

How Cloud Providers Elicit Consumer Requirements

An Exploratory Study of Nineteen Companies

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RE'13
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Requirements
Engineering
Research
Group 

The logo for the Requirements Engineering Research Group (RE RG), consisting of the letters 'R', 'E', 'R', and 'G' arranged in a 2x2 grid of black squares.

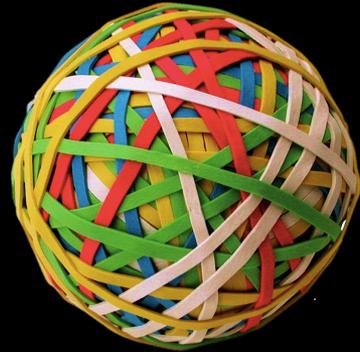








THE CLOUD IS COMING



THE CLOUD IS COMING

**How do cloud providers
elicit consumer
requirements?** 🌐

What's new

Method

Findings

Discussion

What's new

Method

Findings

Discussion











Globally distributed



Globally distributed Heterogeneous



Globally distributed

Heterogeneous

No local market



Globally distributed

Heterogeneous

No local market

Frequent change requests





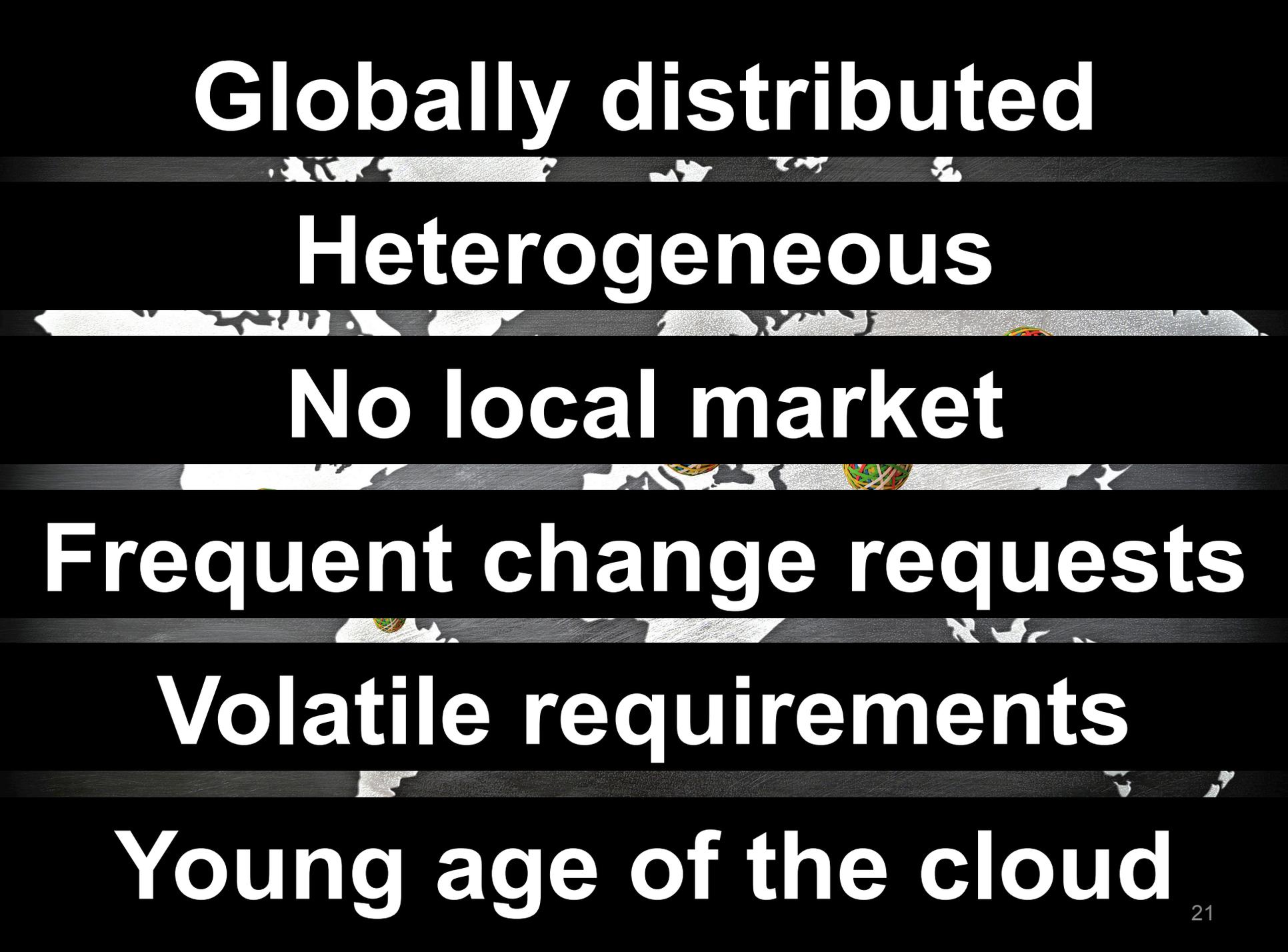
Globally distributed

Heterogeneous

No local market

Frequent change requests

Volatile requirements

A world map is visible in the background, overlaid with horizontal black and white stripes. The text is centered and written in a large, bold, white font.

Globally distributed

Heterogeneous

No local market

Frequent change requests

Volatile requirements

Young age of the cloud

**How do cloud providers
elicit consumer
requirements?** 🌐

What's new

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Our Approach: Qualitative Research

Semi-structured interviews

Our Approach: Qualitative Research

**Semi-structured
interviews**

19

Providers

Our Approach: Qualitative Research

**Semi-structured
interviews**

26

Respondents

19

Providers

Our Approach: Qualitative Research

**Semi-structured
interviews**

10

Countries

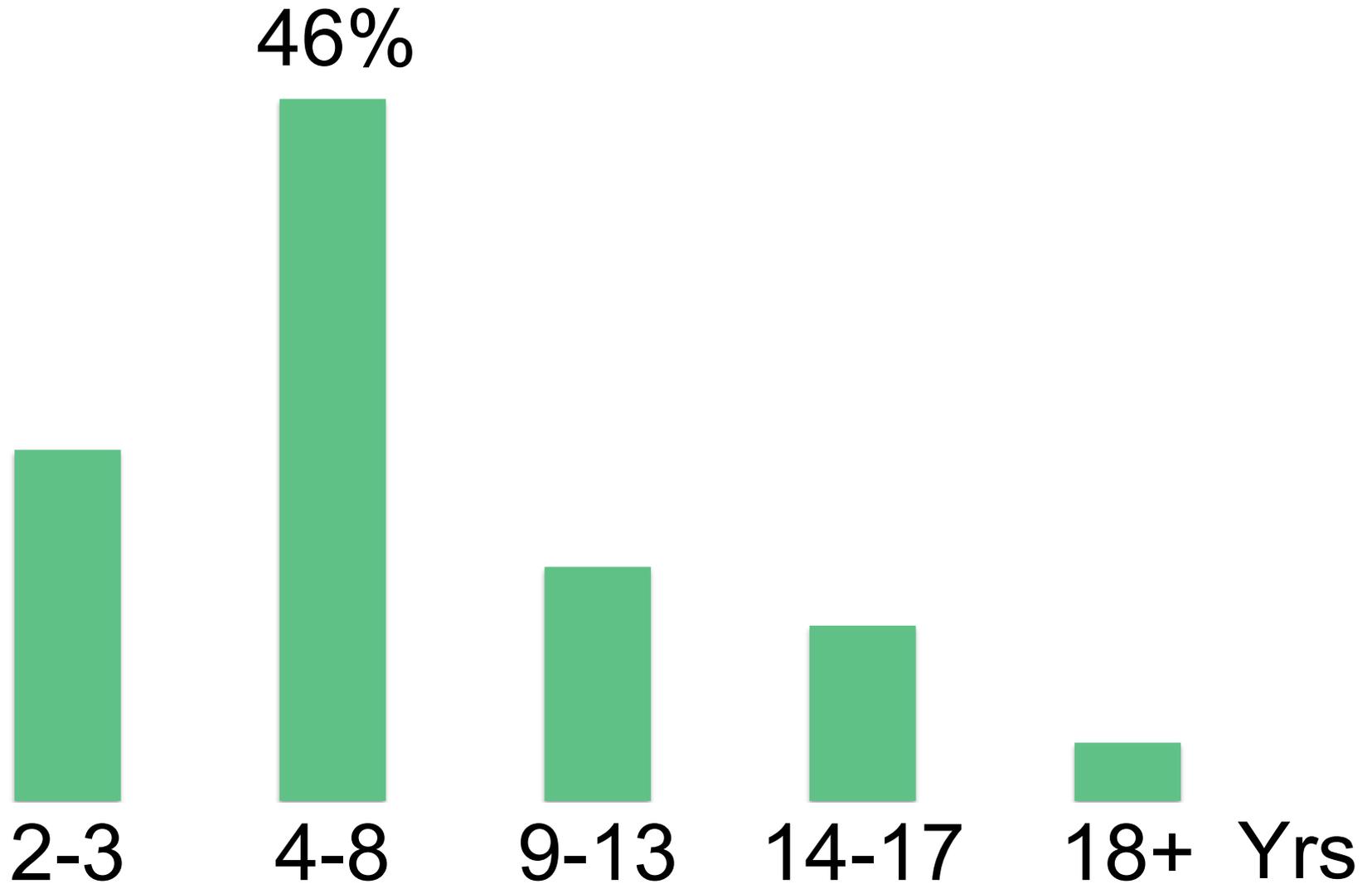
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Respondents

