

Data collection in mobile applications and economic issues - Public consultation questionnaire

Personal information

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Your status (required):

- ☐ an individual
- ☐ a researcher
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- ☐ a consulting firm
- ☐ a design office
- ☒ an interest group
- ☐ other, to be specified

Organization (if professional): ACT | The App Association

Country of head office (of the entity or of the group of which it is part): Washington, D.C.

Function (if professional):

Sector of activity (required):

- ☐ Health
- ☐ Mobile
- ☐ advertising and marketing
- ☐ telecom
- ☐ deep tech
- ☒ other, to be specified: app development, IoT; all the above

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Part 1: Description of the ecosystem and value creation through data

1. How would you describe in a few lines the role of data in the world of apps and more generally mobile ecosystems from an economic point of view?

Mobile apps often gather and/or aggregate data to make it more useful for the user or provide a service the user requested, i.e. they can generate health and fitness insights, analyse financial data to help make monetary decisions, or help to complete tasks like paying your bills or ordering dinner. Apps that interact with internet of things (IoT) devices may also exchange data with those devices, e.g. to remotely turn on the lights or control the temperature inside a home. In certain scenarios, apps may also exchange data with third parties to provide a service or a good. For example, when a user wants to order a meal on a delivery app, the restaurant shares its menu and prices with the app which then shares it with the user. In turn, the user shares their contact information and food selection with the app which then shares it with the restaurant and the delivery driver. All these parties require some data to make the ultimate task (food delivery) happen. Without safe data collection and exchanges, the app economy would create next to no economic value. Data is necessary to drive the app economy and continue its successful growth.

2. What categories of data (regardless of their technical or legal qualification) do you think play a role in creating value in these universes? (Justify your answer)

Classic mobile apps on a user's phone most likely deal with personal data (e.g. financial or health data), but there are also business applications that deal with non-personal commercial data. How sensitive or private a user may view their personal data also impacts the categories of data they will enter into an app. For example, a user who considers their address highly sensitive information will likely not enter it into a food delivery app. In the app economy, both commercial data (e.g. in IoT) and personal data play a significant role in creating value. The General Data Protection Regulation (GDPR) also already regulates how categories of personal data can be used for value generation.

3. What types of players do you think play a role in creating value in these universes?

Generally speaking, app developers, software distribution platforms, consumers, and business users play roles in creating value in the mobile app economy. In specific cases, however, this largely depends on the exact parties involved in the task that an app wants to accomplish (See, e.g. the food delivery example).

4. How would you describe the interactions between these actors? (Justify your answer)

App developers produce an app, and the software distribution platform usually will review the app and ensure that it works as described and doesn't have any malicious features that could harm consumers before it places the app on its platform. Once an app is available on a software distribution platform, the app developer can reach consumers worldwide and interact directly with them. The bigger software distribution platforms also handle various tasks for the developer, e.g. payments systems and dispute resolution, which is especially helpful to smaller developers who don't have the resources to handle those tasks on their own. The App

Association considers the interaction between developers and platforms a symbiotic one. In terms of interaction with data, per GDPR, the involved actors only collect the data they require to perform their task. For example, the food delivery driver needs to have the address of the restaurant and the customer but may not need to know exactly what food was ordered. As such, data minimisation practices should be encouraged. The actors have access to data for a limited time. For example, the customer may see the location of the driver but only for the duration of the food delivery.

5. Looking at the use cases where data plays a central economic role in mobile worlds, which do you see as the most important in terms of current and future economic potential? (Justify your answer)

As pointed out in the App Economy Report by Deloitte (https://actonline.org/wp-content/uploads/220912_ACT-App-EU-Report.pdf), apps and mobile devices often create value that would not be possible without such combination of actors and data sharing. This can be because the appropriate data can be shared within the scope of the task or transaction that is to be completed. Mobile devices may gather photos (again, with the food delivery example, the driver may share a photo of the delivery on the customer's doorstep), location, device payment information, etc. — these are examples that are typically only available on mobile devices and not generic personal computers.

