

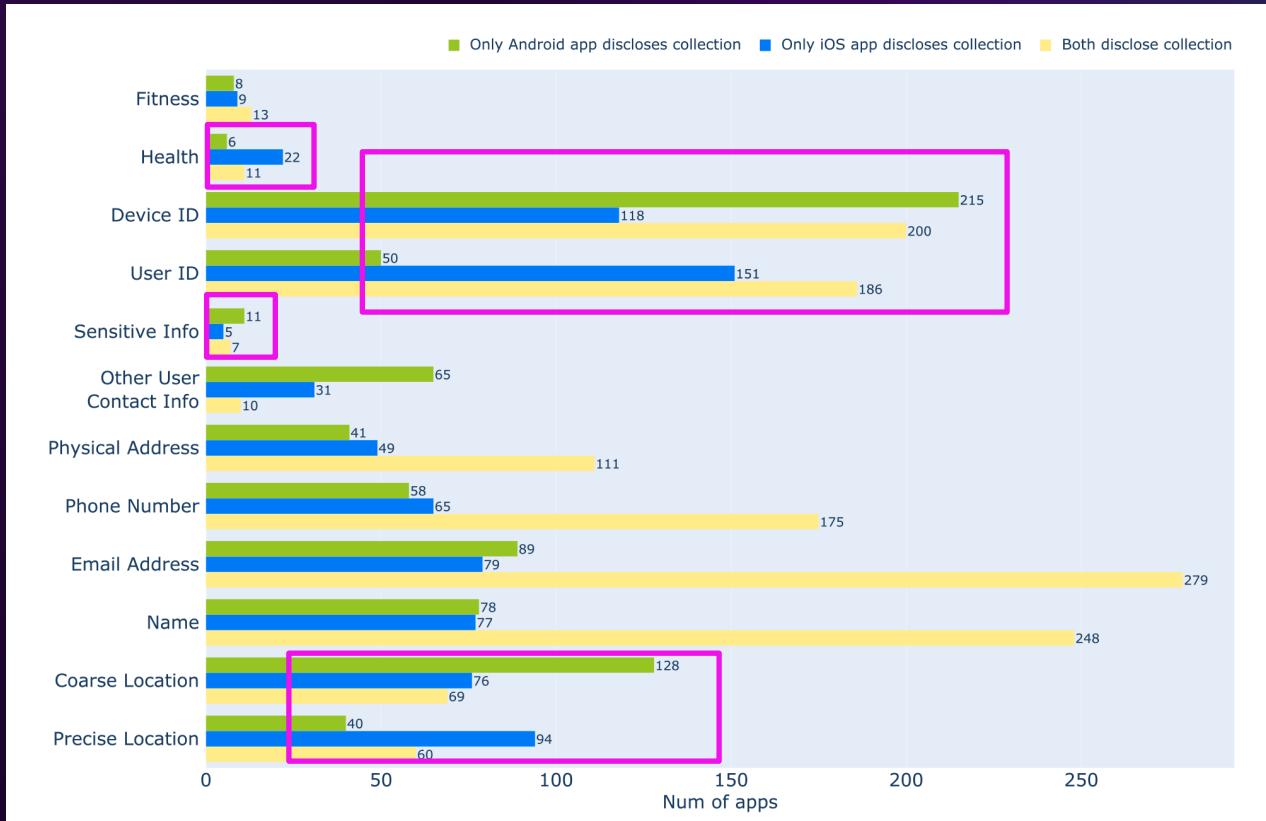
With apps with
privacy labels in
both marketplaces



Comparison between the number of Android (green) and iOS (blue) apps declaring the collection of each data type



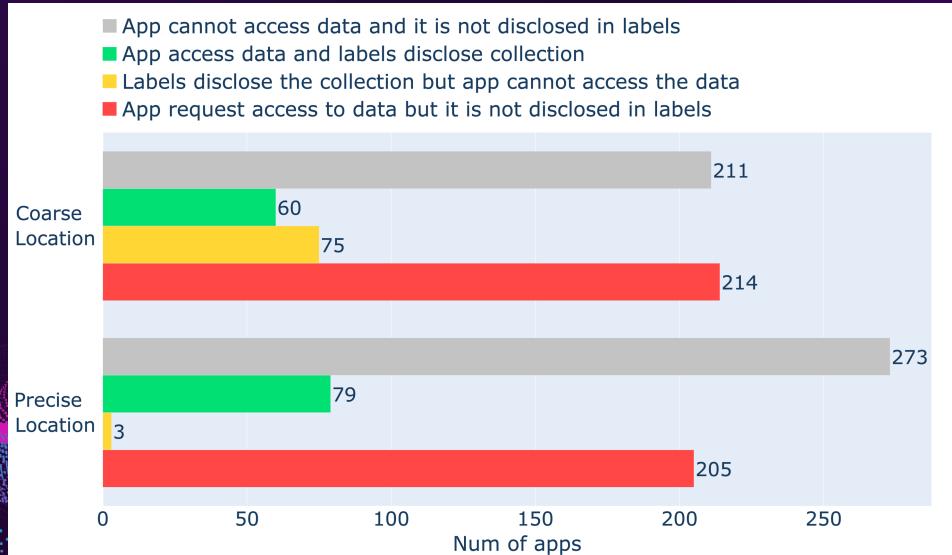
Number of apps disclosing a data item collection in the privacy labels



Comparing privacy labels and actual apps code

Access to location data

Precise and coarse location in Android apps code



- 560 apps source code downloaded and decompiled
- Android manifests checked looking for request to location
- 44.3% apps declares access to location in Manifest. But None of them disclose it in labels
- 54 apps accessing location in the code. But None of them disclose it in labels

04 Conclusion

66,5%

Of matching Android and iOS apps show potential discrepancies in their labels

3, 2%

Out of 503 matching Android and iOS apps that disclose collection agree in all the 12 mapped data items collected

05 Lessons learnt

Discrepancies example

The screenshot shows a mobile application page for 'Forever' on a store like Google Play or App Store. The page includes a title, a brief description, a list of features, and two screenshots of the app's interface.

Features:

1. Pedometer: Count your steps, calories, active time, distance.
2. Sleep Tracker: record and analysis your sleeping.
3. Notification reminder: never miss notification on your phone.
4. Heart Rate support: measure you Heart Rate and save your log.
5. Daily tracker: track your life and exercise.
6. Supports syncing your sport data to Apple Health (HealthKit).
7. Compete on leaderboard with your friends.
8. Win badges to make sport more fun.

Your perfect daily health and sport partner.

NOT Disclose collection of Health info

**Disclose collection of
Health info**

**NOT Disclose collection
of Health info**

What did we learn?

- Remarkable divergences between iOS and Android labels
- Inconsistencies found in labels for the same Android and iOS apps
- Static analysis shows app behavior can be misaligned with labels disclosures

Thanks!



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Mellon
University

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