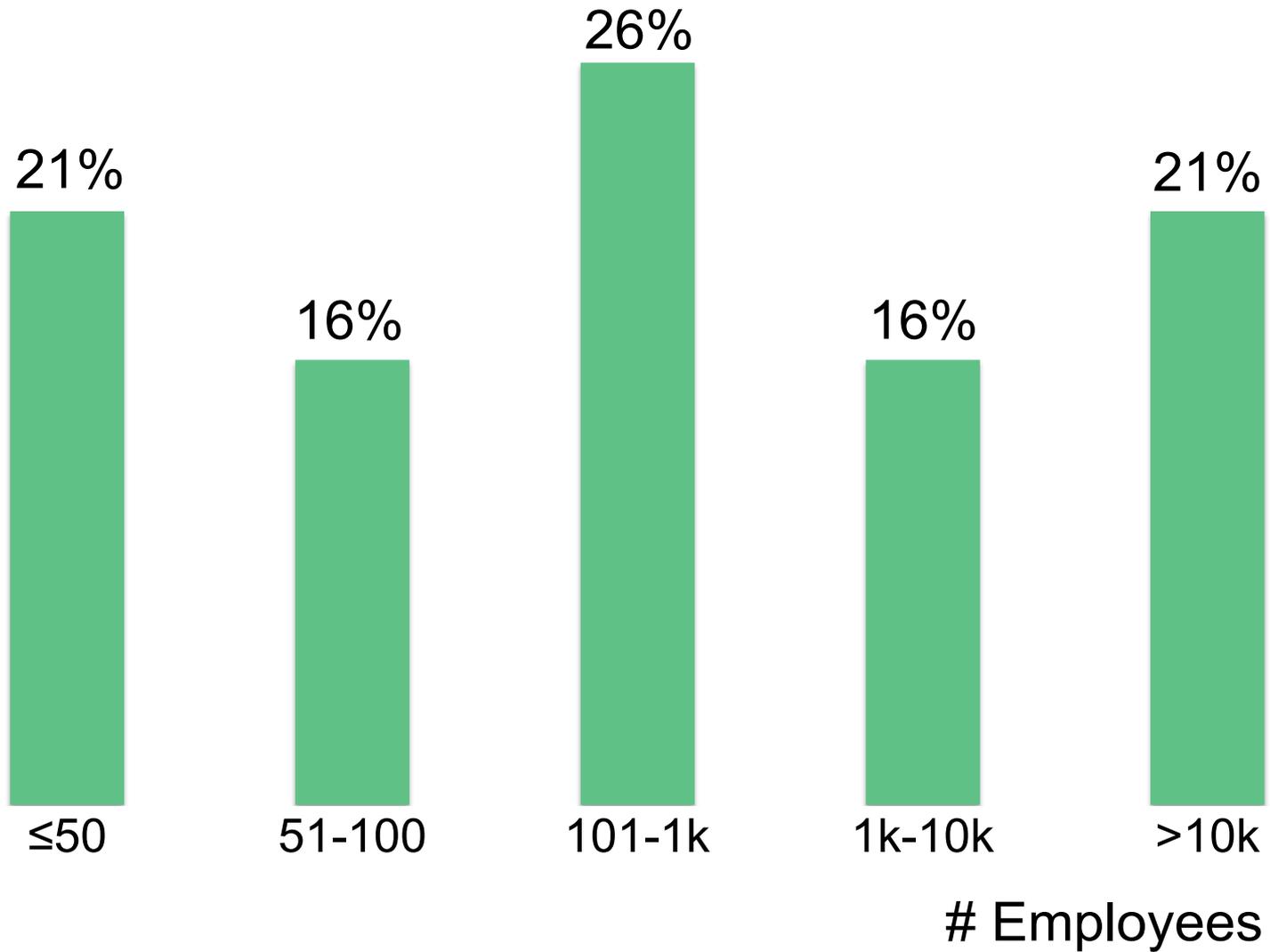
19

Providers

Respondents' RE Experience



Company Size



What's new

Method

Findings

Discussion

Most Popular Elicitation Methods

A Traditional

- A1 Questionnaires
- A2 Surveys
- A3 Interviews
- A4 Documentation Analysis

D Model-Driven

- D1 Scenarios
- D2 KAOS
- D3 i*

B Group Elicitation

- B1 Brainstorming – externally
- B2 Brainstorming – internally
- B3 Focus Groups
- B4 RAD/JAD Workshops

E Cognitive

- E1 Protocol Analysis
- E2 Laddering
- E3 Card Sorting
- E4 Repertory Grids

C Prototyping

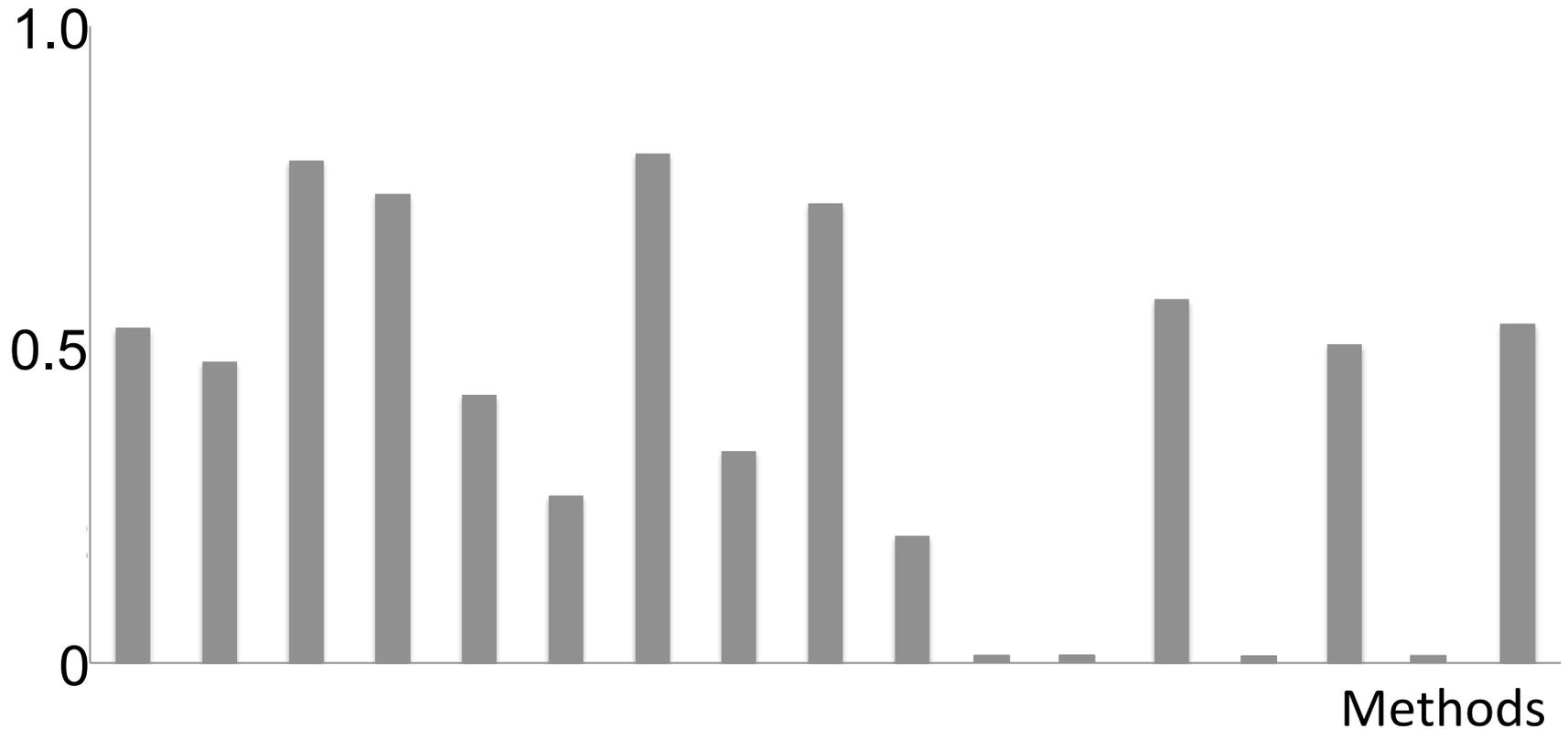
F Contextual (Ethnography)