6. In your opinion, how relevant are the following different business models (or other models) for a mobile app?

- Paid download or subscription

Please explain: In the case of paid downloads, the user makes the payment the moment they download an app, and the user can access all features of the app immediately. This is relevant for mobile apps that want to monetise digital content directly. Often, these will be apps with known brands which users are familiar with and are willing to pay for up front.

- Free to end user, ad-supported

Please explain: Installing and using the app is free, but it will display advertising or video clips when the consumer uses it. Often used for apps that have large audiences, but the monetising of private information such as a history of preferences or location may be problematic and unexpected by the user. Under GDPR, however, mobile apps must disclose such practices.

- Freemium (part of the free services of others paying)

Please explain: Users can download freemium apps at no cost but will only be able to access limited features of the app. To use advanced features, users will need to make in-app purchases or sign up for a subscription. Most subscription apps have some form of a free version and sell premium features or services from within the app.

- Funded by the sale of data

Please explain: This category of apps often suffers from a lack of transparency, which is highly problematic. For example, certain weather apps have been found to sell location info to data aggregators without making the user fully aware that this was happening. Transparency and informed consent are key.

- Funding through in-app purchases

Please explain: In-app purchases is typically another form or variation of the freemium or 'paid-mium' model. Many gaming apps use this model to allow users to access additional features, e.g. to purchase extra lives to continue playing.

- Simple distribution channel app (funded by a pre-existing service)

Please explain: This model consists of mobile apps that send purchased goods directly to users (e.g. Deliveroo, Uber, or Vinted). These kinds of apps often enable users to have a frictionless shopping experience and can provide new services on top of an existing one. Most apps in app stores are free because they are used to expand the reach of existing services to mobile users.

- Other (justify your answer)

All of these business models are important and relevant within the app economy. The existence of various business models allows developers to innovate flexibly and choose the model that works best for their specific idea, service, or good they provide. Software distribution platforms give developers the freedom to choose how their apps generate value, which also enables them to generate revenue via various channels if they choose to do so (e.g. hybrid monetization via paid-mium models or having ads that co-exist with subscription models)

7. How do you think each will evolve in the future?

The business models of apps will continue to evolve through a complex interaction between platforms, app makers, and end users. Over the years, platforms have implemented a series of innovations to expand choice for both app makers and end users, and we expect this trend to continue. Over the last 15 years, software distribution platforms like the Google Play store and Apple's App Store have continuously introduced new features that enabled developers to collect revenue in new ways. Since 2012, Google has paid developers over

\$80 billion in Play store revenues (as of 2020), and Apple has paid developers \$320 billion since 2008 (as of 2023). The App Association created a resource to highlight the constant change and level of innovation that occurs on the software distribution platforms, which illustrates how the two largest app stores have evolved, innovated, and interacted with each other over the years. Find it here: <https://actonline.org/2021/04/07/a-brief-history-of-time-the-app-stores/>

Part 2: Economic role played by the environment of app publishers

8. Some authors distinguish several types of markets within mobile universes (e.g. Flensburg and Lai, 2022). Does the classification of markets below seem relevant to you given the role of data in these universes?

- The market for the apps themselves (software) and their distributors (stores)

Please explain:

- Third-party services (of the software development kit (SDK) type)

Please explain:

- Data collection infrastructures (on user terminals)

Please explain:

- Operating systems and their suppliers

Please explain:

- Another classification would be preferable: (indicate which one and according to which criteria)

Please explain:

9. How would you describe the economic role of operating systems for collecting and processing data in mobile worlds? (Justify your answer according to the operating system considered)

- as data collection infrastructures: is this role significant? (Indicate for which data, and for what reasons)

Please explain: An operating system provides application programming interfaces (APIs) that can give an app access to specific data such as location or images collected from the camera. Just-in-time permissions are key to get informed consent from the user and are especially useful because they can prompt the user for permission in a context that 'makes sense', i.e. the moment when the app is asking for access to certain data the user can

consent right then. For example, asking for permission to gather the user's location is appropriate when the user wants to order a taxi. The role of the operating system in combination with APIs in the data collection infrastructure is thus highly relevant.

- as they collect and combine the data but do not make the data available? Or in a non-transparent and unfair way?

