

# **Distrust of big tech and a desire for privacy: Understanding the motivations of people who have voluntarily adopted secure email**

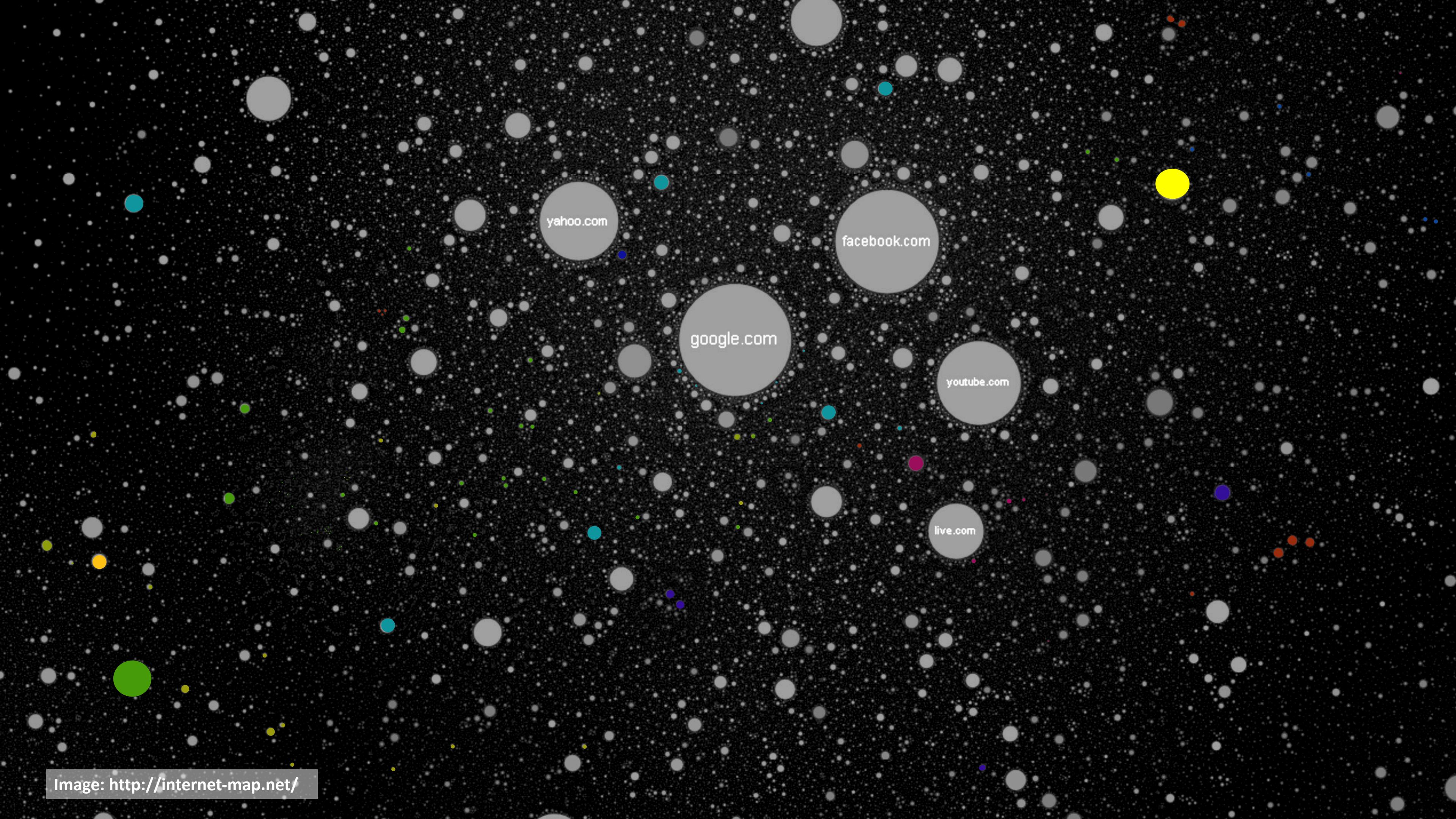
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*Brigham Young University*