Most Popular Elicitation Methods

$$\text{Importance}(i) = \frac{N_{f,i}(i)}{N_f(i)}$$

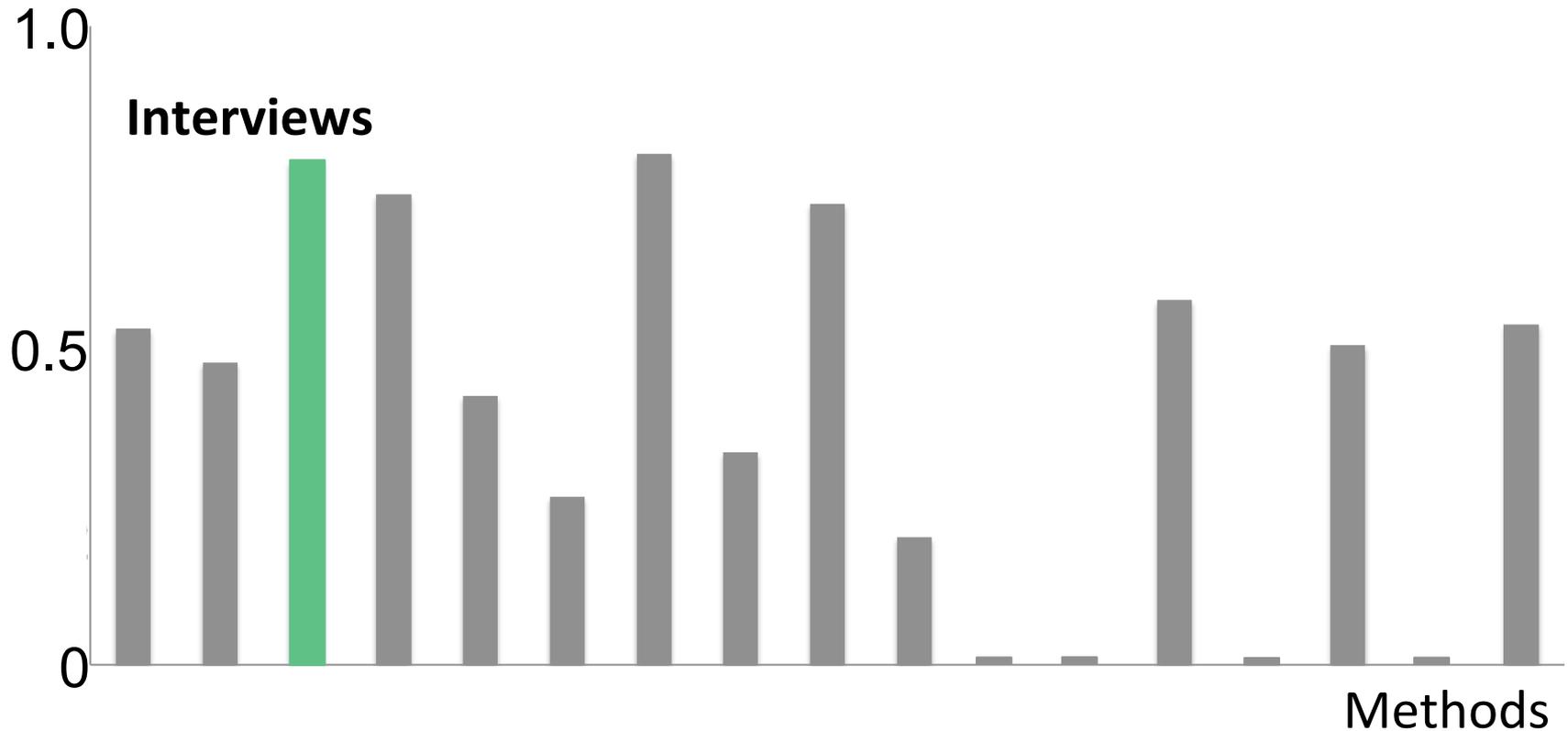
Most Popular Elicitation Methods

$$\text{Importance}(i) = \frac{N_{f,i}(i)}{N_f(i)}$$



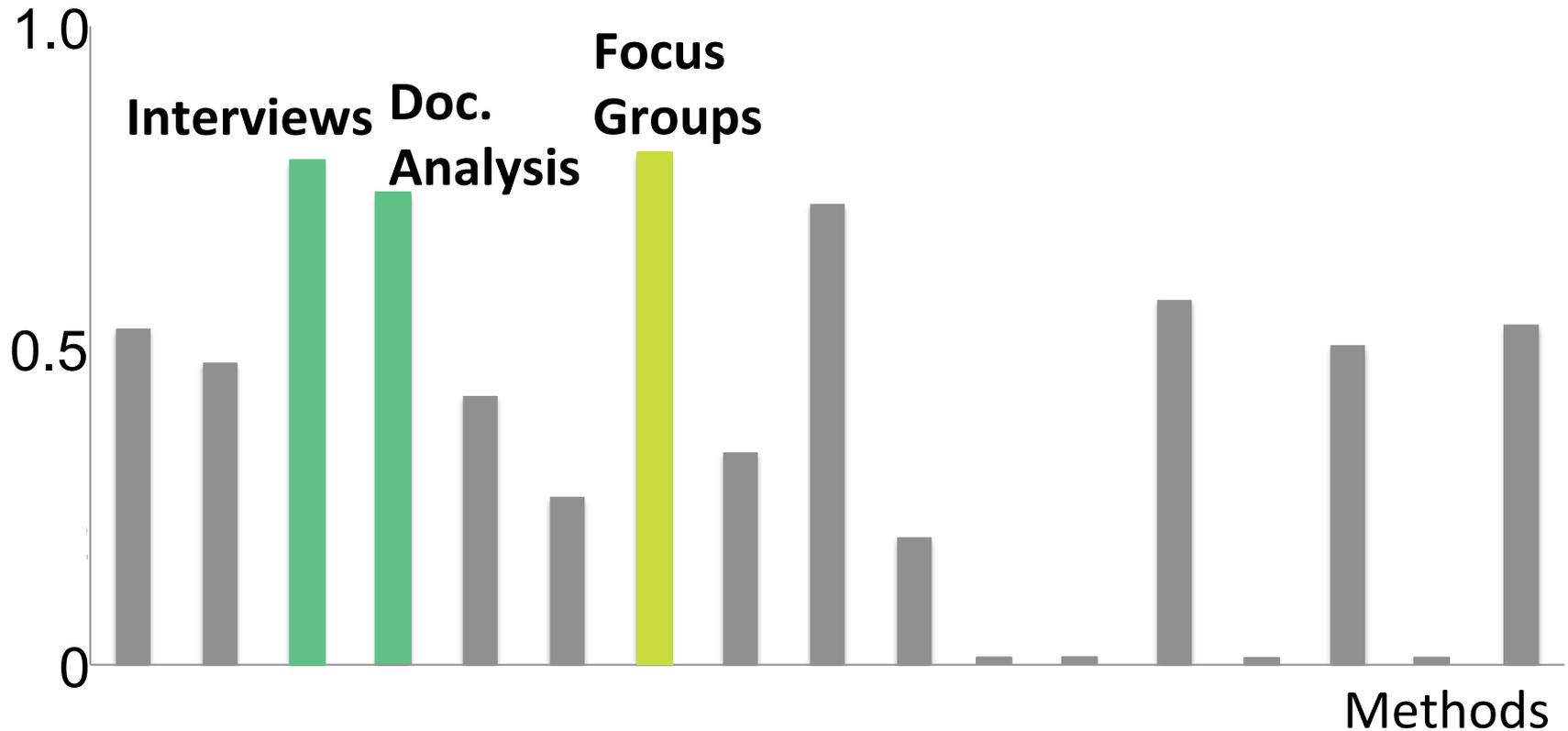
Most Popular Elicitation Methods

$$\text{Importance}(i) = \frac{N_{f,i}(i)}{N_f(i)}$$