Please explain: Under GDPR, collecting personal data in a non-transparent way is unlawful. It's important to note that operating systems may have good reasons to deny access to certain APIs and personal information or not make it available to third parties (such as developers) in order to protect consumer privacy and the user experience.

- as rule promoters, do you trust them when it comes to security and privacy protection? (Cite examples of good and bad practices in this area that you have observed)

Please explain: The App Association believes that operating systems can be good rule promoters regarding security and privacy protection. Just-in-time permissions are an excellent example of a method to protect privacy that operating systems can promote for the benefit of both (well-intentioned) app makers and consumers.

- on other points (to be developed)
Please explain:

10. What do you see as the economic potential for "alternative" operating systems, some of which offer to limit data collection?

Please explain: The economic potential of specific alternative opportunities is difficult to assess. Nonetheless, the history of software development has shown that today's dominant operating systems will most likely be replaced by something completely new, just as they replaced previously dominant operating systems. So, it's highly likely that these alternatives will not only show up but also will become dominant in their own way, even when the exact timing of such a transition is nearly impossible to predict.

11. How would you describe the economic role of mobile app stores (two-sided platforms) for collecting and processing data in mobile worlds?

- with regard to access to data through them

Please explain: App stores, through their detailed guidelines and rigorous app review, limit apps with excessive data collection features on the app store in order to protect consumer privacy and the user experience. This process also preserves the consumers' trust that apps, even those from unknown, smaller vendors, will not harm their device and privacy. This consumer trust is crucial for startups and SMEs to succeed, as they

don't enjoy the same name recognition as a well-known and trusted brand. The mobile app stores play a huge role in enabling smaller developers to participate in the mobile world, including by collecting and processing data.

- regarding network effects, scale effects and other phenomena affecting data competition

Please explain: Software development platforms obviously have access to a large amount of data through both business users and consumers. Through network and scale effects, ultimately, the platforms can provide better services and come up with new features to benefit the business users that make their apps available for download on the platform, such as reducing transaction and production costs for developers, generating high level of trust with consumers, facilitating market entrance, and providing payment infrastructure for various business models. By being on the app stores, even small app companies can have an enormous customer base and a significant effect on data collection and storage.

- in terms of their influence in defining app business models

Please explain: As mentioned above, software distribution platforms have contributed significantly to the emergence of the multiple business models in the mobile app economy. By introducing new features for monetisation, they have enabled developers to choose whichever model works best for them (e.g. initially there were only paid and free apps, but over time in-app purchasing and subscription models were introduced).

- with regard to their role as a trusted third party and prescriber of practices, particularly in terms of privacy

Please explain: For the success of the app economy, it is essential that users continue to trust software distribution platforms. In curating app stores to only sell trustworthy apps, and given the success of the app economy, platforms have established themselves as a trusted third party for consumers. For store curation to be an effective generator of trust, app stores have to implement solid and thorough app review processes.

- other points (to be developed)

Please explain:

12. What economic roles do providers of software development kits or SDKs play in the mobile apps market? (Justify your answer by focusing on the collection and processing of data)

- by introducing cost-saving incentives for the collection and processing of data by apps? (Specify which ones)

Please explain: Software development kits and application programming interfaces provide a mechanism via the operating system to limit data gathering to occur within certain boundaries of safety and data protection, only giving apps access to the data they need to perform the intended task.

- by reducing transparency and control of data collection and processing for apps?

Please explain: We don't see how app stores would reduce the transparency of data collection.

- on other points (to be developed)

Please explain:

13. As a user or professional, how would you describe the economic role played by payment providers in the mobile world? (Justify your answer)

- Regarding the data they process

Please explain:

- Regarding their influence on business models

Please explain:

- Regarding other aspects

Please explain:

Part 3: Economic analysis of some issues specific to mobile apps

14. What is your feedback as a user or professional in the field, on the willingness to pay of end users for mobile app services (including as an alternative to business models based on the exploitation of data)?

- regarding the determinants of this willingness to pay: how much do you estimate it in monetary terms? (Justify your answer)

Please explain: In recent years, increasing awareness of the monetisation of data and of the problems that data-driven advertising can generate has likely led to users being more willing to pay for apps through subscriptions and in-app purchases. We believe that this evolution has increased user confidence in paid apps and are confident this trend will continue in the future.