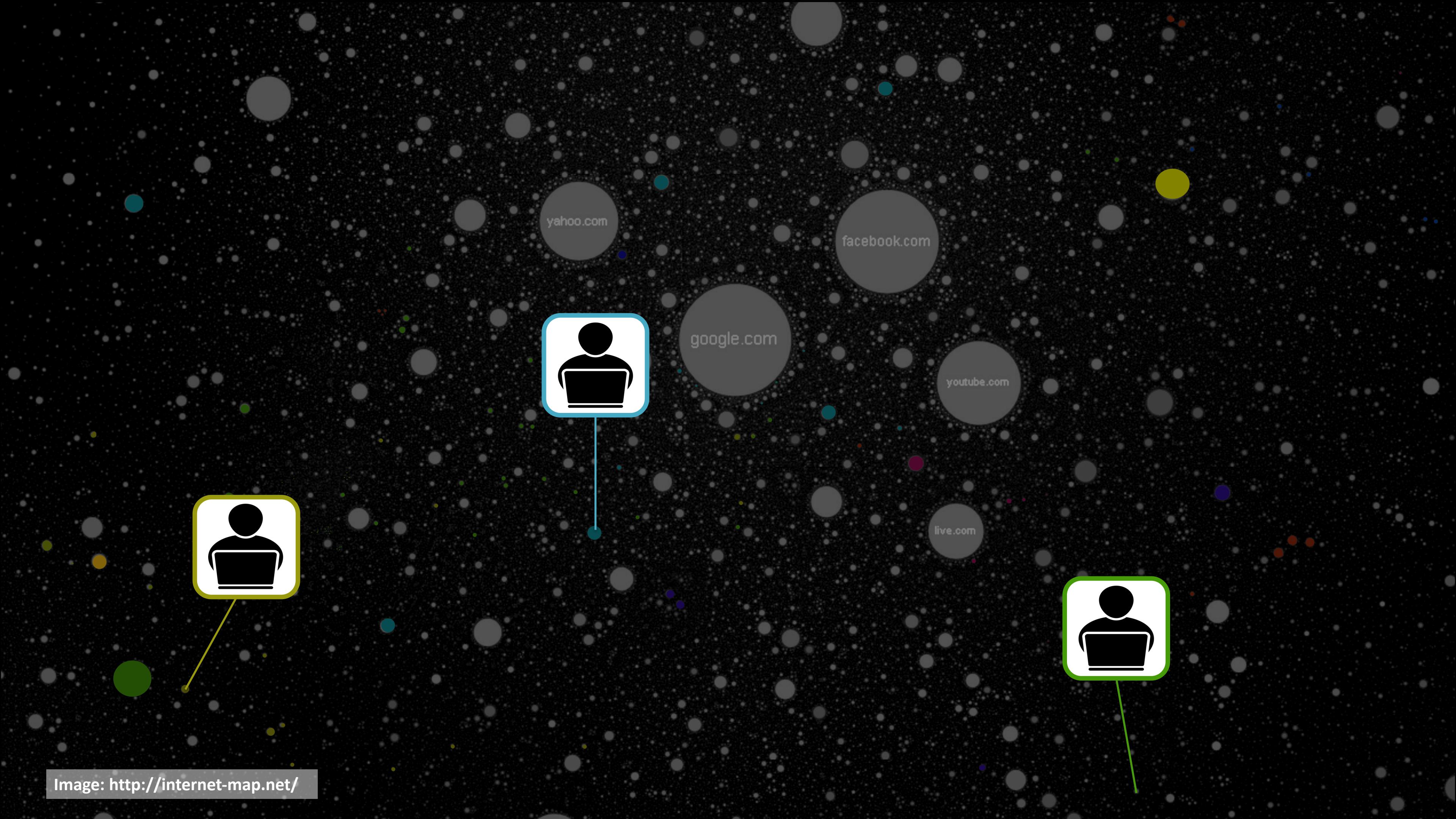
Jackie Hu  
*Brigham Young University*

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*Brigham Young University*

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*Brigham Young University*







## **Non-users of secure email and reasons for non- adoption**

- Incomplete mental models
- Lack of motivation
- Fragmented threat models
- Inconvenience

## **Usability of secure email**

- Early work – PGP-based secure emails systems not very usable
- Series of efforts to improve usability of secure email
- Current systems like Proton Mail and Tutanota

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## **Users of secure email and their motivations**

What works?

# Research Questions

## Motivation

Why do people voluntarily adopt secure email systems?

## Threat Models

What threat models do people have?

## Mental Models

What mental models do people have of secure email systems and their capabilities?

## Usage

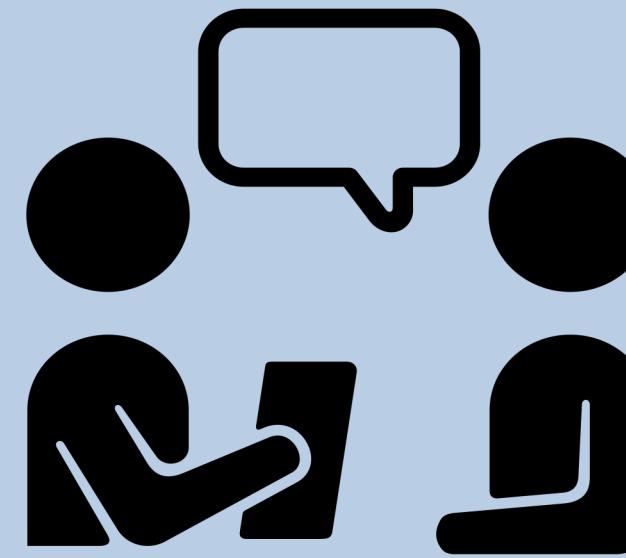
Do people use the secure email services effectively and what obstacles they encounter in trying to do so?

# Methods



Screening survey

n = 1708



Semi-structured interview

n = 25

# Recruitment



**amazon**  
mechanical turk



Google Ads

# Demographics

ID	Age	Country	Gender	Education Level	Tech Background	Using for	Frequency of Usage
R1	35-44	United States	Male	G/PD	Yes	5+ years	Daily
R2	45-54	United States	-	G/PD	Yes	5+ years	Daily
R3	45-54	United States	Male	BA/BS	Yes	5+ years	Weekly
R4	45-54	United States	Male	BA/BS	Yes	5+ years	Weekly
R5	45-54	Australia	Male	G/PD	Yes	5+ years	Daily
R6	45-54	United States	Female	BA/BS	No	5+ years	Daily
R7	25-34	United States	Male	G/PD	No	2-3 years	Weekly
R8	25-34	United States	Male	BA/BS	Yes	5+ years	Monthly
P9	35-44	Canada	Male	G/PD	No	few months	Daily
P10	25-34	Portugal	Female	G/PD	No	1 year	1-2 times a year
P11	18-24	Poland	Male	HS	No	2-3 years	Monthly
P12	35-44	Mexico	Non-Binary	BA/BS	Yes	5+ years	Monthly
P13	25-34	Portugal	Male	BA/BS	No	2-3 years	1-2 times a year
P14	25-34	Netherlands	Male	G/PD	No*	1 year	Weekly
P15	35-44	United Kingdom	Female	G/PD	No	2-3 years	Daily
P16	18-24	Spain	Male	Some college	Yes	1 year	Weekly
P17	25-34	Poland	Male	G/PD	Yes	few months	1-2 times a year
P18	25-34	Mexico	Male	BA/BS	Yes	5+ years	Monthly
P19	25-34	Switzerland	Non-binary	HS	No	5+ years	Daily
P20	25-34	Australia	Male	G/PD	No	5+ years	1-2 times a year
P21	25-34	Greece	Male	G/PD	No	5+ years	Weekly
P22	25-34	Mexico	Male	BA/BS	No	5+ years	Weekly
P23	25-34	Japan	Male	BA/BS	Yes	1 year	Monthly
P24	18-24	Poland	Male	HS	Yes	2-3 years	1-2 times a year
P25	18-24	Poland	Male	Some college	No	1 year	Daily

# **Findings**

## Motivation

Why do people voluntarily adopt secure email systems?

## Threat Models

What threat models do people have?

## Mental Models

What mental models do people have of secure email systems and their capabilities?

## Usage

Do people use the secure email services effectively and what obstacles they encounter in trying to do so?