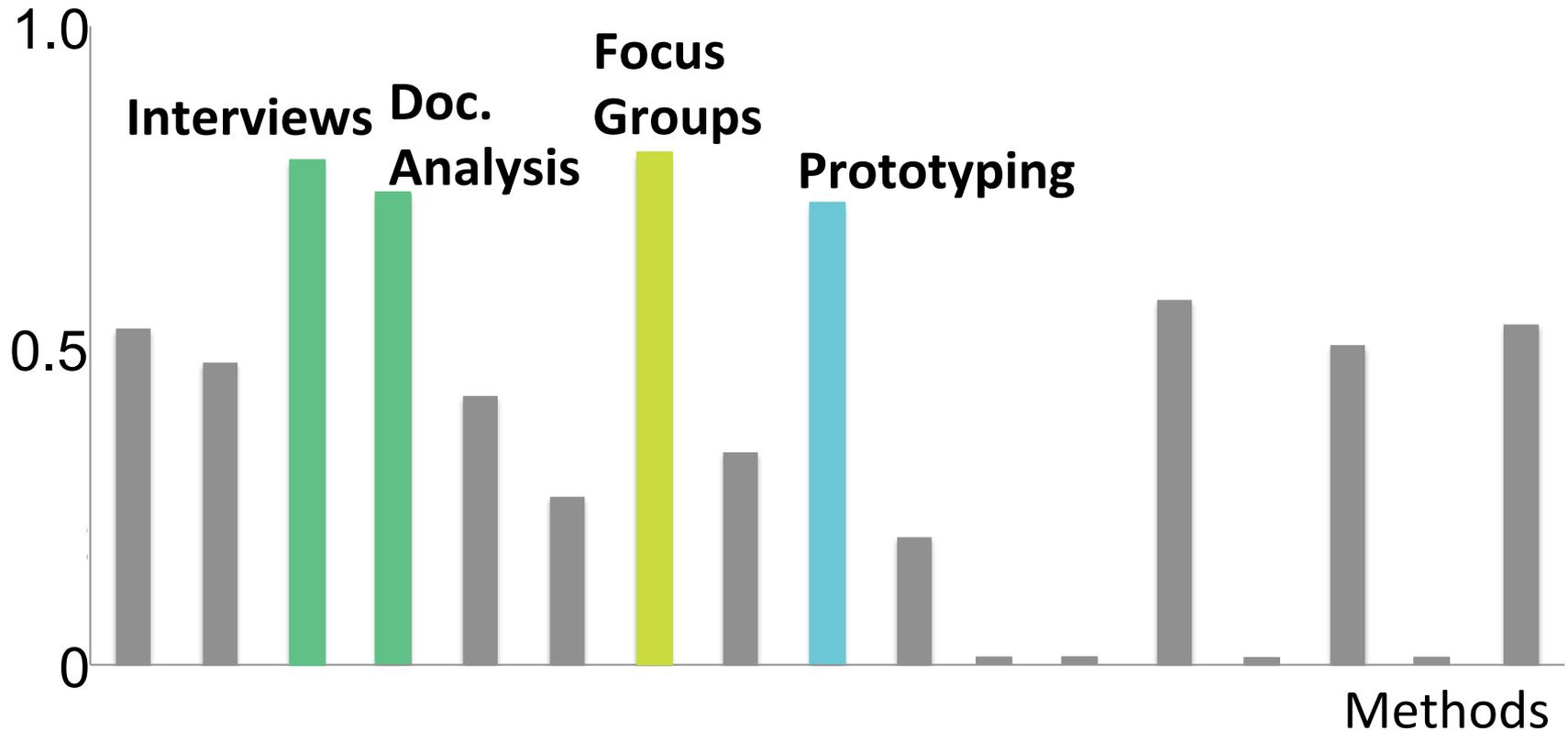
Most Popular Elicitation Methods

$$\text{Importance}(i) = \frac{N_{f,i}(i)}{N_f(i)}$$



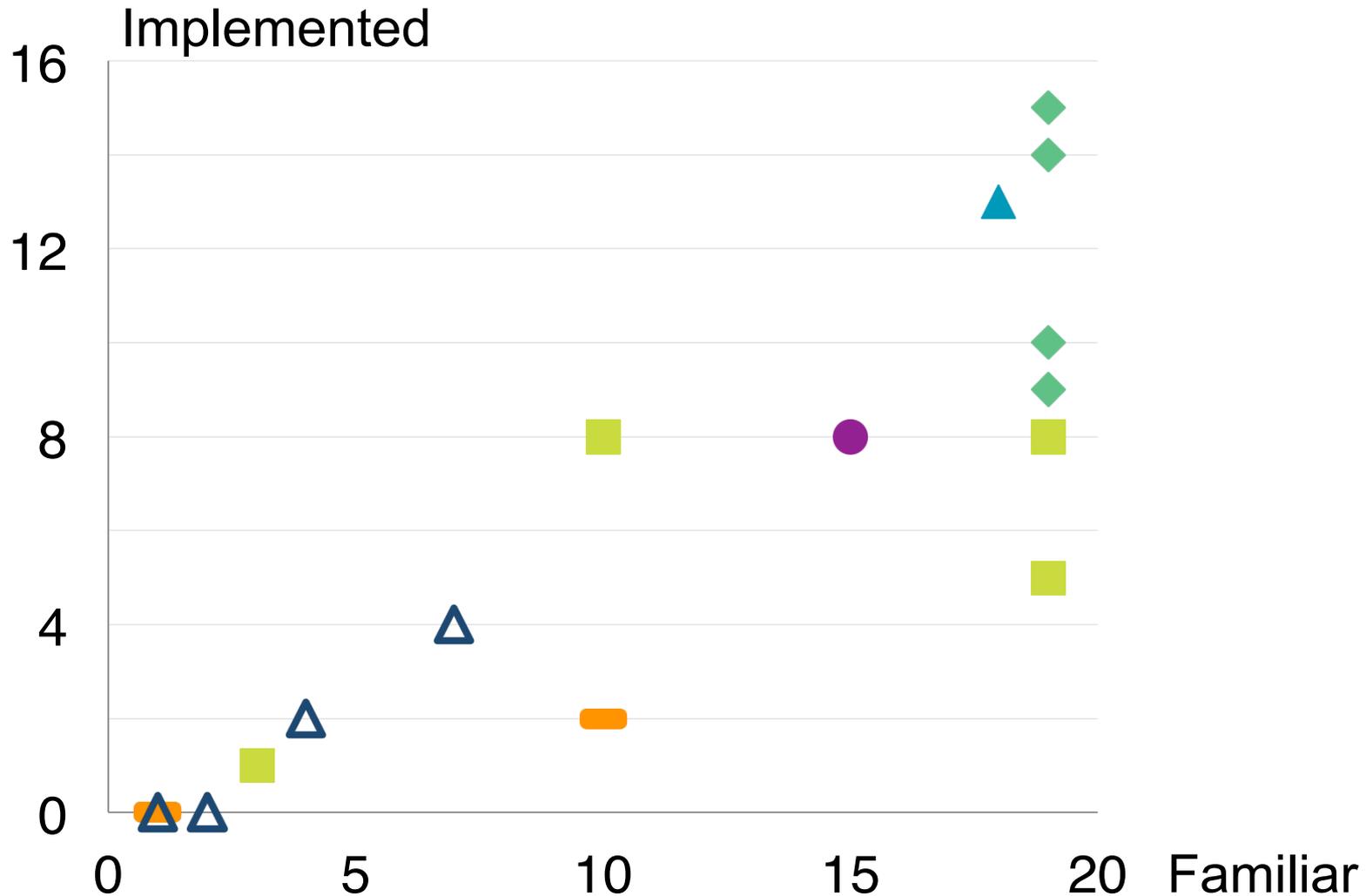
Most Popular Elicitation Methods

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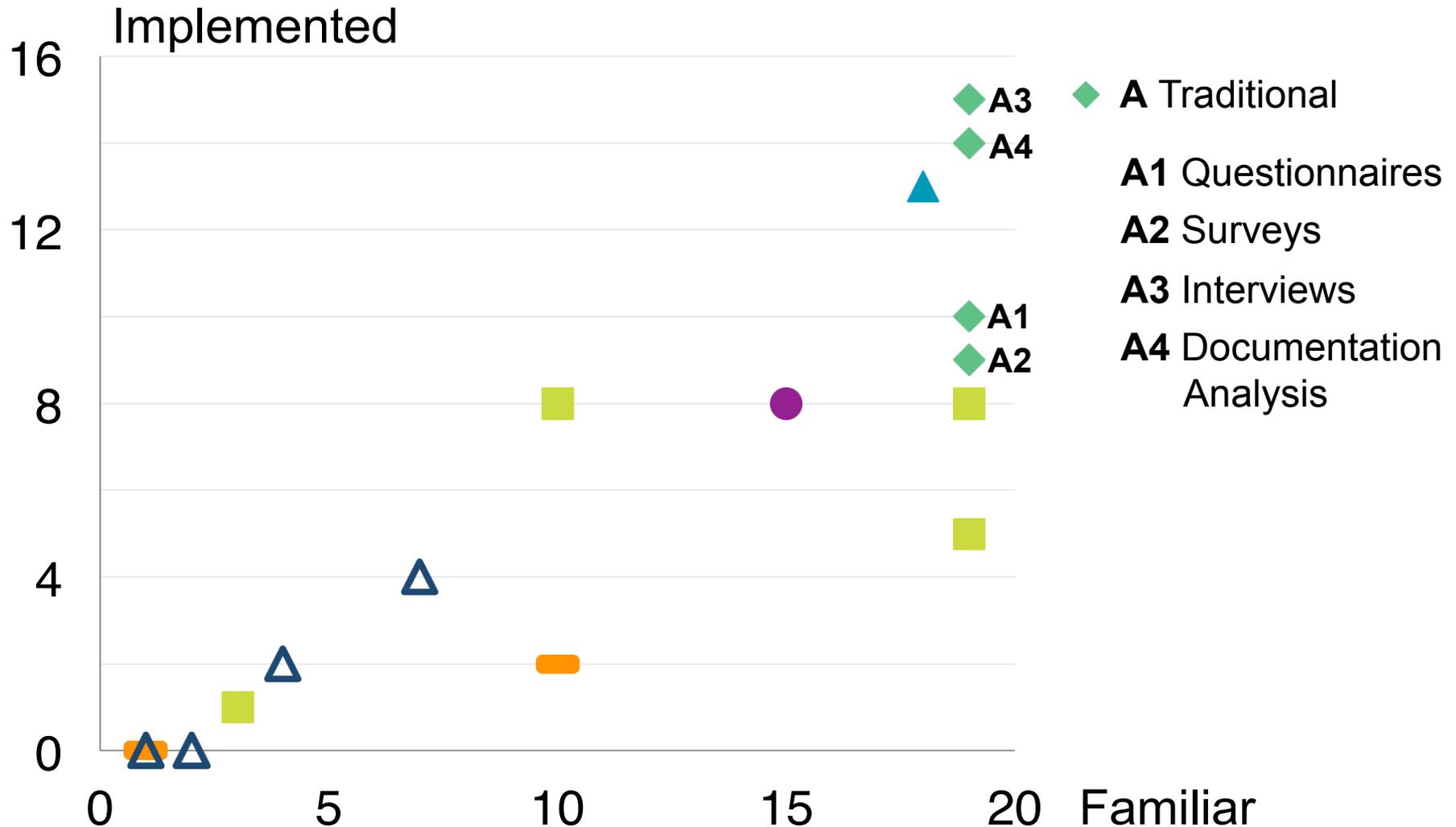


These methods are
inadequate
for the cloud.