- with regard to the barriers to better exploitation of this business model from a commercial point of view: what avenues to suggest in this regard? (Give concrete examples)

Please explain: Privacy dashboards have been a great step forward in informing users in a way that is effective.

15. In the mobile universe, do you encounter any limitations in terms of payment (eg micropayment solutions, for example)?

- No, or I prefer free apps
- Yes

If yes, specify your answer (availability, cost, trust,...)

If yes, should the CNIL recommend solutions adapted to these universes and which ones (payments in cryptocurrency, digital euro, others)?

Please explain:

16. For a mobile app, among the business models identified by the literature (e.g. Deloitte, 2022), which do you think are the most virtuous in terms of data protection and for what reasons? (Justify your answer)

Please explain: For good data protection, the data protection practices developers implement matter more than the business model they use. For certain business models that monetise the user's data, transparency is especially important.

- there are others (precisely describe your alternative proposal)

17. Does the data economy in the mobile universe seem to you to follow other rules than in the web universe?

- No
- Yes

If yes, which ones and for what reasons? (greater ability to combine, ease of drawing, user behavior, others)

Please explain: The web universe operates differently than the mobile app economy because mobile software distribution platforms are a curated environment, in which users can download only apps that have undergone vetting. This isn't necessarily the case on the web.

Because the platforms provide more scrutiny up front, before an app is placed on the store, the platforms leave less room for data abuse and provide a higher level of data security for consumers.

18. What economic advantages (or costs) do you associate with the use of data in mobile universes for professional use (for the employer, for the employee or the self-employed)?

- with regard to new forms of work (collaborative economy “gig economy”)

Please explain: Apps have created tremendous opportunities in connecting end users with willing workers (e.g., delivery and taxi apps have allowed gig economy workers to generate extra income for themselves).

- with regard to the traditional economy (teleworking, etc.)

Please explain:

Apps that don't generate revenue directly can still generate massive economic advantages for 'traditional economy' players. Apps provide an additional distribution channel for those actors and thereby expand the customer base of an existing service. Examples include sales via mobile apps of furniture, clothes, or travel. As the question indicates, apps have also allowed businesses to give their employees more flexibility by enabling increased telework and facilitating business tasks like online communication, collaboration, scheduling, and content sharing.

Part 4: Economic aspects of the regulation of personal data in the ecosystem

19. Could you provide us with an estimate of the costs and benefits of compliance with personal data protection rules, if your entity active in the world of mobile apps is subject to them? (Distinguish between initial and recurrent costs, attempt a monetary estimate of the benefits)

Please explain:

While compliance is essential and a significant investment for our members, we haven't been able to specifically estimate how much time or money they spend on complying with data protection rules.

20. In your opinion, should the CNIL highlight, in its communication, the cost of leaks and compromises of personal data in mobile universes (cf. Bian et alii, 2022)? [Maximum choice]

- Yes
 - What do you think these costs are? (Expand)
 - How can we best objectify them? (Expand)
- No (Justify your answer)

21. Does the business model based on donations seem to you to have economic potential (logic of free software with voluntary contributions)?

Please explain:

22. In your opinion, should this type of non-market business model be promoted, and how?

Please explain:

Part 5: Useful documentation and resources

23. Would you like to bring to the attention of the CNIL reference documents or other recent and relevant sources on the subject? [Publications accessible online, books, articles,...]

See The App Economy in Europe https://actonline.org/wp-content/uploads/220912_ACT-App-EU-Report.pdf

A Brief History of Time: The App Stores <https://actonline.org/wp-content/uploads/A-Brief-History-of-Time-The-App-Stores.pdf>

Security and trust from an app maker's point of view

<https://actonline.org/2021/12/02/security-trust-appmakers-pov/>

24. Would you suggest that the CNIL contact people who are experts in the field in question? [Name, position, organization, email]

25. In your opinion, are there any other important considerations for understanding the economic role of data in mobile universes? (Specify your answer)

Please explain: