

How Are Your Zombie Accounts? Understanding Users' Practices and Expectations on Mobile App Account Deletion

Yijing Liu, Yan Jia, Qingyin Tan, and Zheli Liu, Nankai University;
Luyi Xing, Indiana University Bloomington

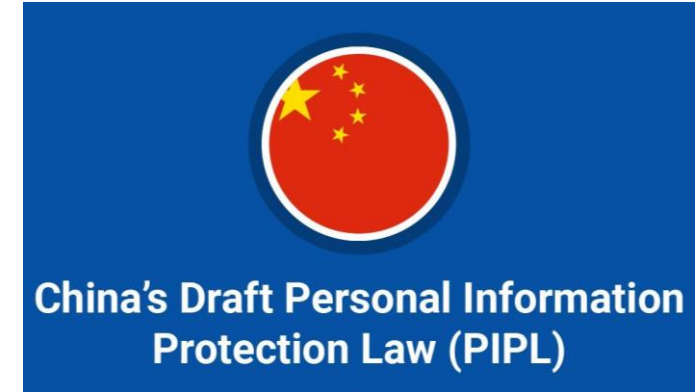


南開大學
Nankai University



INDIANA UNIVERSITY
BLOOMINGTON

Motivation



The Right To Be Forgotten



Account Deletion

Motivation

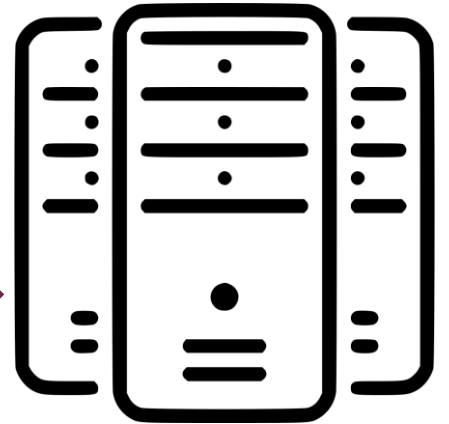
- Omitted account deletion leads to **zombie accounts**
- The account deletion process lacks standard practices



! ZOMBIE !

ACCOUNT

INFORMATION



No Longer Used



Motivation

- Omitted account deletion leads to zombie accounts
- The account deletion process lacks **standard practices**

How to Delete my account ?