Most Popular Elicitation Methods



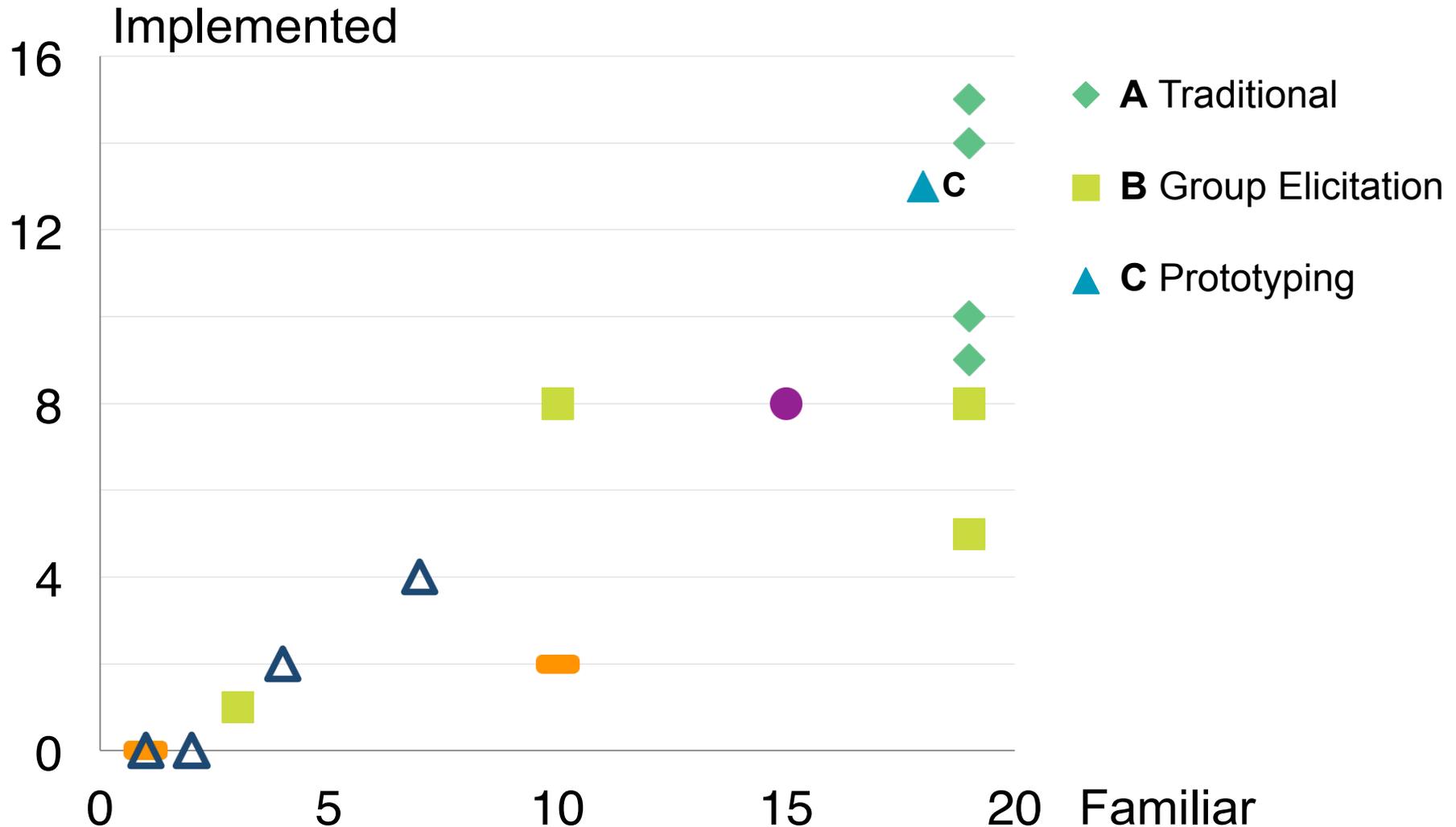
Most Popular Elicitation Methods



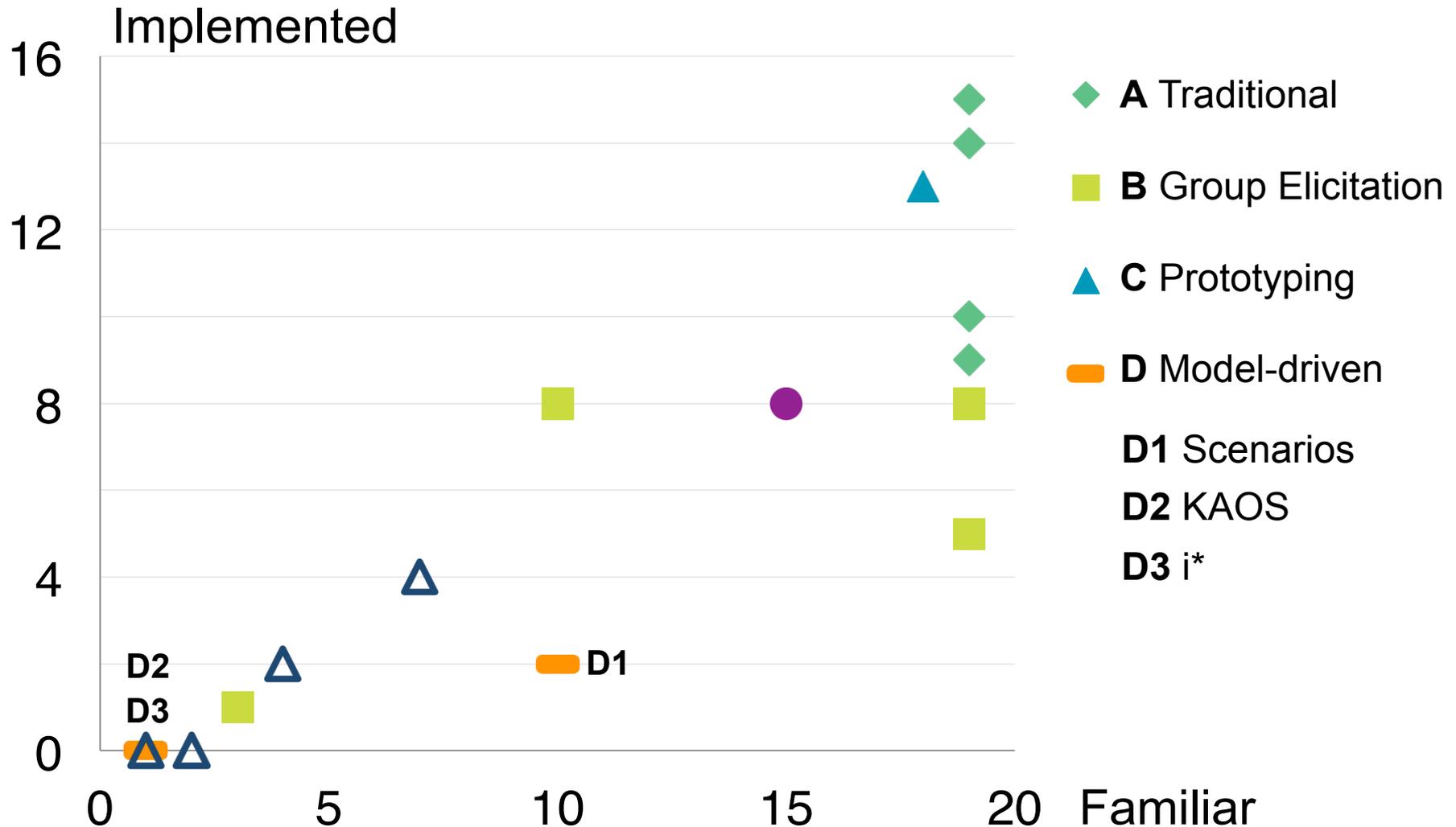
