Description & eligibility

GENERAL STUDY DESCRIPTION

Crowd Computing Survey

Researcher: Dr Niroshinie Fernando, Deakin University

Dear participant,

This online survey aims to examine what might motivate people to participate in an innovative scheme of crowdsourcing called 'Crowd Computing'.

What is Crowd Computing?

People who participate in Crowd Computing 'share' the computing resources of their devices (e.g., smartphones) to collectively solve a large computation problem. When a Crowd Computing application is installed on a smartphone, it will use the computing power of that phone to run some tasks. The application does the following:

1. Connect to the internet or a local area network
2. Download some data
3. Run a program in the background to process the data
4. Upload the results.

For the purposes of this survey, you do not need to download/run/upload anything.

What kind of questions are in this survey?

On the following screens, you will be presented with a number of questions about different Crowd Computing scenarios which vary in a number of ways. Thank you for taking the time to answer these questions. The survey will take approximately 20 minutes to complete. Please note that **you must click through all survey screens to the end in order to complete the study**.

Am I eligible to take part in this survey?

Please answer the following questions to determine your eligibility.

Are you 18 years or older?

- ○ Yes
- ○ No

Do you currently live in Australia?

- ○ Yes
- ○ No

Can you read and understand English well?

- ○ Yes
- ○ No

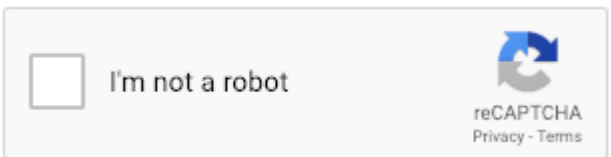
Prolific ID

Please ensure your Prolific ID is correctly entered below.

(This should be a string of letters and numbers that looks something like '5x0x000xxxx0x000000xx00x', **NOT** a name or email address.)

${e://Field/PROLIFIC_PID}

Please complete the quick verification below so that we know you're a real person.



PLSCF

PLAIN LANGUAGE STATEMENT AND CONSENT FORM
Crowd Computing Survey

Thank you for completing the screening questions. You are eligible to participate in the study.

The Plain Language Statement containing detailed information about the study can be downloaded here: PLS consent form

By continuing, you agree to participate in this study according to the conditions in the Plain Language Statement.

Please read the statements below and select the appropriate response before proceeding.

- I have read, and I understand, the above Plain Language Statement.
- I freely agree to participate in this project according to the conditions in the Plain Language Statement.
- I have been given the option of downloading the above Plain Language Statement to keep.
- The researcher has agreed not to reveal my identity and personal details, including where information about this project is published, or presented in any public form.

○ YES. I agree with the above statements and wish to proceed with the survey.

○ NO. I do not agree with the above statements, and/or DO NOT wish to proceed with the survey.

Demogs etc.

What is your age (years)?

What is your gender?

○ Female ○ Male ○ Other

What is the highest level of education you have completed?

- ○ High school (Year 12) or equivalent
- ○ Vocational training (e.g., TAFE)
- ○ Bachelor's degree or Honours degree (e.g., BA, BSc)
- ○ Master's degree (e.g., MA, MSc, MPhil)
- ○ Doctorate (PhD)
- ○ Other (please specify): _____

Have you worked in, or do you have experience in, any of these areas? (Select all that apply.)

- ☐ Information technology
- ☐ Engineering
- ☐ Business
- ☐ Law
- ☐ Health or medicine
- ☐ Other professional discipline (please specify): _____

How confident are you with digital technology?

- ○ Not confident at all
- ○ I usually need help
- ○ Moderately confident
- ○ Very confident