Delete within the app

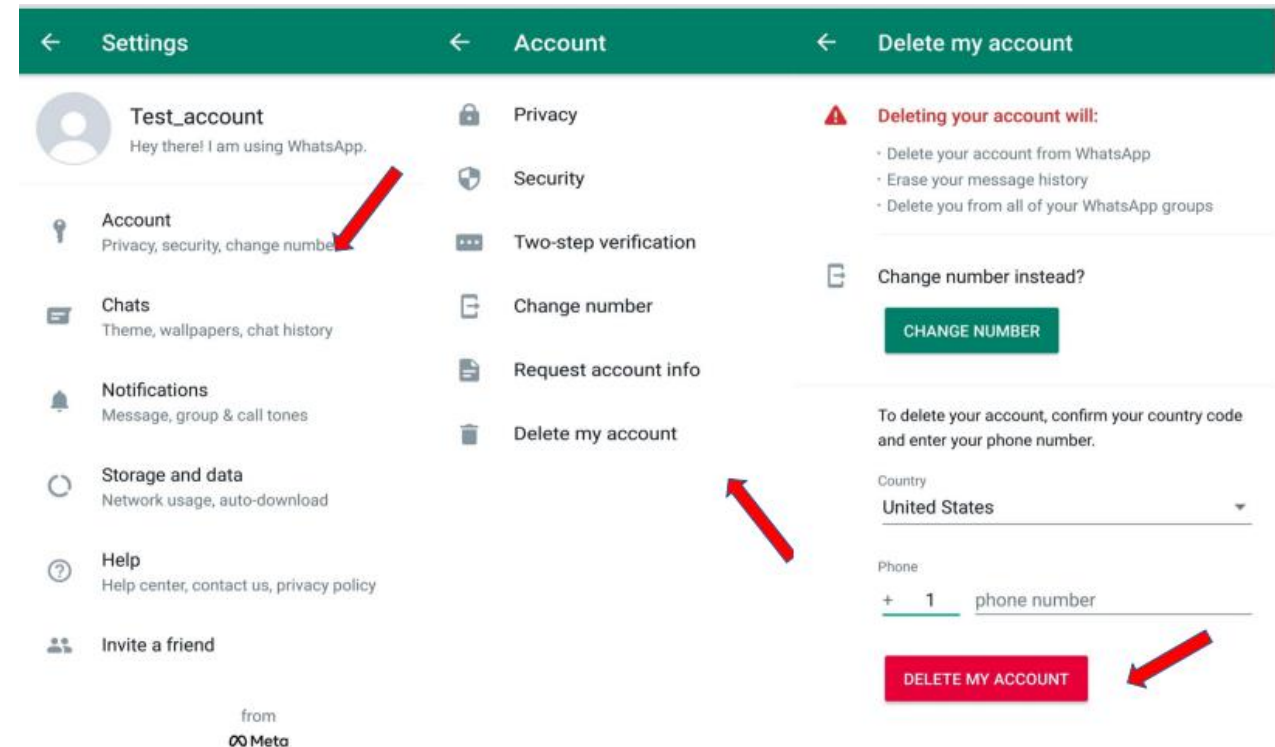
Open the browser

Send email or Contact customer service

No account deletion function

.....

NO STANDARD



Account deletion in *Whatsapp*

Research Questions

WEB context → MOBILE context

- **RQ1: [Necessity and Awareness]**

Is account deletion necessary in people's daily life and are users aware of protecting data through account deletion?

- **RQ2: [Practice and Understanding]**

How many users exercised mobile account deletion in practice and how do they understand it?

- **RQ3: [Feeling and Expectation]**

Do account deletion designs in modern mobile apps meet users' expectations?

Pre-Study

Empirical measurement

Account deletion process model

Questionnaire

647 participants

RQ1 and RQ2

Interview

20 interviewees

RQ3

Pre-Study

Empirical measurement

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RQ1 and RQ2

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RQ3

60 apps from the Chinese app stores and the U.S.

Register a new account



Use the app as a normal user



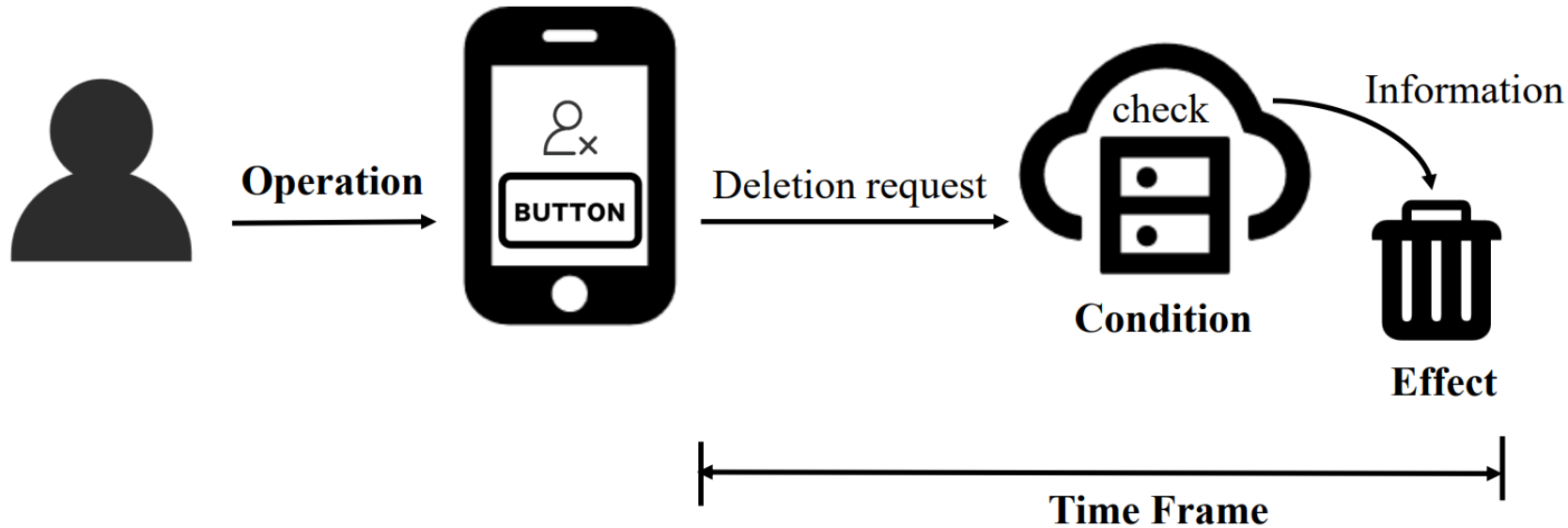
Delete the account



Google Play



Pre-Study: Account Deletion Model



- **Operation:** How to find the Deletion entry (Entry) and finish the account deletion request (Steps).
- **Conditions:** Check whether the requested account can be deleted.
- **Effect:** The types of data to process and the processing methods (e.g., deletion or anonymization).
- **Time frame:** The time vendors respond to the user's deletion request and fulfill the process.

Online Questionnaire

Pre-Study

Empirical measurement

Account deletion process model

Questionnaire

647 participants

RQ1 and **RQ2**

Interview

20 interviewees

RQ3



400 Chinese



288 American

688 Participants



647 qualitative responses

Pre-Study

Empirical measurement

Account deletion process model

Questionnaire

647 participants

RQ1 and RQ2

Interview

20 interviewees

RQ3

Why Offline interview ?

- **Collect fresh-memory feelings.**

Part 1: Experiment.

Completely deleted accounts of three apps.

Part 2: Interview.

Asked some questions.



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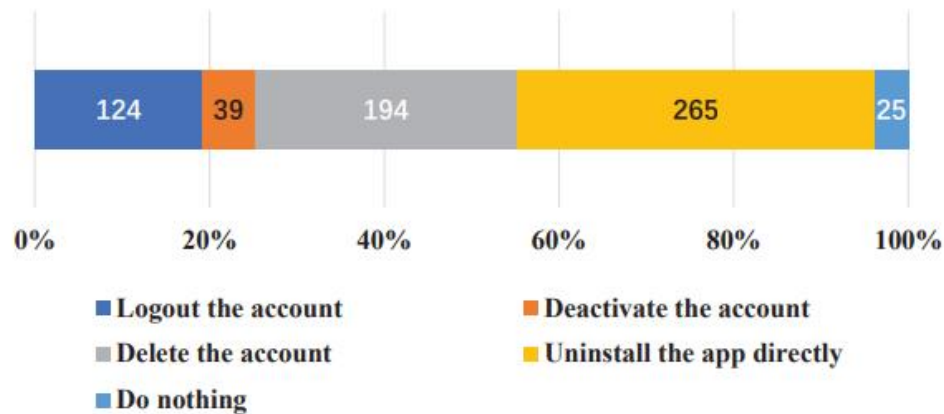
Result-RQ1