Most Popular Elicitation Methods



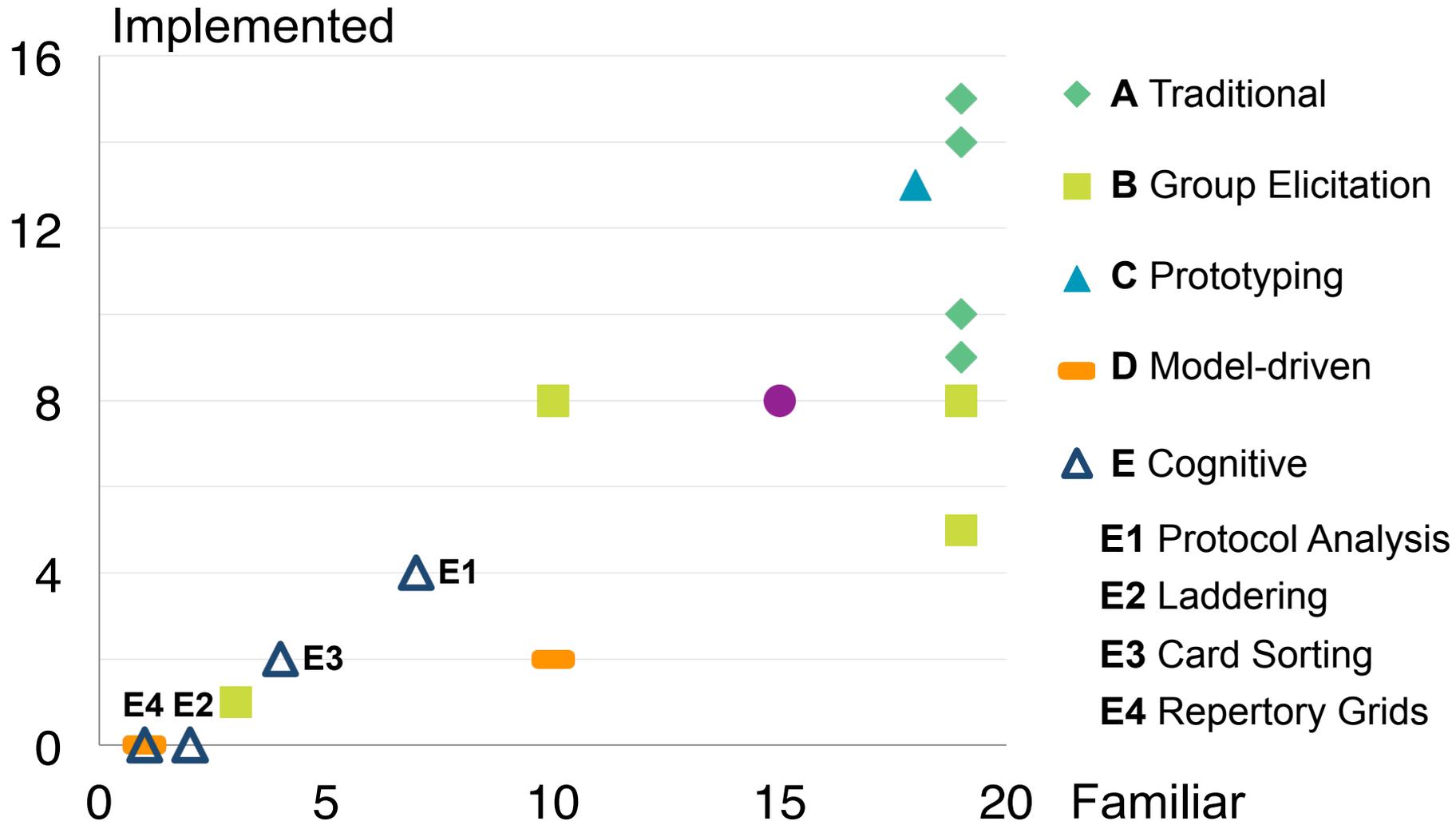
Most Popular Elicitation Methods



Most Popular Elicitation Methods



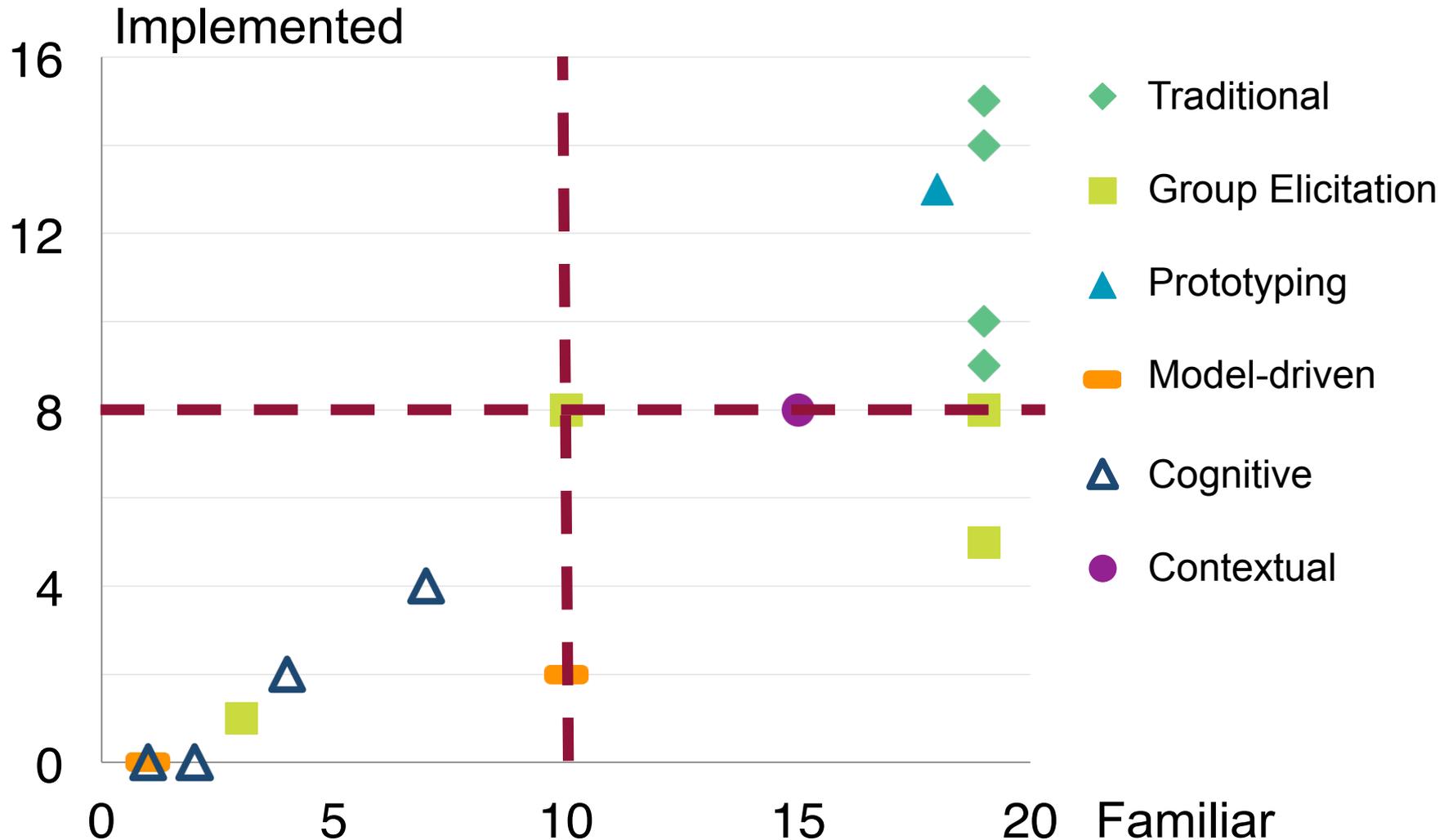