# Distrust of Big Tech

“

*“Over the past few years, I’ve been trying to wean myself off of Google and other, you know, big tech products, Because they are kind of, I think they’re poisoning my mind.” (R1)*

”



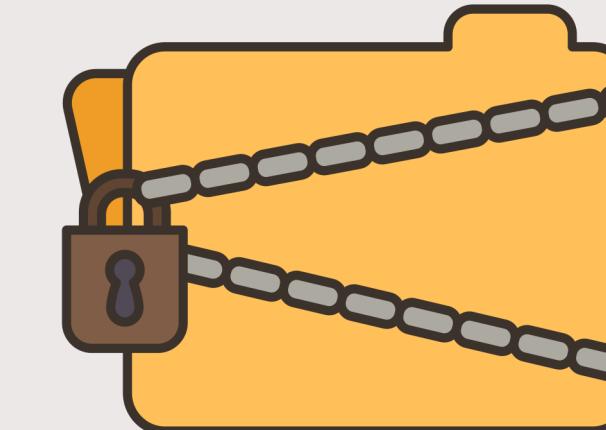
# Privacy



Privacy as a  
fundamental right



Privacy as  
anonymity



Privacy as  
secrecy



Privacy as control



Privacy as a  
commodity

## **Motivation**

Why do people voluntarily adopt secure email systems?

## **Threat Models**

What threat models do people have?

## **Mental Models**

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## **Usage**

Do people use the secure email services effectively and what obstacles they encounter in trying to do so?

# Government and Intelligence Agencies

## **What could happen:**

- Surveillance
  - The Five Eyes Alliance countries (Canada, Australia, New Zealand, the United Kingdom, and the United States)
- Requiring the surrender of data

## **Mitigations:**

- Use secure emails outside government reach
- ProtonMail based in Switzerland and Tutanota based in Germany helps.



**Proton Mail**



**Tutanota<sup>®</sup>**

## **Motivation**

Why do people voluntarily adopt secure email systems?

## **Threat Models**

What threat models do people have?

## **Mental Models**

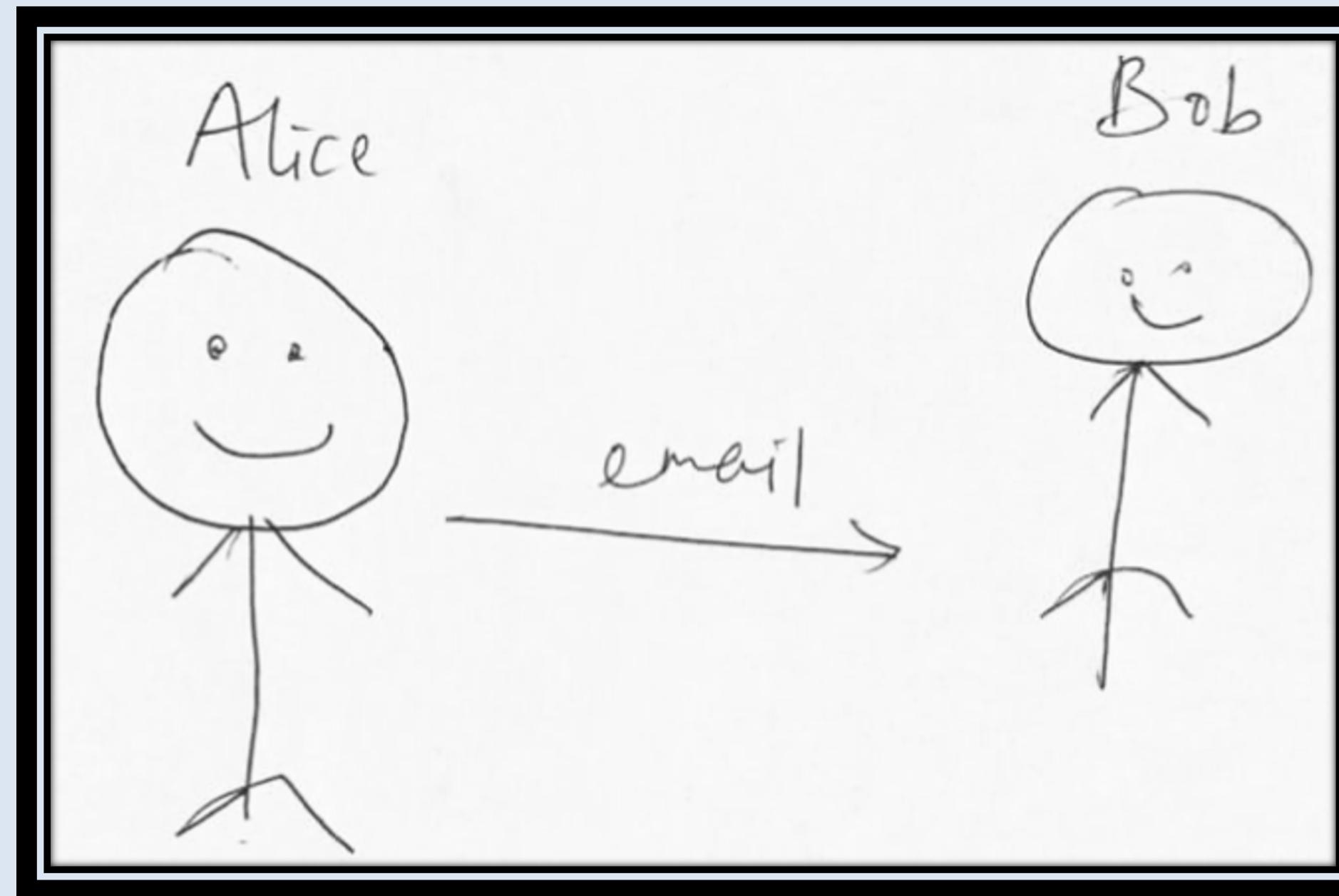
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## **Usage**

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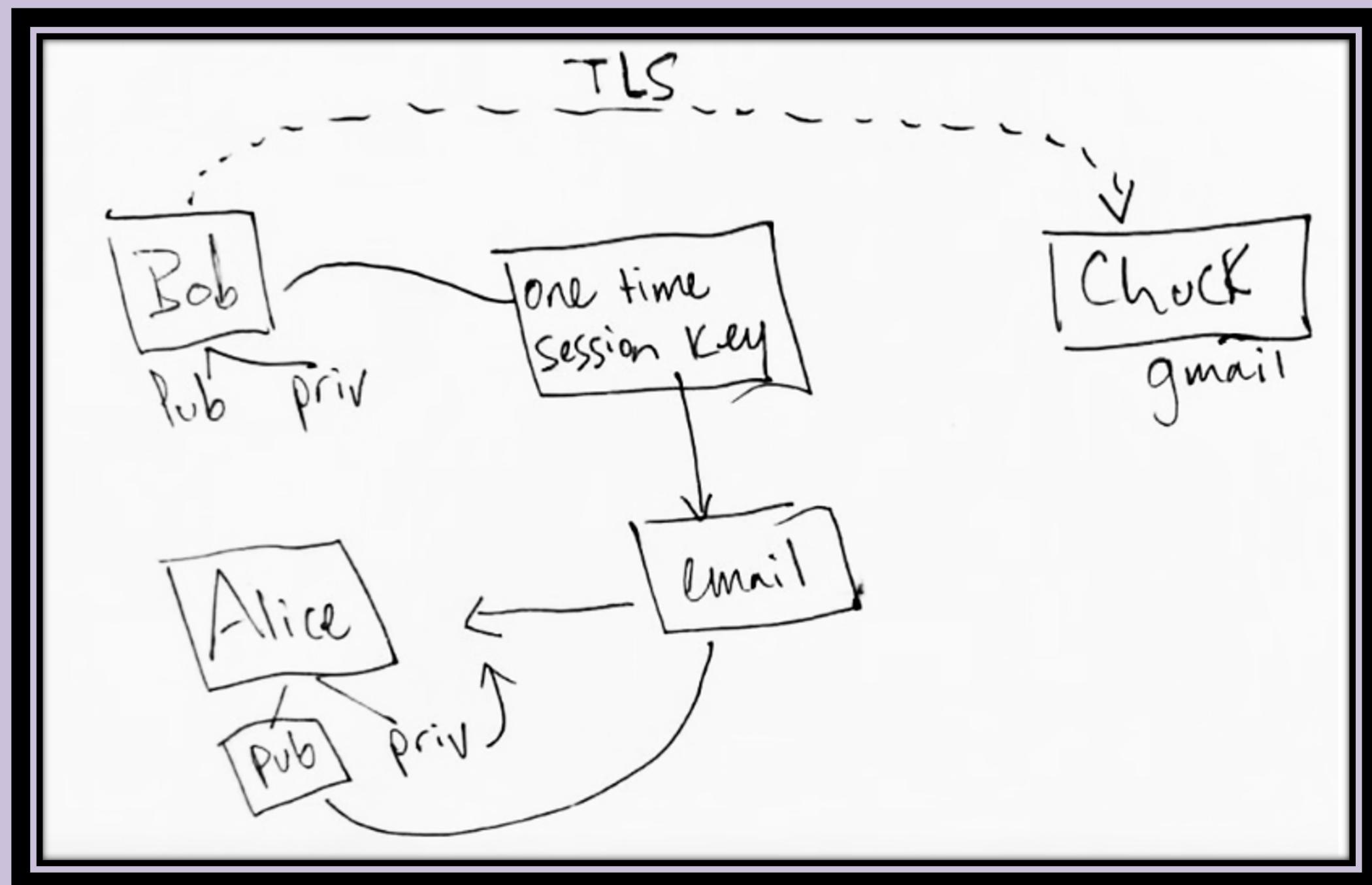
# Mentals Models