- Awareness

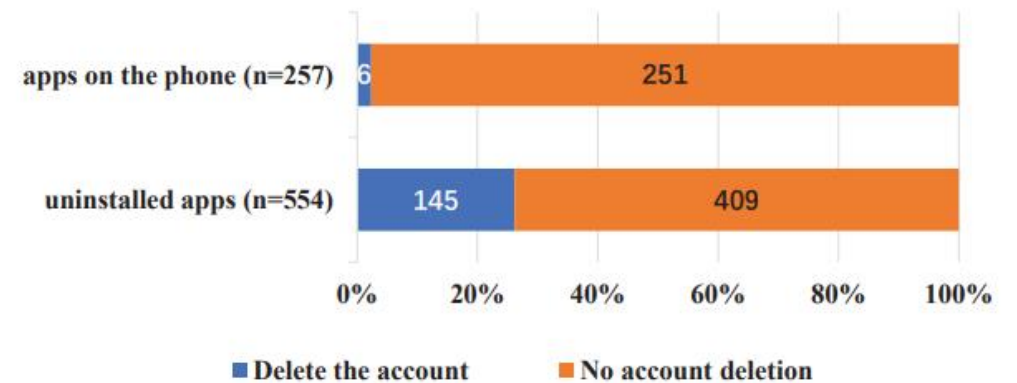
89% concerned about their personal information.

78% indicated they were aware of the RTD.

75% held zombie accounts



(a) What would you do with those accidentally downloaded apps? (Q7)



(b) Did you delete the accounts for unused apps? (Q10, Q13)

- **Necessity**

95% were strongly desired to delete personal data in zombie accounts.

60% expressed their concerns on zombie accounts.

Three kinds of troubles met by participants as not deleting accounts timely:

(1) Persistent promotional pushes. (60%, 21/35)

(2) Information disclosure. (34%, 12/35)

(3) Financial loss. (6%, 2/35)

22% had the experience that although it was the first time to use an app they accidentally used another person's account

- **RQ1: [Necessity and Awareness]**

Zombie accounts have **non-negligible** impacts on users and account deletion is **necessary**, which is what most people **desire**, but often be **ignored** in the daily life.

- RQ2: [Practice and Understanding]

How many users exercised mobile account deletion in practice and how do they understand it?

- RQ3: [Feeling and Expectation]

Do account deletion designs in modern mobile apps meet users' expectations?

Result

- RQ1: [Necessity and Awareness]

zombie accounts have non-negligible impacts on users and account deletion is necessary, which is what most people desire, but often be ignored in the daily life.

- **RQ2: [Practice and Understanding]**

How many users exercised mobile account deletion in practice and how do they understand it?

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Do account deletion designs in modern mobile apps meet users' expectations?

Result-RQ2

- Practice

Q16: *Have you ever tried/thought of deleting an app account? Did you complete the deletion process?*

Successfully deleted.

55%

66% (184/279) in American

V.S. 46% (171/368) in Chinese

Tried, but couldn't delete.

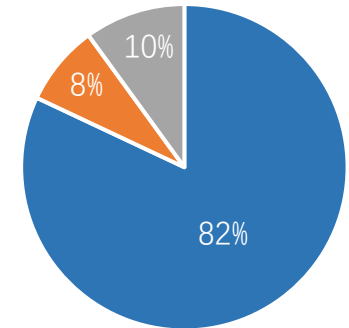
15%

“The service didn't have the option for deleting the account, at least not easily discoverable.”

“Too many steps”

Never tried to delete.

30%



- Never consider deleting the accounts.
- All the accounts are in active use.
- Account deletion is unnecessary.

Result-RQ2

• Understanding

V. How can I manage or delete information about me?

We provide you with the ability to access, rectify, port and erase your data. Learn more in your [Facebook Settings](#) and [Instagram Settings](#).

We store data until it is no longer necessary to provide our services and Meta Products, or until your account is deleted - whichever comes first. This is a case-by-case determination that depends on things like the nature of the data, why it is collected and processed, and relevant legal or operational retention needs. For example, when you search for something on Facebook, you can access and delete that query from within your search history at any time, but the log of that search is deleted after 6 months. If you submit a copy of your government-issued ID for account verification purposes, we delete that copy 30 days after review, unless otherwise stated. Learn more about deletion of [content you have shared](#) and [cookie data obtained through social plugins](#).

