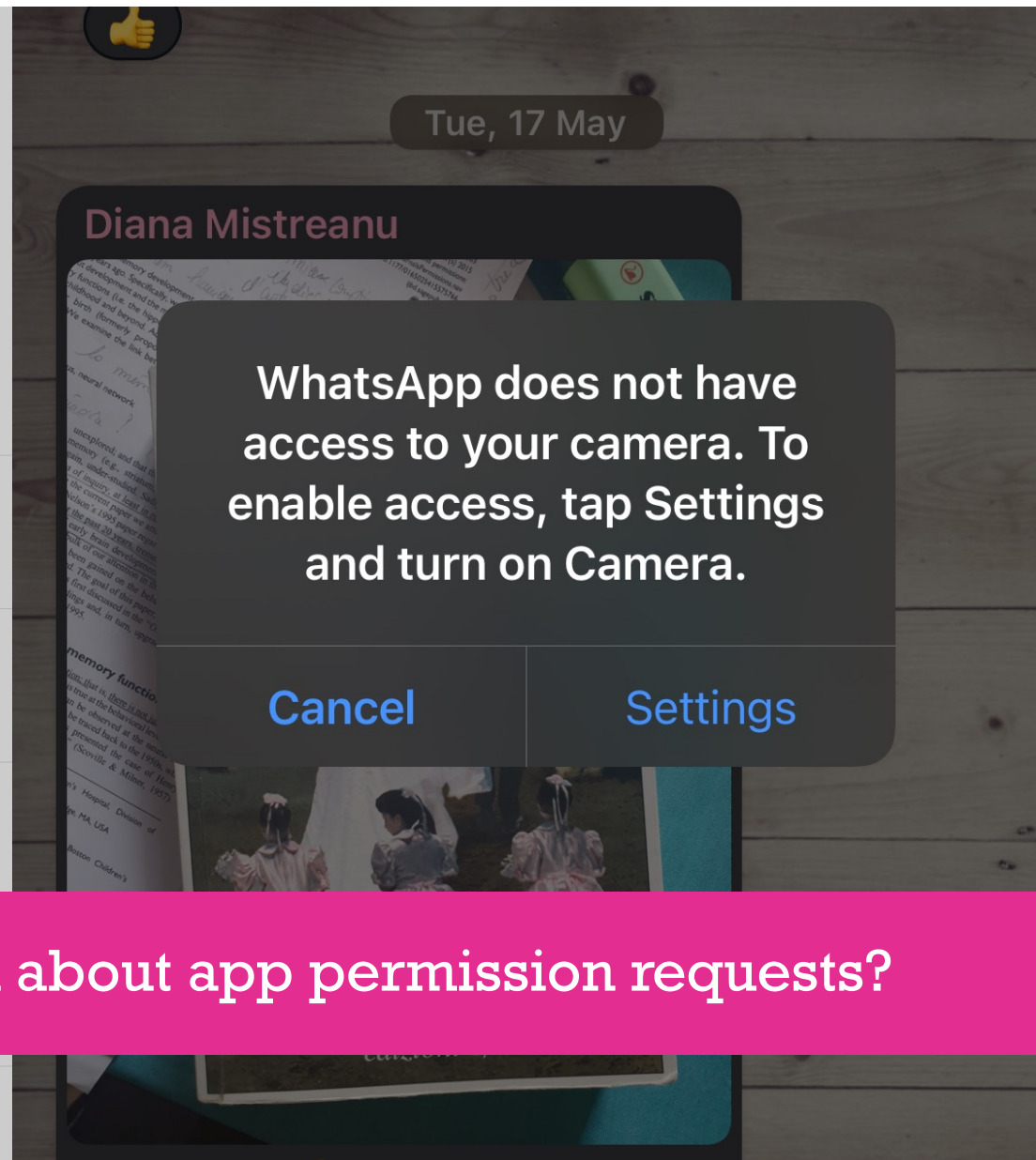
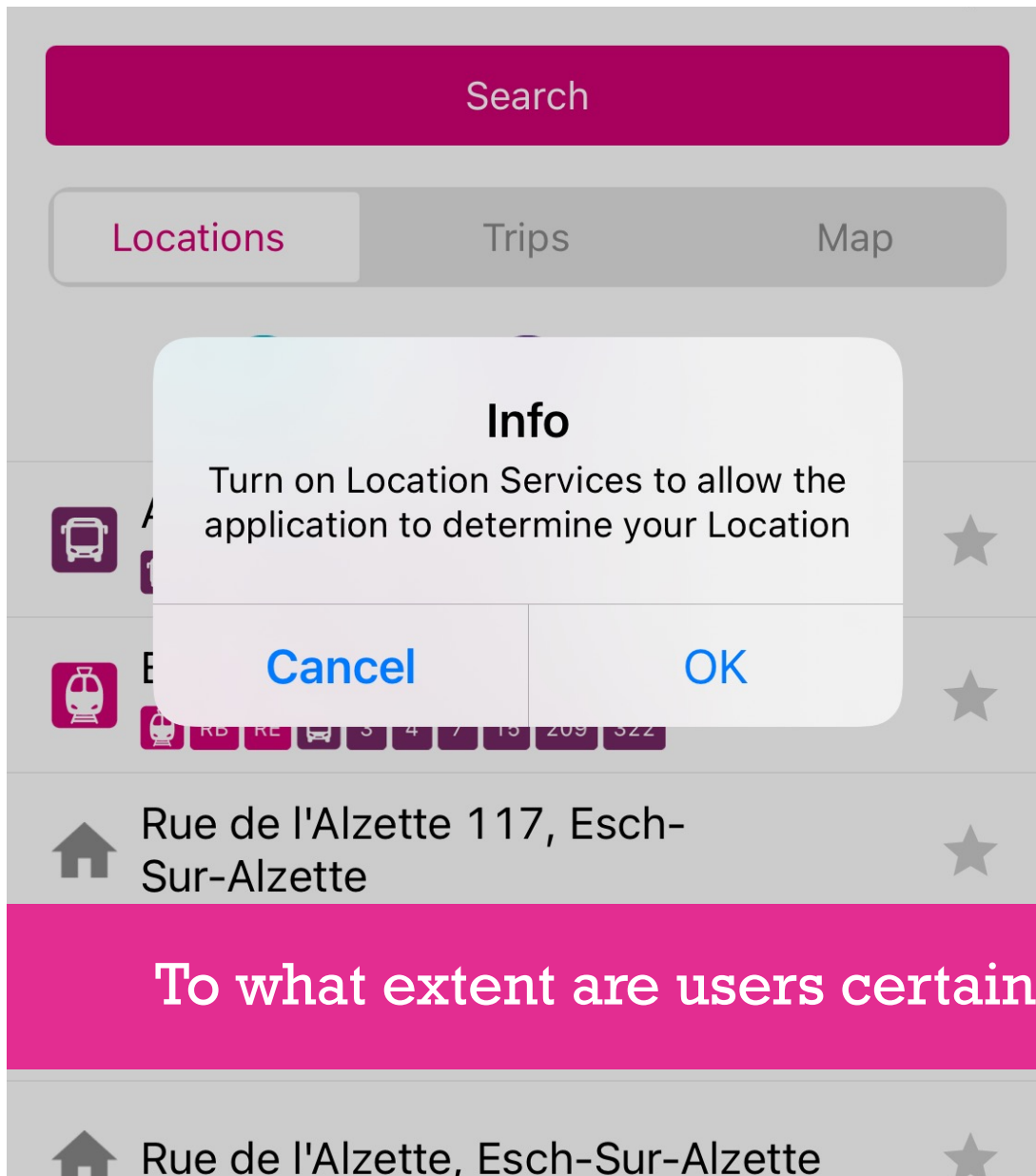


AN (UN)NECESSARY EVIL

Users' (Un)Certainty about Smartphone App Permissions and Implications for Privacy Engineering

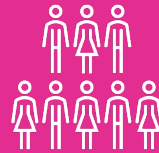
IWPE workshop 2022

Kerstin Bongard-Blanchy / Jean-Louis Sterckx / Arianna Rossi /
Verena Distler / Salvador Rivas / Vincent Koenig



To what extent are users certain about app permission requests?

Limesurvey via Prolific, Dec 2021



400 participants

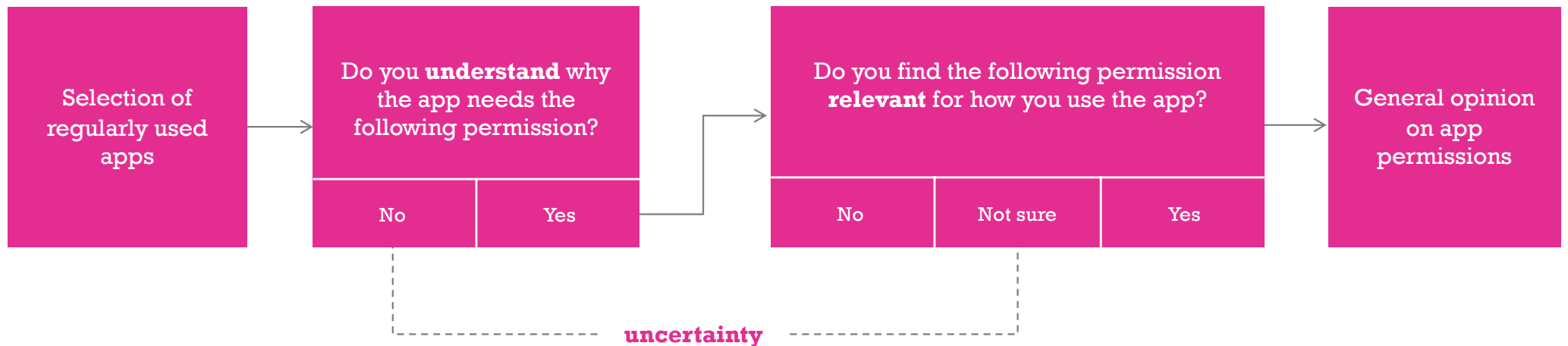
Representative sample UK



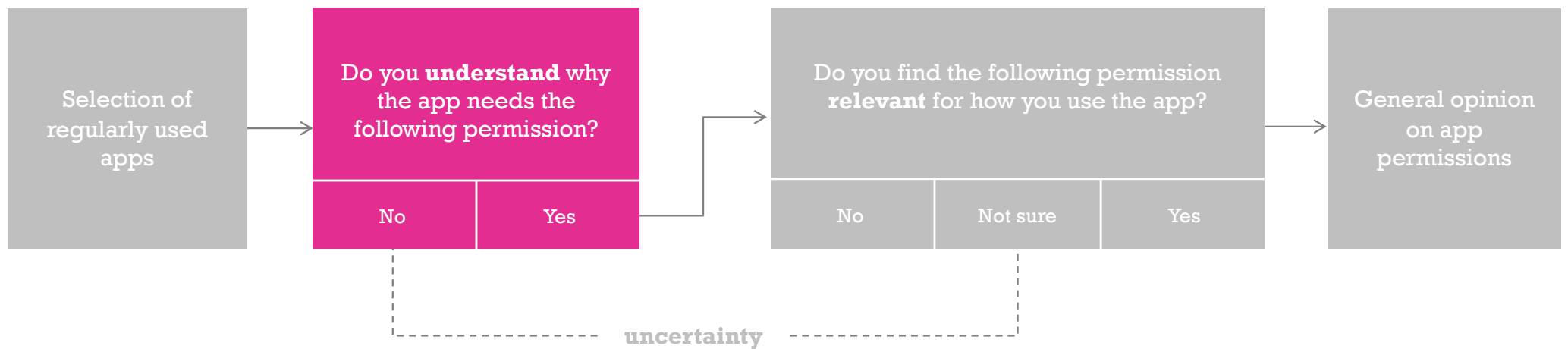
48 app
permission
requests from
8 popular apps.

Apptopia. (2021) Worldwide and us
download leaders 2021. [Online].
Available:[https://blog.apptopia.com/
worldwide-and-us-download-leaders-2021](https://blog.apptopia.com/worldwide-and-us-download-leaders-2021)

What did the participants have to do?



UNDERSTANDING + RELEVANCE = CERTAINTY



UNDERSTANDING + RELEVANCE = CERTAINTY




Percentage of participants who UNDERSTOOD the app permission request.

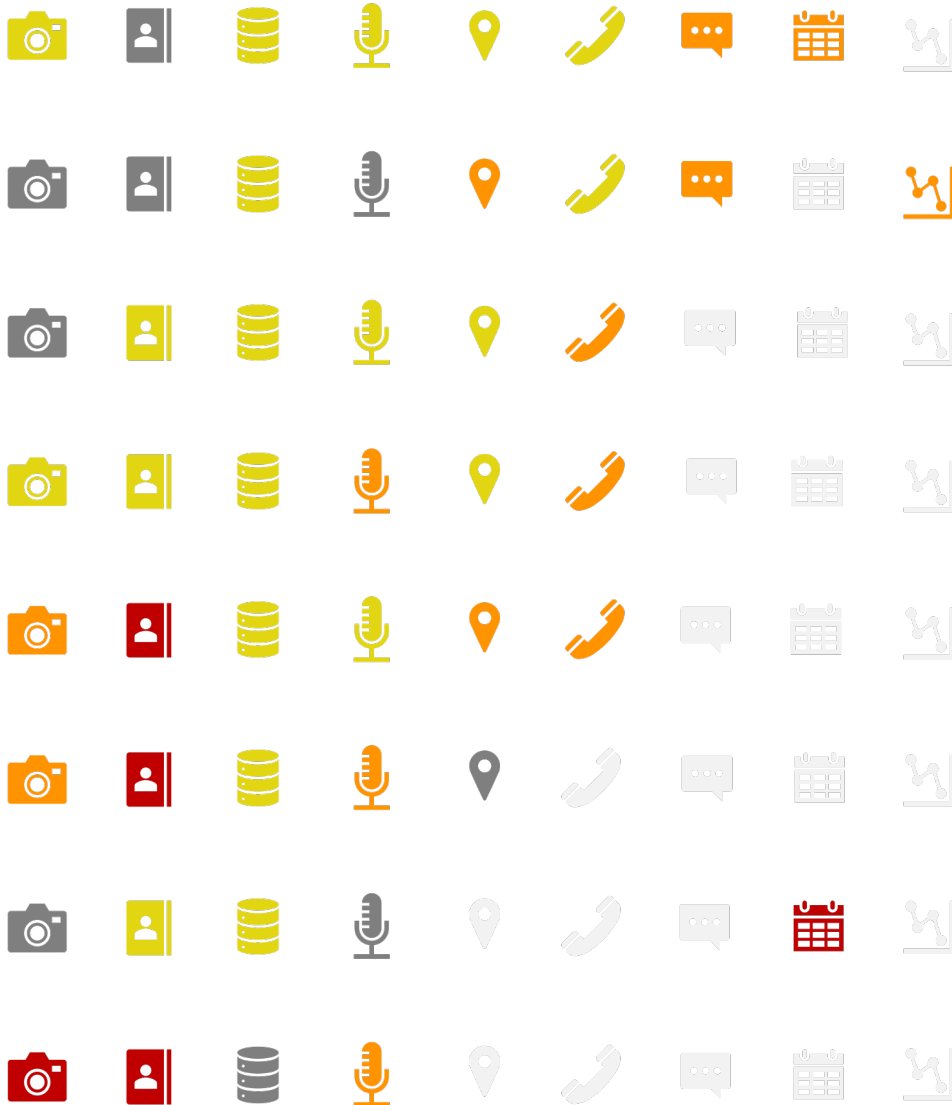
 < 25%



Percentage of participants who UNDERSTOOD the app permission request.


 < 25%


 26 - 50%



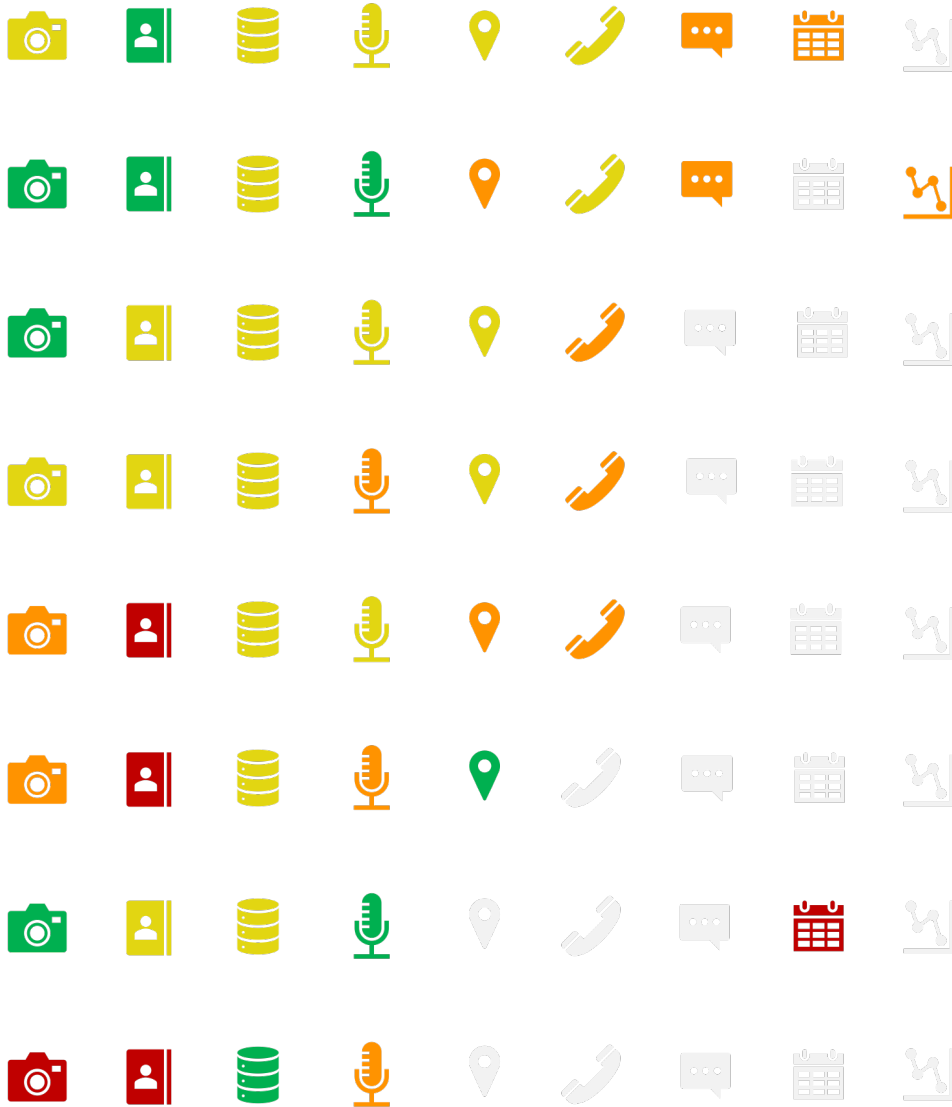
Percentage of participants who UNDERSTOOD the app permission request.

 < 25%

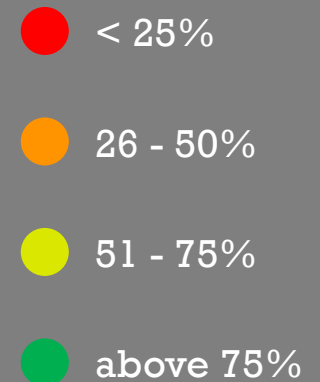
 26 - 50%

 51 - 75%

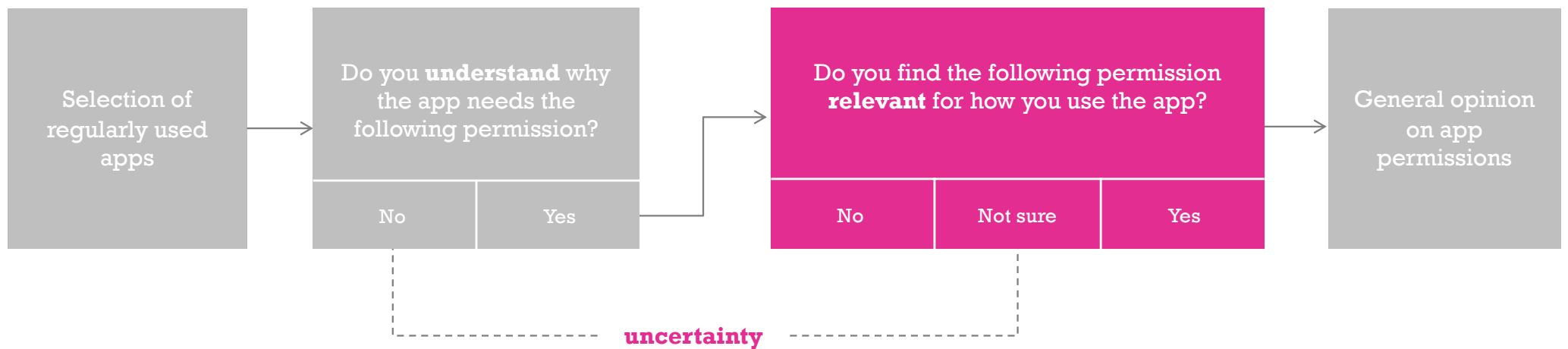
"They look like they aren't strictly regulated, for example "contacts" can mean a lot of things, I would like to know exactly what's being used." P209



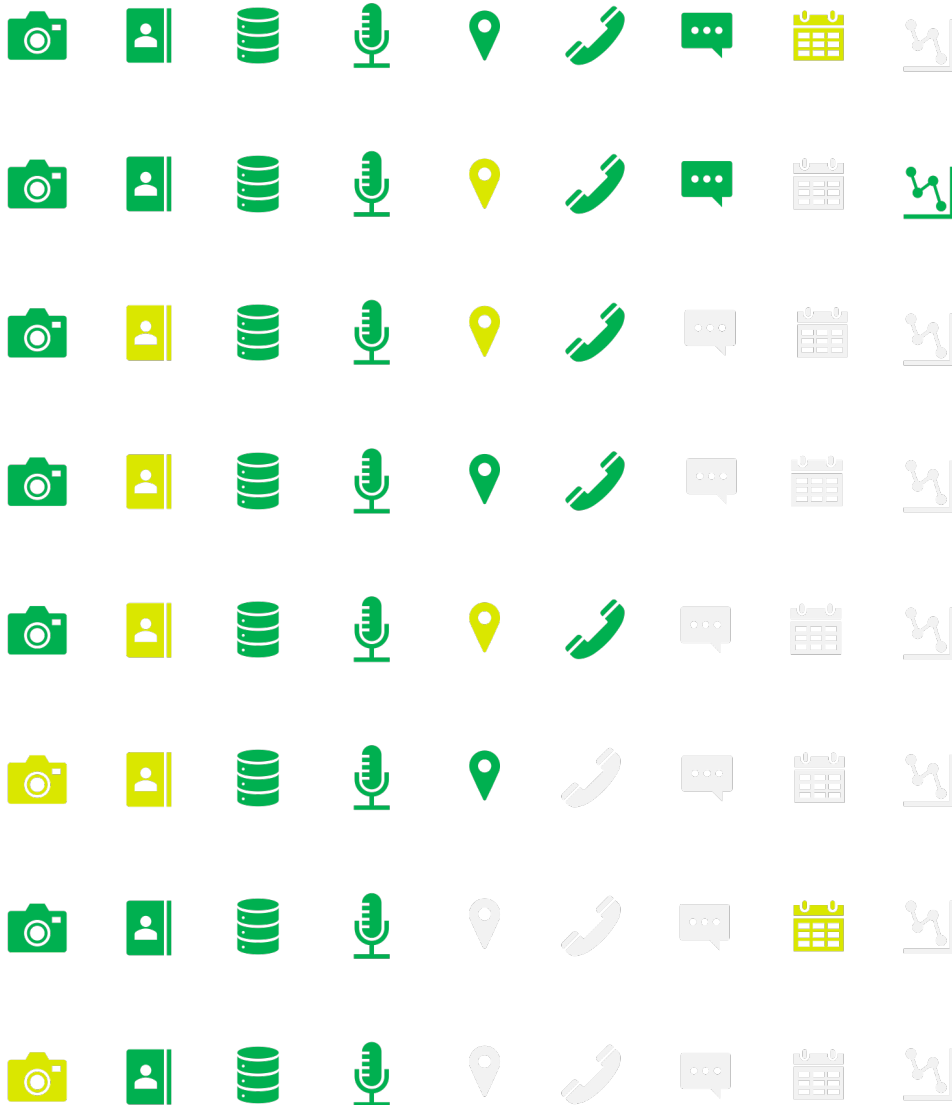
Percentage of participants who UNDERSTOOD the app permission request.



"I think that they are mostly relevant because a lot of apps (...) are used to share photos or send voice notes so require access from the camera and microphone. But I am unsure why a lot of these apps ask for location" P001.



UNDERSTANDING + **RELEVANCE** = CERTAINTY



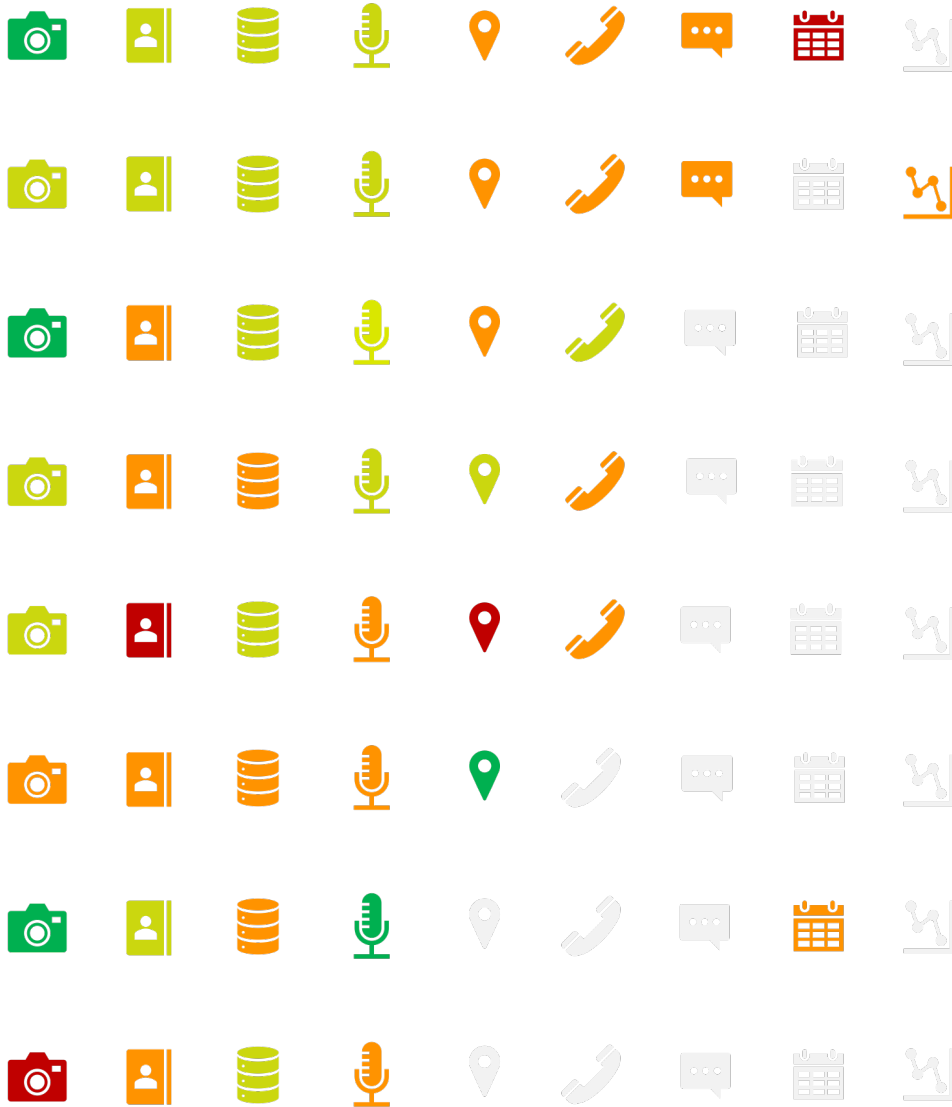
Percentage of participants who UNDERSTOOD and were SURE ABOUT THE (NON)-RELEVANCE of the app permission request.

● < 25%

● 26 - 50%

● 51 - 75%

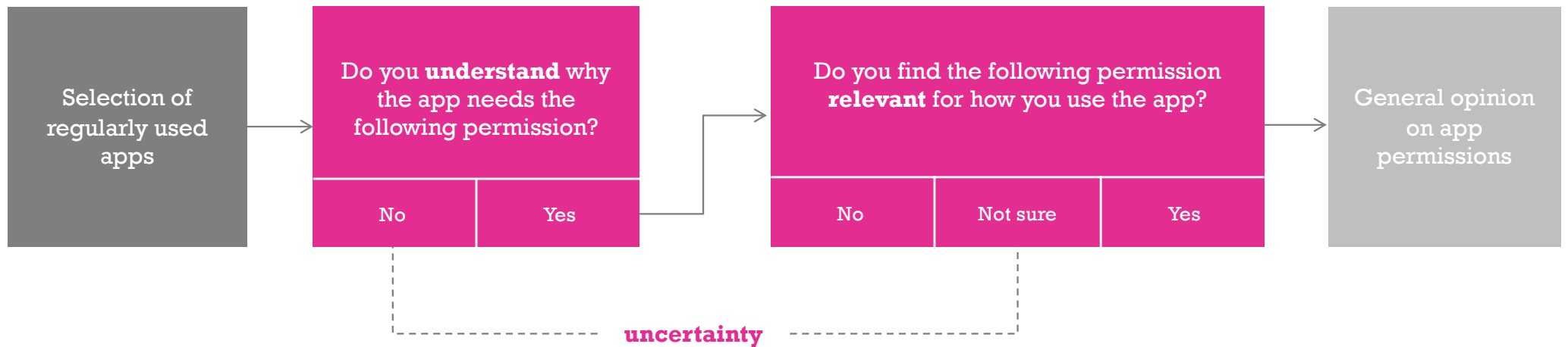
● above 75%



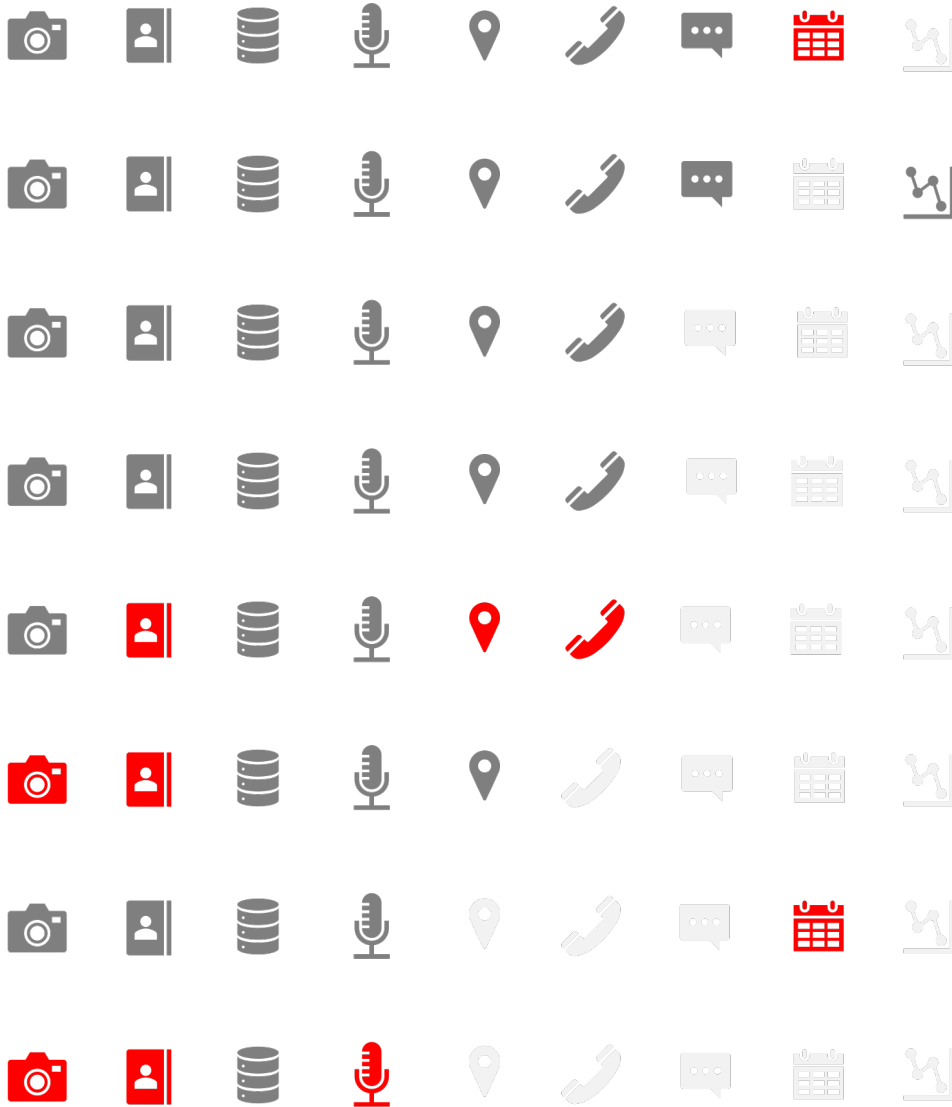
Percentage of participants who were UNSURE ABOUT THE RELEVANCE of the app permission request.

- above 30%
- 20 - 29%
- 10 - 19%