Most Popular Elicitation Methods



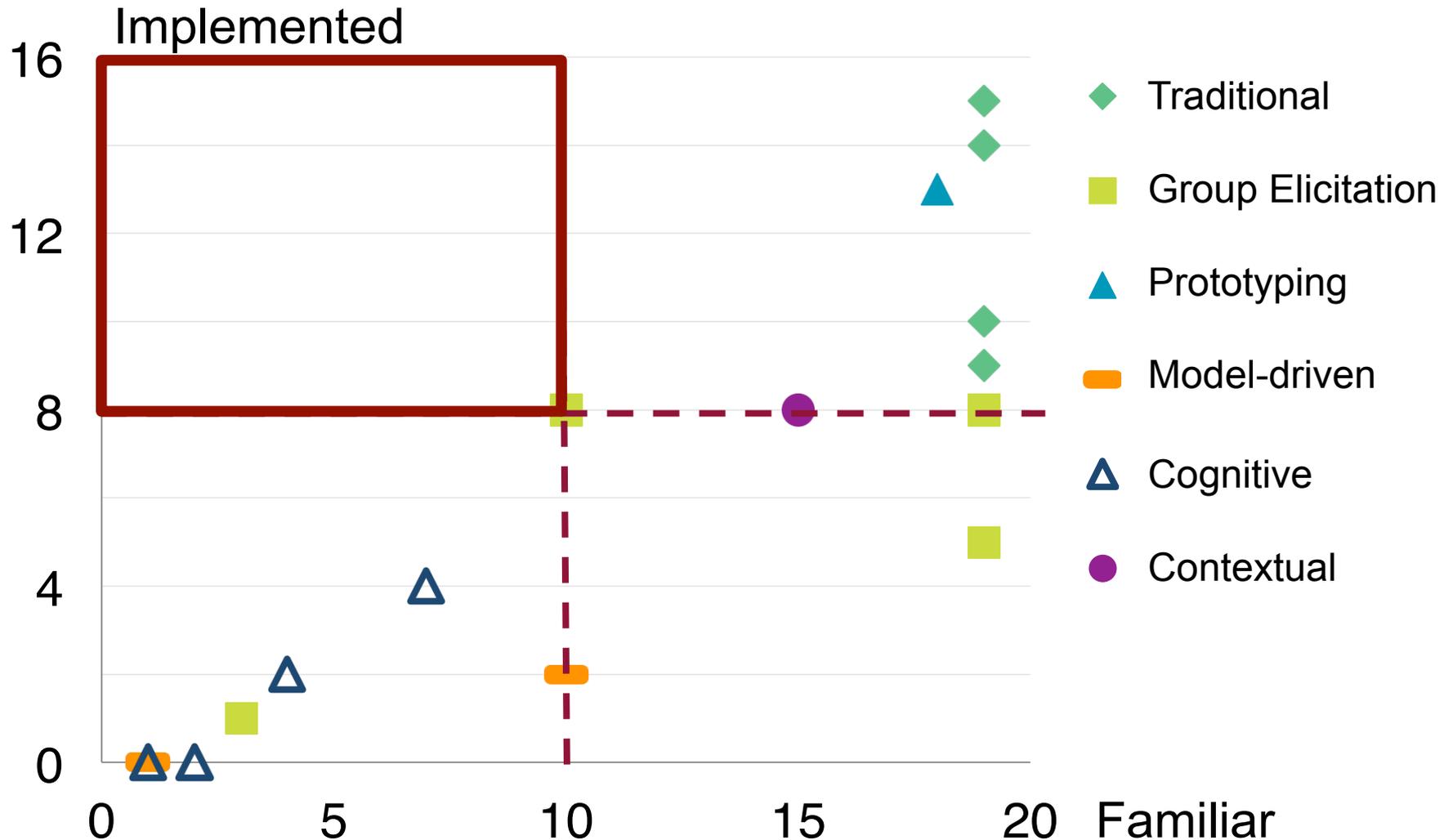
Most Popular Elicitation Methods



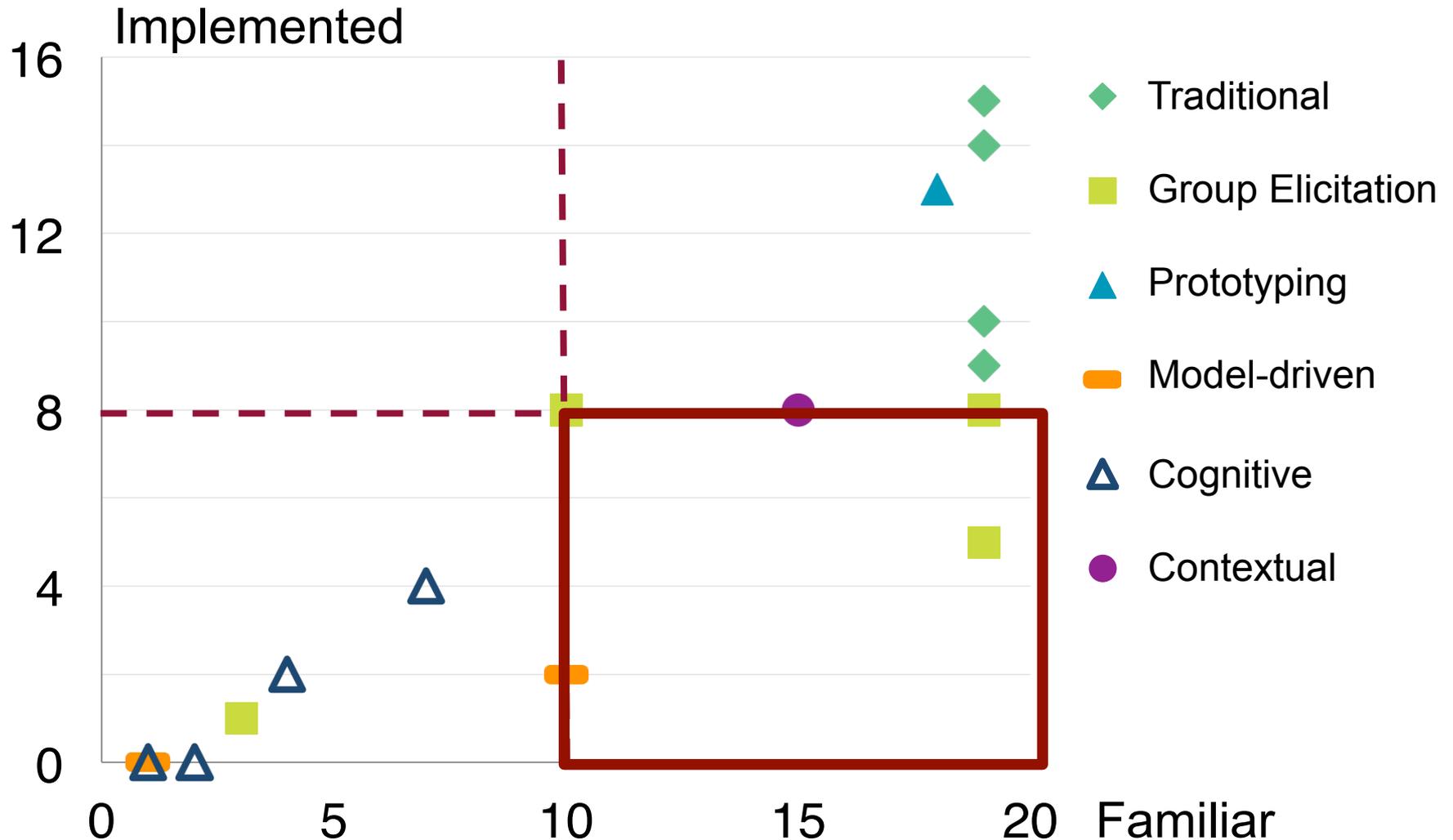