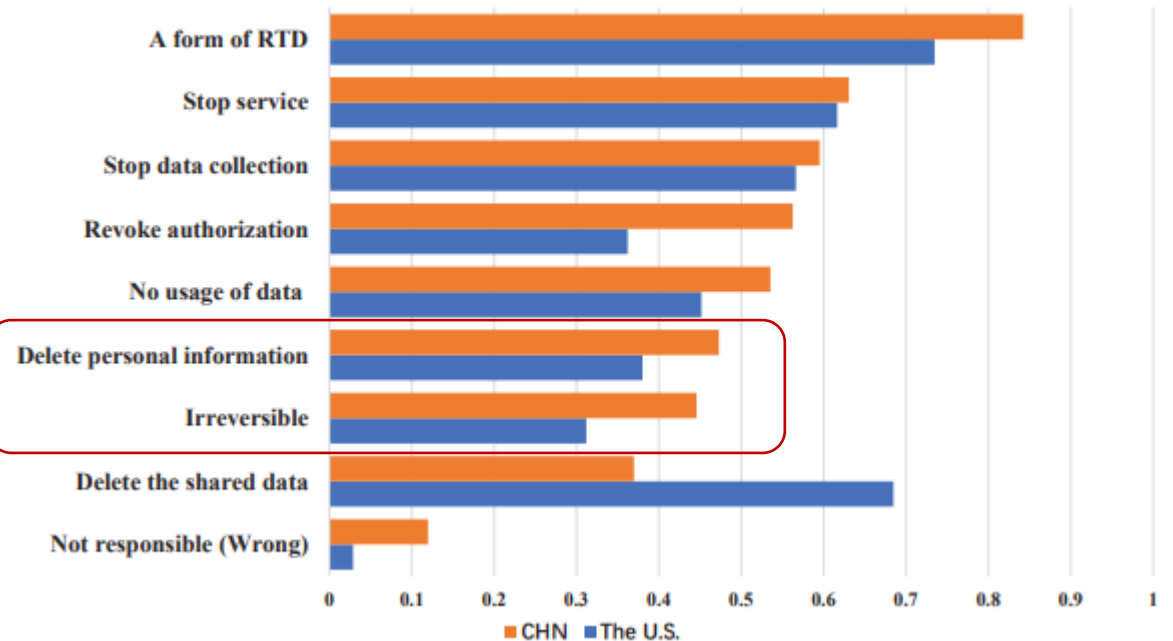
When you delete your account, we [delete things](#) you have posted, such as your photos and status updates, and you won't be able to recover that information later. Information that others have shared about you isn't part of your account and won't be deleted. If you don't want to delete your account but want to temporarily stop using the Products, you can deactivate your account instead. To delete your account at any time, please visit the [Facebook Settings](#) and [Instagram Settings](#).

Privacy Policy from *Instagram*

Never read (**37%**) or only took a glance at (**56%**) the policy

Participants in China and the U.S. basically had **similar understanding** of the account deletion.

Lower than 50%



Result

- RQ1: [Necessity and Awareness]

zombie accounts have non-negligible impacts on users and account deletion is necessary, which is what most people desire, but often be ignored in the daily life.

- **RQ2: [Practice and Understanding]**

More than half of the participants had successful account deletion experiences and the unfriendly design of the account deletion **blocks a non-ignorable number of** users. Most people, in general, **do not understand** or trust the real effect of account deletion.

- RQ3: [Feeling and Expectation]

Do account deletion designs in modern mobile apps meet users' expectations?