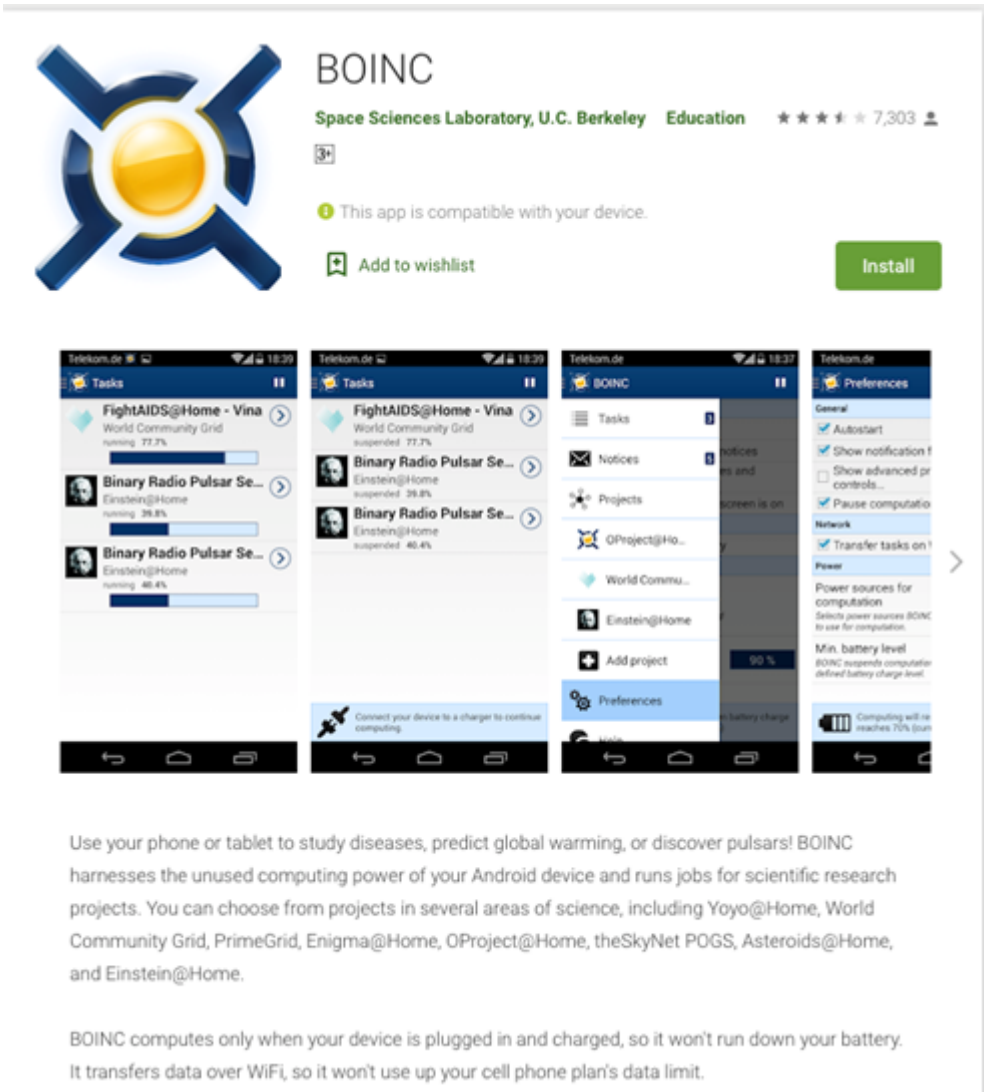
Crowd computing experience

The following questions are about your experience and intentions regarding the Crowd Computing apps that are currently available, such as:

- BOINC
- HTC Power to Give
- Sony Folding@Home
- Vodafone Dreamlab.

These apps use phones' computing power to participate in distributed computing projects, typically when the phones are plugged in and charging and connected to Wi-Fi. By installing these apps, you can let scientists 'borrow' your phone's unused computing power to process data for various scientific projects. These projects can be in various areas, including biomedicine, physics, and astronomy.

A screenshot of BOINC on Google Play, which is one of the most popular Crowd Computing apps, is shown below as an example:



Have you used BOINC or any other Crowd Computing app?

- ○ Yes, I have used one or more of the following apps: BOINC, HTC Power to Give, Sony Folding@Home, Vodafone Dreamlab
- ○ Yes, I have used a different Crowd Computing app (please specify the name of the app):
- ○ No, I have not used any Crowd Computing app

How likely would you be to install a Crowd Computing app such as BOINC?

Very unlikely			Neither likely nor unlikely			Very likely
1	2	3	4	5	6	7
○	○	○	○	○	○	○

How frequently do you run the Crowd Computing app(s) you specified?

Never	Have only run once or twice at all or per year	Several times a year	1-3 times a month	1-3 times a week	Most days	Every day
1	2	3	4	5	6	7
○	○	○	○	○	○	○

STATyfy intro

In this section, you will be presented with **six (6) scenarios** about an imaginary Crowd Computing app named **STATyfy**. Each of these scenarios has slightly different incentives. In each scenario, you will be asked how likely you think you would be to install STATyfy, and how frequently you would run it.