- under 10%

"I'm often not sure why they are needed or what I am allowing the app to do" P017

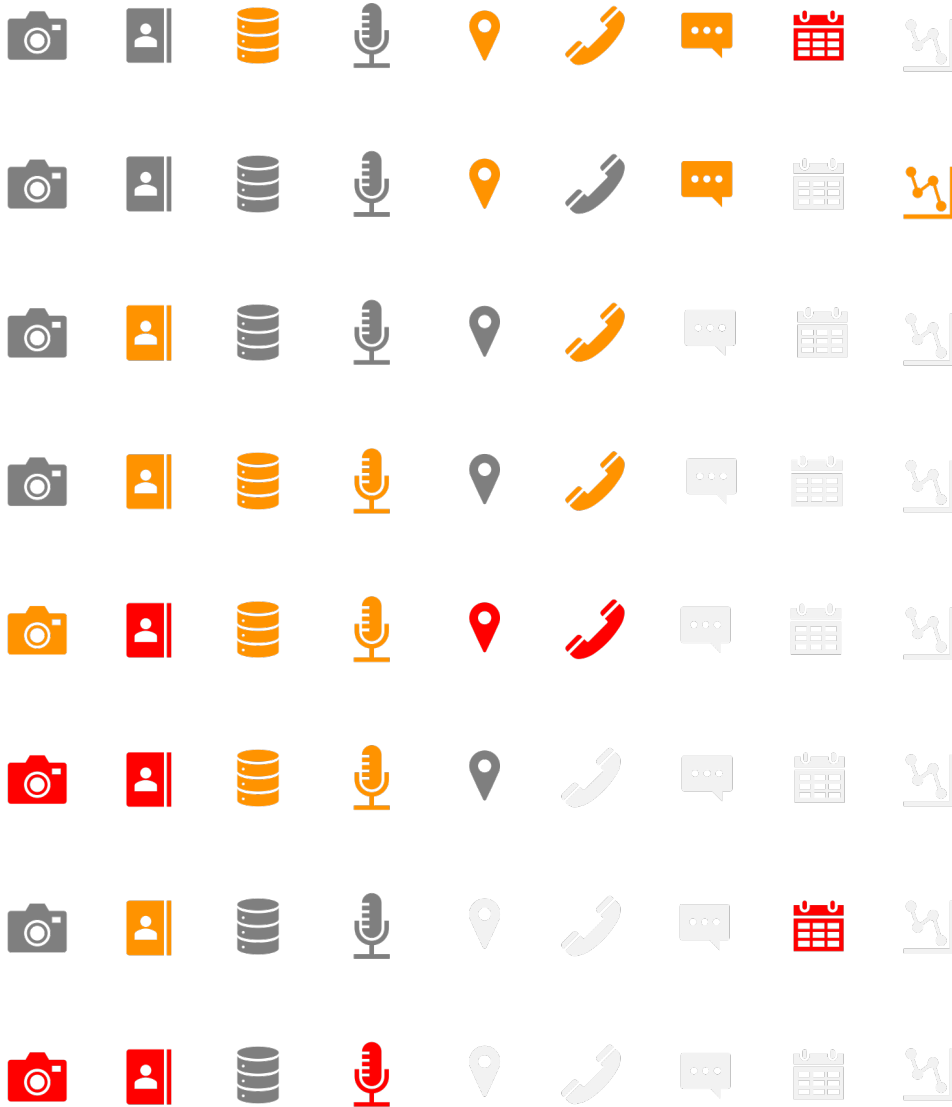


UNDERSTANDING + RELEVANCE = CERTAINTY




Percentage of participants who are CERTAIN about the app permission requests.