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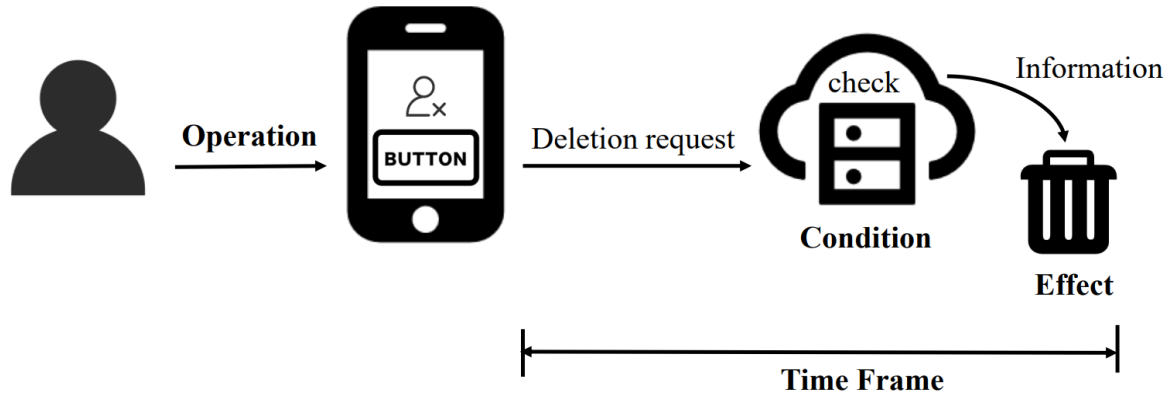
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Result-RQ3

- Online (n=355) + Offline (n=20)

Participants who succeeded in deleting accounts



Q21: *Is there any inconvenience in the process of account deletion? (multi-select)*

- (a) No, there is nothing inconvenient about it.
- (b) The deletion **description** is too complicated to understand.
- (c) The deletion **entry** is hard to find.
- (d) The deletion **procedure** is too complicated.
- (e) The deletion **preconditions** are too strict.
- (f) The deletion cannot be completed **immediately**
- (g) Other ([free text])

- Operation- Entry

62% — Finding the account deletion entry

Users' actions

13.04 clicks

V.S.

Vendors' design

4.01 clicks

“This app seems to intentionally not want me to find the account deletion portal.”

*“Please put it in an **easy to find** location.”*

*“I think most apps should make it easy to delete, often it is **hard to find the option**.”*

- Operation- Steps

51% — Complicated account deletion process

Notification.

14/20 Not read the deletion notice.

“I mainly care about the effect of the deletion, like what gets deleted.”

Reason gathering.

11/17 thought acceptable.

“I don’t think choosing reason is meaningful, I just picked randomly. Anyway, I don’t want to use it anymore.”

Authentication.

14/18 hold positive opinions.

“When I was in the account deletion process, I must be already logged in. So why need I confirm my identity again?”

- **Condition**

14% — The deletion preconditions are too strict

a. Conditions requiring user's operation

“Apps could provide a button directly linked to the preprocess page for users to operate when they delete the account.”

b. Conditions for security or business requirements

“After thirty days, I would forget that there is an account waiting to be deleted. Seven days or less would be better.”

- Time Frame

42% — Cannot be completed deletion immediately

Users' expectation V.S. Vendors' design
7 days 14.75 days

Expectation

88% To be notified when the deletion was finished.

48% Keep the right to withdraw deletion.

- Effect

What information to be deleted ?



Top 2



Identity information — **87%**



The account information — **86%**



32% “Delete **all** users’ personal information”

“Accounts should be deleted in full.”

“It shouldn’t be a hustle and all apps should be able to delete all the information about users.”