Imagine that STATyfy is published by the National Bureau of Statistics in your country, which collects and analyses statistics on economic, population, environmental, and social issues. When you run this app, it will download data from the National Bureau of Statistics database and perform data processing on your phone to calculate statistics on health conditions such as obesity, mental health, smoking, alcohol consumption, exercise, and food habits. **STATyfy will not collect any data from you, and will only use your phone's computing resources to process data that already exists** in the National Bureau of Statistics' servers.

STATyfy Scenario 1: People in your country

The basic information about STATyfy that you read on the previous screen(s) is shown again here for your reference:

Imagine that STATyfy is published by the National Bureau of Statistics in your country, which collects and analyses statistics on economic, population, environmental, and social issues. When

you run this app, it will download data from the National Bureau of Statistics database and perform data processing on your phone to calculate statistics on health conditions such as obesity, mental health, smoking, alcohol consumption, exercise, and food habits. **STATyfy will not collect any data from you, and will only use your phone's computing resources to process data that already exists** in the National Bureau of Statistics' servers.

Please contemplate the following scenario about how STATyfy would work, then answer the questions that follow:

When you run the app on your smartphone, you are donating some of your phone's computing power to analyse up-to-date data on the health and wellbeing of the **people living in your country**, and to find patterns that can help reduce their health risks and ultimately save lives.

Based on this scenario, how likely would you be to install and run STATyfy on your smartphone?

Very unlikely 1	2	3	Neither likely nor unlikely 4	5	6	Very likely 7
○	○	○	○	○	○	○

Based on this scenario, how frequently would you run STATyfy on your smartphone?

Never 1	Once or twice at all or per year 2	Several times a year 3	1-3 times a month 4	1-3 times a week 5	Most days 6	Every day 7
○	○	○	○	○	○	○

To show that you're reading through things properly and paying attention, please select 'Strongly disagree' for this item.

Strongly disagree 1	2	3	Neither disagree nor agree 4	5	6	Strongly agree 7
○	○	○	○	○	○	○

STATyfy Scenario 2: People in your local area

The basic information about STATyfy that you read on the previous screen(s) is shown again here for your reference:

Imagine that STATyfy is published by the National Bureau of Statistics in your country, which collects and analyses statistics on economic, population, environmental, and social issues. When you run this app, it will download data from the National Bureau of Statistics database and perform data processing on your phone to calculate statistics on health conditions such as obesity, mental health, smoking, alcohol consumption, exercise, and food habits. **STATyfy will not collect any data from you, and will only use your phone's computing resources to process data that already exists** in the National Bureau of Statistics' servers.

Please contemplate the following scenario about how STATyfy would work, then answer the questions that follow:

You can choose to run the data processing on data collected from your own neighbourhood and local government area. In this way, when you run this app on your smartphone, you are donating some of your phone's computing power to analyse up-to-date data on the health and wellbeing of the **people living in your local area**, and to find patterns that can help reduce their health risks and ultimately save lives.

Based on this scenario, how likely would you be to install and run STATyfy on your smartphone?

Very unlikely 1	2	3	Neither likely nor unlikely 4	5	6	Very likely 7
○	○	○	○	○	○	○

Based on this scenario, how frequently would you run STATyfy on your smartphone?

Never 1	Once or twice at all or per year 2	Several times a year 3	1-3 times a month 4	1-3 times a week 5	Most days 6	Every day 7
○	○	○	○	○	○	○

STATyfy Scenario 3: Money

The basic information about STATyfy that you read on the previous screen(s) is shown again here for your reference:

Imagine that STATyfy is published by the National Bureau of Statistics in your country, which collects and analyses statistics on economic, population, environmental, and social issues. When you run this app, it will download data from the National Bureau of Statistics database and perform data processing on your phone to calculate statistics on health conditions such as obesity, mental health, smoking, alcohol consumption, exercise, and food habits. **STATyfy will not collect any data from you, and will only use your phone's computing resources to process data that already exists** in the National Bureau of Statistics' servers.

Please contemplate the following scenario about how STATyfy would work, then answer the questions that follow:

You will be paid money for allowing the app to run on your device. That is, when you run this app on your smartphone, you are letting the National Bureau of Statistics 'borrow' some of your phone's computing power to do some data processing in return for **a small payment**.

Based on this scenario, how likely would you be to install and run STATyfy on your smartphone?

Very unlikely			Neither likely nor unlikely			Very likely
1	2	3	4	5	6	7
○	○	○	○	○	○	○

Based on this scenario, how frequently would you run STATyfy on your smartphone?

Never	Once or twice at all or per year	Several times a year	1-3 times a month	1-3 times a week	Most days	Every day
1	2	3	4	5	6	7
○	○	○	○	○	○	○

STATyfy Scenario 4: Points

The basic information about STATyfy that you read on the previous screen(s) is shown again here for your reference:

Imagine that STATyfy is published by the National Bureau of Statistics in your country, which collects and analyses statistics on economic, population, environmental, and social issues. When you run this app, it will download data from the National Bureau of Statistics database and perform data processing on your phone to calculate statistics on health conditions such as obesity, mental health, smoking, alcohol consumption, exercise, and food habits. **STATyfy will not collect any data from you, and will only use your phone's computing resources to process data that already exists** in the National Bureau of Statistics' servers.

Please contemplate the following scenario about how STATyfy would work, then answer the questions that follow:

You will **earn points** when you run this app on your smartphone. The more frequently you run the app, the more points you will earn. if your points are among the top 10 users, your name will be featured on the leaderboard published in the app and on the National Bureau of Statistics website.

Based on this scenario, how likely would you be to install and run STATyfy on your smartphone?

Very unlikely			Neither likely nor unlikely			Very likely
1	2	3	4	5	6	7
○	○	○	○	○	○	○

Based on this scenario, how frequently would you run STATyfy on your smartphone?

Never	Once or twice at all or per year	Several times a year	1-3 times a month	1-3 times a week	Most days	Every day
1	2	3	4	5	6	7
○	○	○	○	○	○	○

STATyfy Scenario 5: Demographic comparison info

The basic information about STATyfy that you read on the previous screen(s) is shown again here for your reference:

Imagine that STATyfy is published by the National Bureau of Statistics in your country, which collects and analyses statistics on economic, population, environmental, and social issues. When you run this app, it will download data from the National Bureau of Statistics database and perform data processing on your phone to calculate statistics on health conditions such as obesity, mental health, smoking, alcohol consumption, exercise, and food habits. **STATyfy will not collect any data from you, and will only use your phone's computing resources to process data that already exists** in the National Bureau of Statistics' servers.

Please contemplate the following scenario about how STATyfy would work, then answer the questions that follow:

When you run this app, you will get access to interactive, fun statistics that **compare your demographic data to the rest of the population**. For example, you could see how many people in your neighbourhood live in a similar household to yourself or have the same relationship status as yourself. In addition, you will also get access to interesting visualisations of up-to-date statistics, such as the latest breakdown of the demographics in a given neighbourhood or local government area and how these have changed over time.

Based on this scenario, how likely would you be to install and run STATyfy on your smartphone?

Very unlikely 1	2	3	Neither likely nor unlikely 4	5	6	Very likely 7
○	○	○	○	○	○	○

Based on this scenario, how frequently would you run STATyfy on your smartphone?

Never 1	Once or twice at all or per year 2	Several times a year 3	1-3 times a month 4	1-3 times a week 5	Most days 6	Every day 7
○	○	○	○	○	○	○

STATyfy Scenario 6: Health comparison info

The basic information about STATyfy that you read on the previous screen(s) is shown again here for your reference:

Imagine that STATyfy is published by the National Bureau of Statistics in your country, which collects and analyses statistics on economic, population, environmental, and social issues. When you run this app, it will download data from the National Bureau of Statistics database and perform data processing on your phone to calculate statistics on health conditions such as obesity, mental health, smoking, alcohol consumption, exercise, and food habits. **STATyfy will not collect any data from you, and will only use your phone's computing resources to process data that already exists** in the National Bureau of Statistics' servers.

Please contemplate the following scenario about how STATyfy would work, then answer the questions that follow:

> When you run this app, you will get access to interactive, fun statistics that **compare your health data to the rest of the population**. For example, if you are interested in achieving a healthy weight, the app could show you the physical activity patterns of most people in your target weight group and predict how long it will take you to achieve your target weight.

Based on this scenario, how likely would you be to install and run STATyfy on your smartphone?

Very unlikely			Neither likely nor unlikely			Very likely
1	2	3	4	5	6	7
○	○	○	○	○	○	○

Based on this scenario, how frequently would you run STATyfy on your smartphone?

Never	Once or twice at all or per year	Several times a year	1-3 times a month	1-3 times a week	Most days	Every day
1	2	3	4	5	6	7
○	○	○	○	○	○	○

Rapid Find intro

In this section, you will be presented with **five (5) scenarios** about an imaginary Crowd Computing app named **Rapid Find**. Each of these scenarios has slightly different incentives. In each scenario, you will be asked how likely you think you would be to install Rapid Find, and how frequently you would run it.

Imagine that Rapid Find is published by the local police force to rapidly find information about lost property and missing persons by collectively using the computing power of individually owned smartphones.

One day, when you are at your local shopping mall, the Rapid Find app requests that you participate in a Crowd Computing task to find a child who's gone missing in the shopping mall on that day. If you agree to participate, the app will download a list of photographs taken in and around the shopping mall on that day. It will then run an image processing program on those photos, searching for the missing child. The app will record whether the image of the missing child is detected in any of the photos. After it finishes processing all the photos, the app will upload the results to a server on the internet.

Rapid Find Scenario 1: Child unknown

The information and scenario about Rapid Find that you read on the previous screen(s) are shown again here for your reference:

Imagine that Rapid Find is published by the local police force to rapidly find information about lost property and missing persons by collectively using the computing power of individually owned smartphones.

One day, when you are at your local shopping mall, the Rapid Find app requests that you participate in a Crowd Computing task to find a child who's gone missing in the shopping mall on that day. If you agree to participate, the app will download a list of photographs taken in and around the shopping mall on that day. It will then run an image processing program on those photos, searching for the missing child. The app will record whether the image of the missing child is detected in any of the photos. After it finishes processing all the photos, the app will upload the results to a server on the internet.

Please contemplate the following scenario about how Rapid Find would work, then answer the questions that follow:

If you agree to participate in this task, you will be donating some of your phone's computing power to find the missing child. **The child is not from your neighbourhood and is not known to you**.

Based on this scenario, how likely would you be to install and run Rapid Find on your smartphone?

Very unlikely			Neither likely nor unlikely			Very likely
1	2	3	4	5	6	7
○	○	○	○	○	○	○

Based on this scenario, how frequently would you run Rapid Find on your smartphone?

Never	Once or twice at all or per year	Several times a year	1-3 times a month	1-3 times a week	Most days	Every day
1	2	3	4	5	6	7
○	○	○	○	○	○	○

To show that you're reading through things properly and paying attention, please select '3' for this item.

Strongly disagree			Neither disagree nor agree			Strongly agree
1	2	3	4	5	6	7
○	○	○	○	○	○	○

Rapid Find Scenario 2: Child known

The information and scenario about Rapid Find that you read on the previous screen(s) are shown again here for your reference:

Imagine that Rapid Find is published by the local police force to rapidly find information about lost

property and missing persons by collectively using the computing power of individually owned smartphones.

One day, when you are at your local shopping mall, the Rapid Find app requests that you participate in a Crowd Computing task to find a child who's gone missing in the shopping mall on that day. If you agree to participate, the app will download a list of photographs taken in and around the shopping mall on that day. It will then run an image processing program on those photos, searching for the missing child. The app will record whether the image of the missing child is detected in any of the photos. After it finishes processing all the photos, the app will upload the results to a server on the internet.

Please contemplate the following scenario about how Rapid Find would work, then answer the questions that follow:

If you agree to participate in this task, you will be donating some of your phone's computing power to find the missing child. **From the information about the incident, you realise that the missing child is from your neighbourhood and the family is known to you**.

Based on this scenario, how likely would you be to install and run Rapid Find on your smartphone?

Very unlikely 1	2	3	Neither likely nor unlikely 4	5	6	Very likely 7
○	○	○	○	○	○	○

Based on this scenario, how frequently would you run Rapid Find on your smartphone?

Never 1	Once or twice at all or per year 2	Several times a year 3	1-3 times a month 4	1-3 times a week 5	Most days 6	Every day 7
○	○	○	○	○	○	○

Rapid Find Scenario 3: Money

The information and scenario about Rapid Find that you read on the previous screen(s) are shown again here for your reference:

Imagine that Rapid Find is published by the local police force to rapidly find information about lost property and missing persons by collectively using the computing power of individually owned smartphones.

One day, when you are at your local shopping mall, the Rapid Find app requests that you participate in a Crowd Computing task to find a child who's gone missing in the shopping mall on that day. If you agree to participate, the app will download a list of photographs taken in and around the shopping mall on that day. It will then run an image processing program on those photos, searching for the missing child. The app will record whether the image of the missing child is detected in any of the photos. After it finishes processing all the photos, the app will upload the results to a server on the internet.

Please contemplate the following scenario about how Rapid Find would work, then answer the questions that follow:

If you agree to participate in this task, you will be paid money for allowing the app to run on your device. That is, you will be letting the local police force 'borrow' some of your phone's computing power to do the image processing in return for **a small payment**. The amount you are paid will be determined by the number of photographs your phone can process.