A safer, more trustworthy system



# Mentals Models

A private, encrypted system



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## **Threat Models**

What threat models do people have?

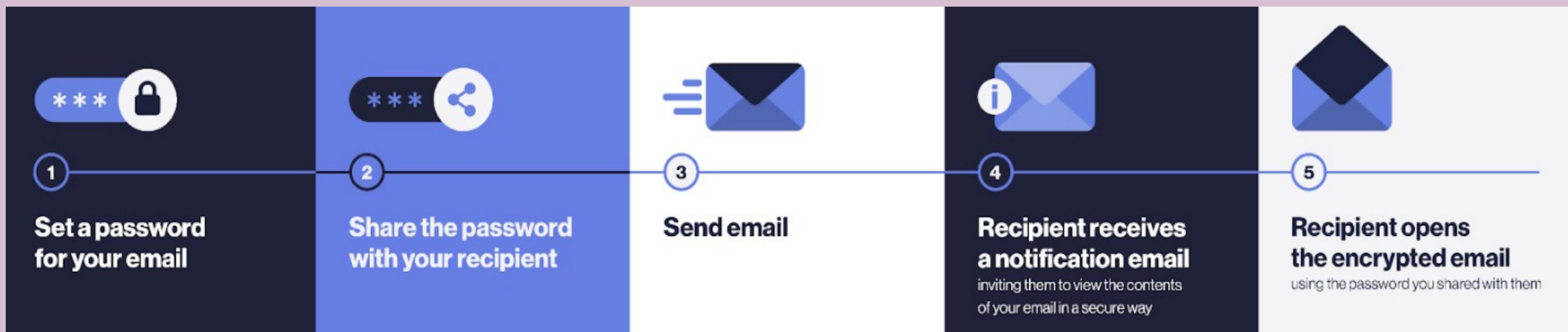
## **Mental Models**

What mental models do people have of secure email systems and their capabilities?

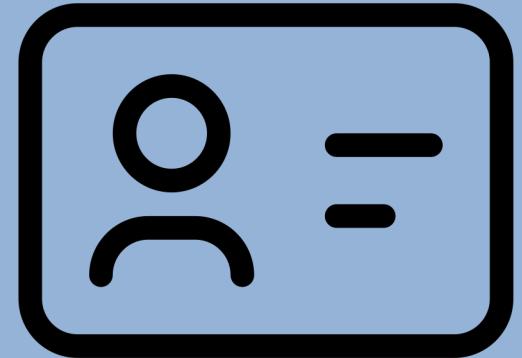
## **Usage**

Do people use the secure email services effectively and what obstacles they encounter in trying to do so?