Result

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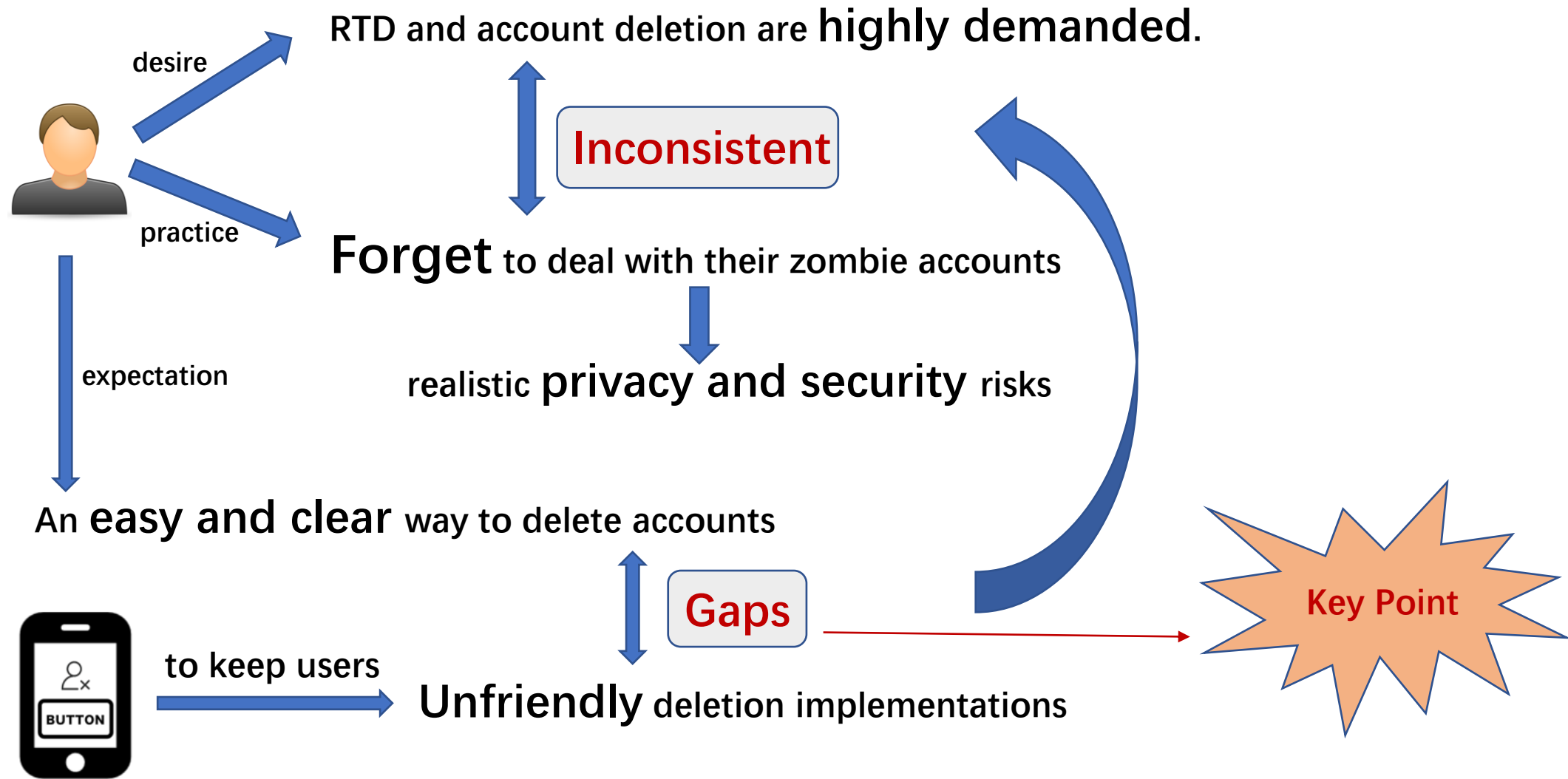
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- RQ3: [Feeling and Expectation]

Only **less than one-third** considered no inconvenience was found during the deletion. The account deletion implementations of the apps today **don't meet users' expectations** and may even **block** users from exercising RTD.

Discussion



Recommendation

- Improve users' consciousness.
- Simplify the account deletion operations.
- Improve the transparency.
- Comprehensive and user-definable settings.
- Bolster users' confidence.

Conclusion

- **New issue revealed.**

The mobile account deletion from the user perspectives.

- **New design gap identified.**

The app account deletion design today and users' expectations.

- **New suggestions.**

Suggestions for designers and vendors.

Thank You For Listening !

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