Based on this scenario, how likely would you be to install and run Rapid Find on your smartphone?

Very unlikely 1	2	3	Neither likely nor unlikely 4	5	6	Very likely 7
○	○	○	○	○	○	○

Based on this scenario, how frequently would you run Rapid Find on your smartphone?

Never 1	Once or twice at all or per year 2	Several times a year 3	1-3 times a month 4	1-3 times a week 5	Most days 6	Every day 7
○	○	○	○	○	○	○

Rapid Find Scenario 4: Points

The information and scenario about Rapid Find that you read on the previous screen(s) are shown again here for your reference:

Imagine that Rapid Find is published by the local police force to rapidly find information about lost property and missing persons by collectively using the computing power of individually owned smartphones.

One day, when you are at your local shopping mall, the Rapid Find app requests that you participate in a Crowd Computing task to find a child who's gone missing in the shopping mall on that day. If you agree to participate, the app will download a list of photographs taken in and around the shopping mall on that day. It will then run an image processing program on those photos, searching for the missing child. The app will record whether the image of the missing child is detected in any of the photos. After it finishes processing all the photos, the app will upload the results to a server on the internet.

Please contemplate the following scenario about how Rapid Find would work, then answer the questions that follow:

If you agree to participate in this task, you will **earn points** for letting the app 'borrow' some of your phone's computing power to do the image processing. The number of points you earn will be determined by the number of photographs your phone can process. If your points are among the top 10 users, your name will be featured on the leaderboard published in the app and on the local police force website.

Based on this scenario, how likely would you be to install and run Rapid Find on your smartphone?

Very unlikely			Neither likely nor unlikely			Very likely
1	2	3	4	5	6	7
○	○	○	○	○	○	○

Based on this scenario, how frequently would you run Rapid Find on your smartphone?

Never	Once or twice at all or per year	Several times a year	1-3 times a month	1-3 times a week	Most days	Every day
1	2	3	4	5	6	7
○	○	○	○	○	○	○

Rapid Find Scenario 5: Credits

The information and scenario about Rapid Find that you read on the previous screen(s) are shown again here for your reference:

Imagine that Rapid Find is published by the local police force to rapidly find information about lost property and missing persons by collectively using the computing power of individually owned smartphones.

One day, when you are at your local shopping mall, the Rapid Find app requests that you participate in a Crowd Computing task to find a child who's gone missing in the shopping mall on that day. If you agree to participate, the app will download a list of photographs taken in and around the shopping mall on that day. It will then run an image processing program on those photos, searching for the missing child. The app will record whether the image of the missing child is detected in any of the photos. After it finishes processing all the photos, the app will upload the results to a server on the internet.

Please contemplate the following scenario about how Rapid Find would work, then answer the questions that follow:

If you agree to participate in this task, you will **earn 'credits'** for letting the app 'borrow' some of your phone's computing power to do the image processing. The number of credits you earn will be determined by the number of photographs your phone can process. You will then be able to spend these credits to prioritise your query in any future instance when you need to find information about a lost belonging or missing person.

Based on this scenario, how likely would you be to install and run Rapid Find on your smartphone?

Very unlikely 1	2	3	Neither likely nor unlikely 4	5	6	Very likely 7
○	○	○	○	○	○	○

Based on this scenario, how frequently would you run Rapid Find on your smartphone?

Never 1	Once or twice at all or per year 2	Several times a year 3	1-3 times a month 4	1-3 times a week 5	Most days 6	Every day 7
○	○	○	○	○	○	○

Concerns & reflection

Thank you for all your responses so far. The survey is nearly done!

In general, to what extent would each of the aspects listed below **negatively affect your decision** to use a Crowd Computing app?

	Would not affect at all 1	2	3	4	5	6	Would affect very much 7
Having to download data	○	○	○	○	○	○	○
Security issues	○	○	○	○	○	○	○
Privacy issues	○	○	○	○	○	○	○
The energy cost of running the app	○	○	○	○	○	○	○
The time/effort required to install and set up the app	○	○	○	○	○	○	○

Are there any other incentives you can think of that would motivate people to use Crowd Computing apps, other than the ones included in the scenarios in this survey?

What kind of Crowd Computing applications (if any) would you be interested in? (Select all that apply.)

- [ ] Health/ medical
- [ ] Astronomy
- [ ] Education
- [ ] Law enforcement
- [ ] Libraries/ archives/ museums
- [ ] Other (please specify:)

Do you have any final comments or reflections about this survey?