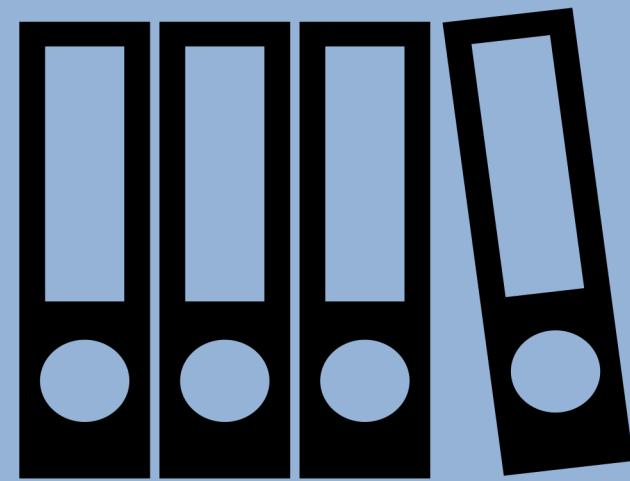
## How do our participants send emails to users with non-encrypted services?



# Uses go beyond just sending and receiving emails



Identity management



Email Compartmentalization



Disposable email

- Fb marketplace
- Cryptocurrency
- Gaming

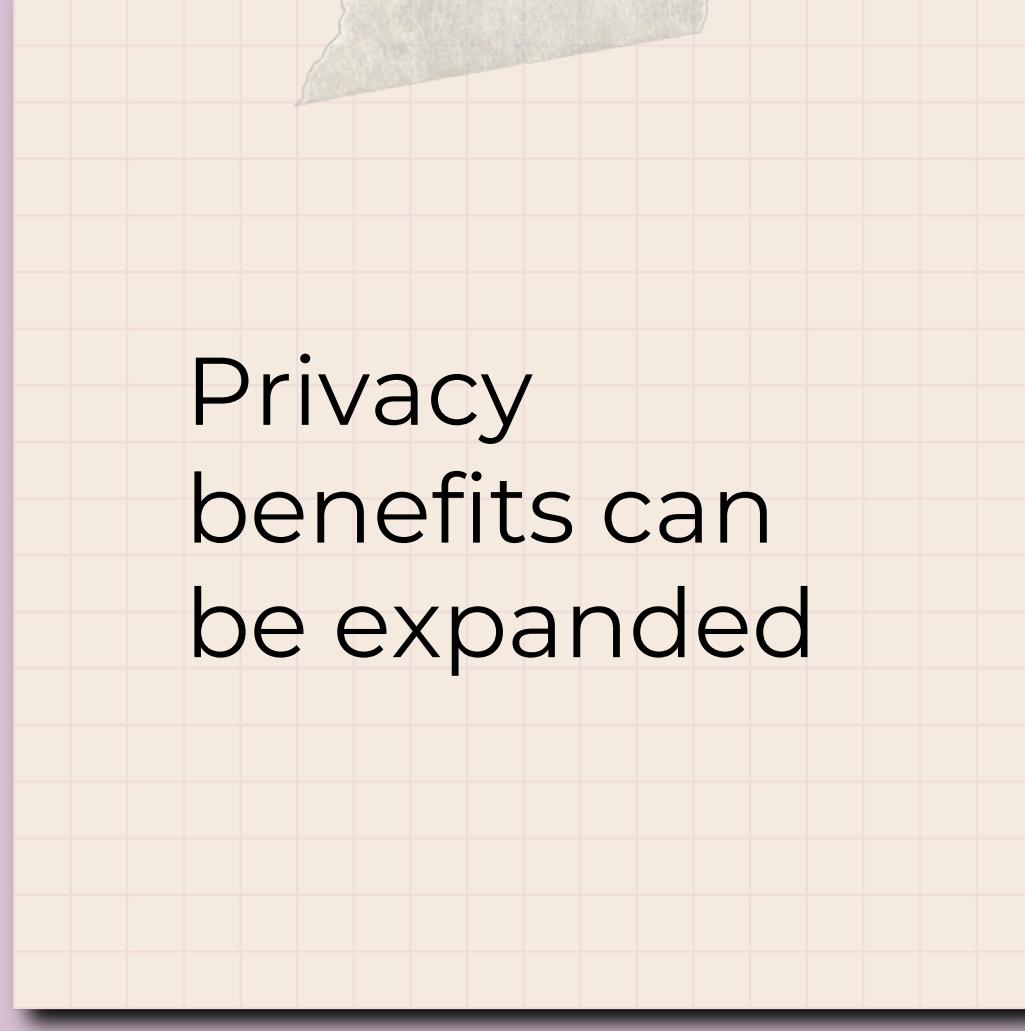
# Key Takeaways



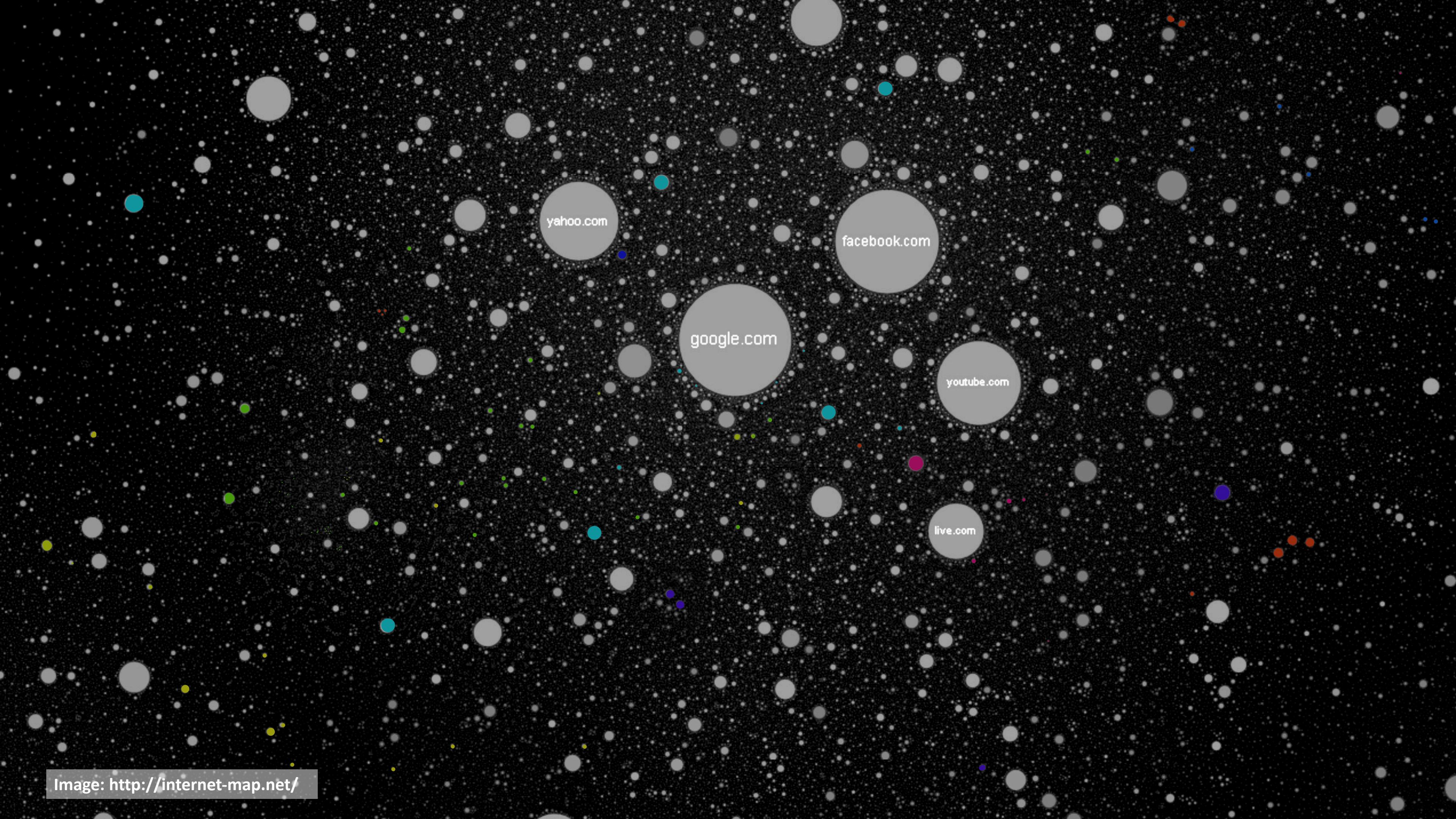
Privacy is a key motivation



Privacy benefits are broad



Privacy benefits can be expanded





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Read our paper