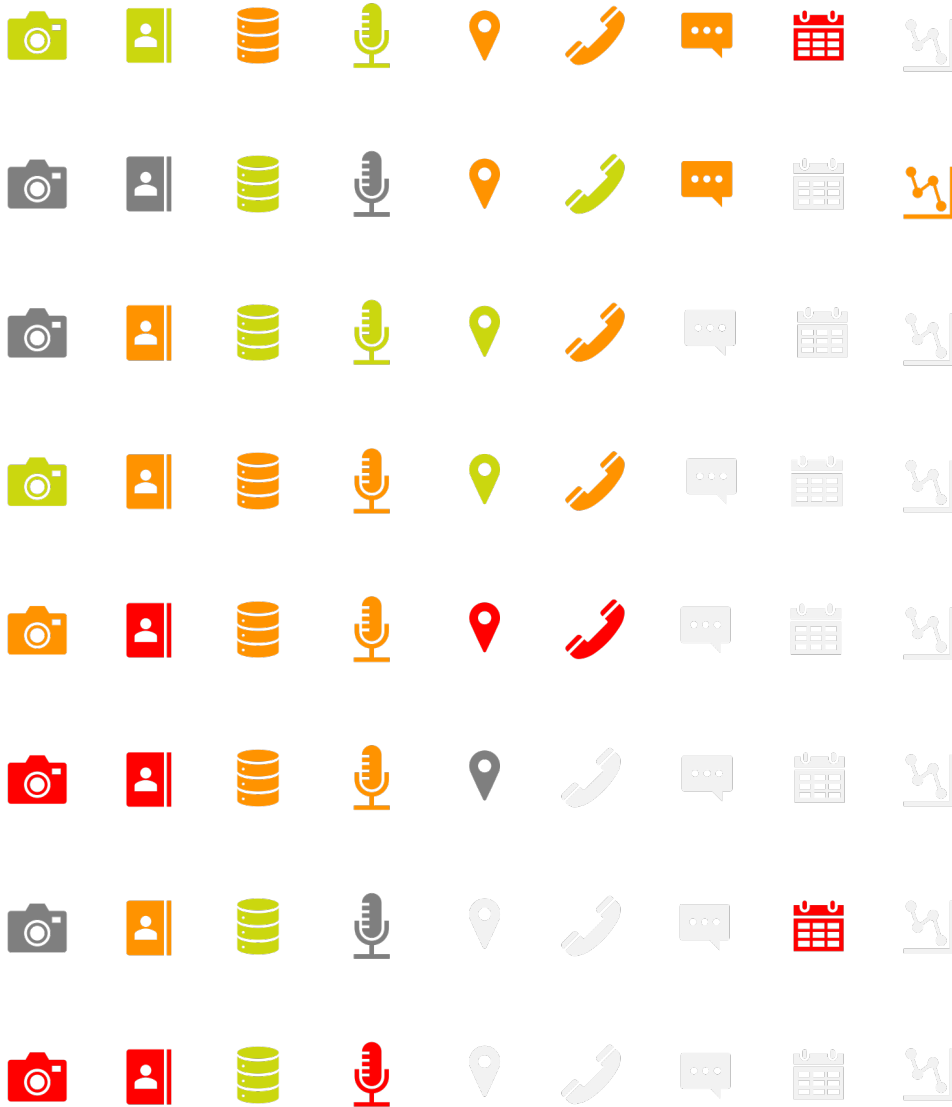
 < 25%



Percentage of participants who are CERTAIN about the app permission requests.


 < 25%


 26 - 50%



Percentage of participants who are CERTAIN about the app permission requests.

 < 25%


 26 - 50%


 51 - 75%



Percentage of participants who are CERTAIN about the app permission requests.

 < 25%

 26 - 50%

 51 - 75%

 above 75%

"I am too trusting with apps perhaps and since I need to use them to make my life more convenient I am rather naive in assuming everything is secure and necessary." P382

The average participant is unsure about

56 % of the app permissions.

Corresponding to 28 of 48 tested requests



Photo by [Ludovic Migneault](#) on [Unsplash](#)

Data protection through informed consent poses problems.

1. Contextualize the requests
2. Better explain the data collection purpose
3. Limit the use of personal data
4. Adopt Privacy-Enhancing Technologies

WHAT CAN BE DONE?

"Too many ask for all permissions at sign up even if I'll never use that facility ie camera on TikTok when I only watch not post videos." P216

"Perhaps instead of just asking for access to the microphone, apps should explain why." P028

"Need to be limited to only what is needed and be clear about why they are needed" P265

"I think the permissions for the very obvious, essential access should be standard (...) If it wouldn't work without the permission then I don't think there is a need to ask." P150

Thank you for your interest!