Most Popular Elicitation Methods



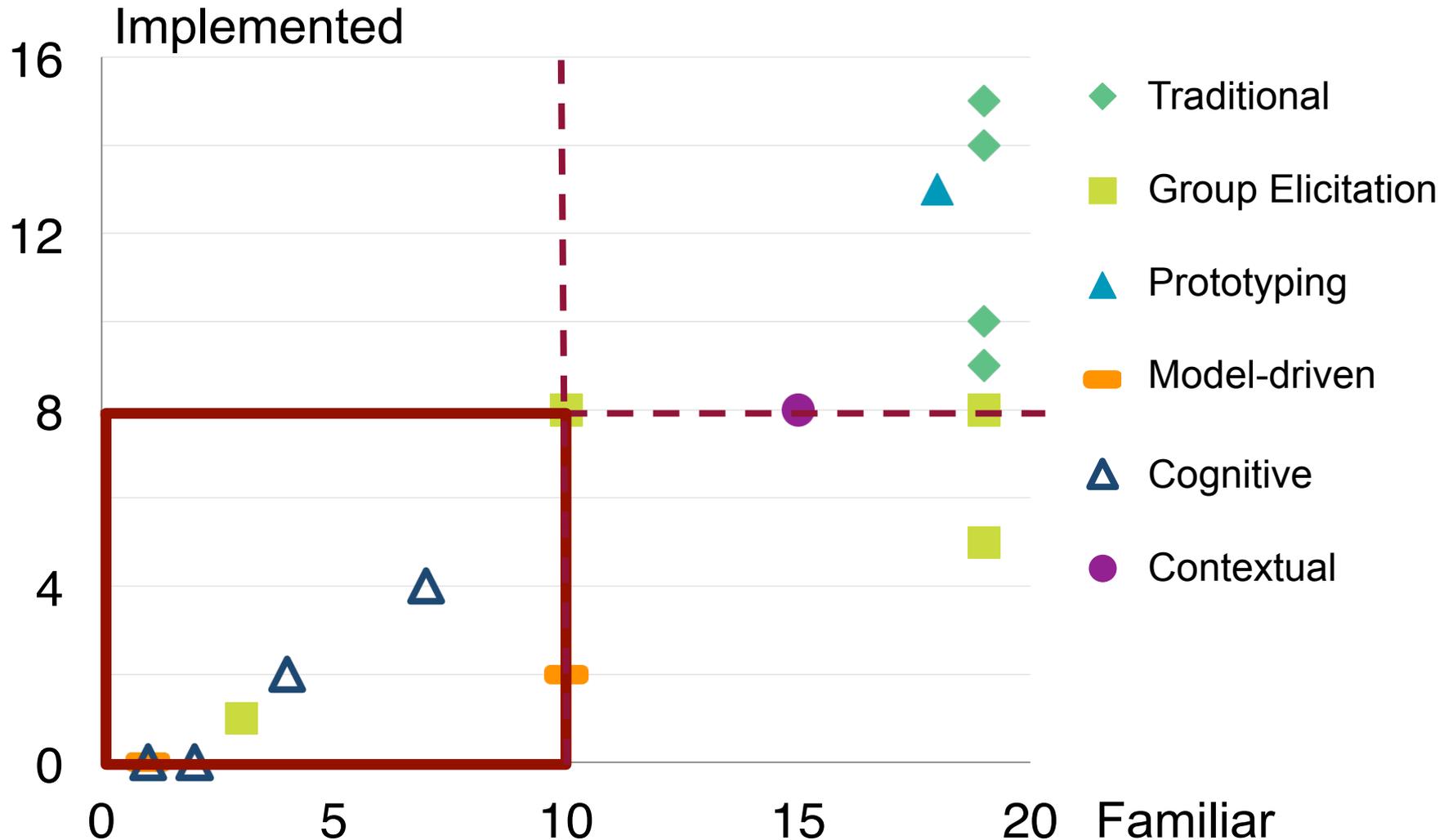
Most Popular Elicitation Methods



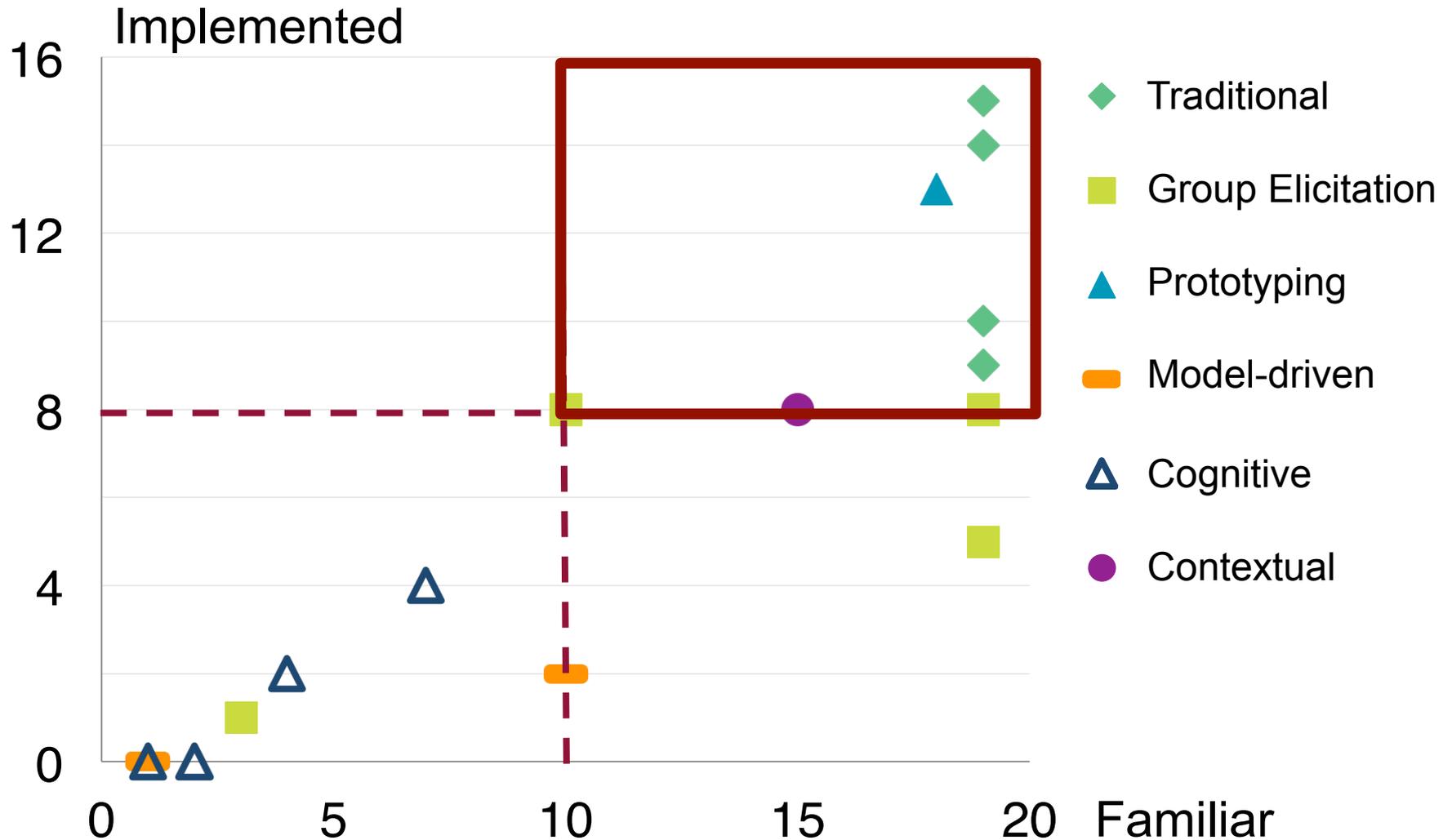
Most Popular Elicitation Methods



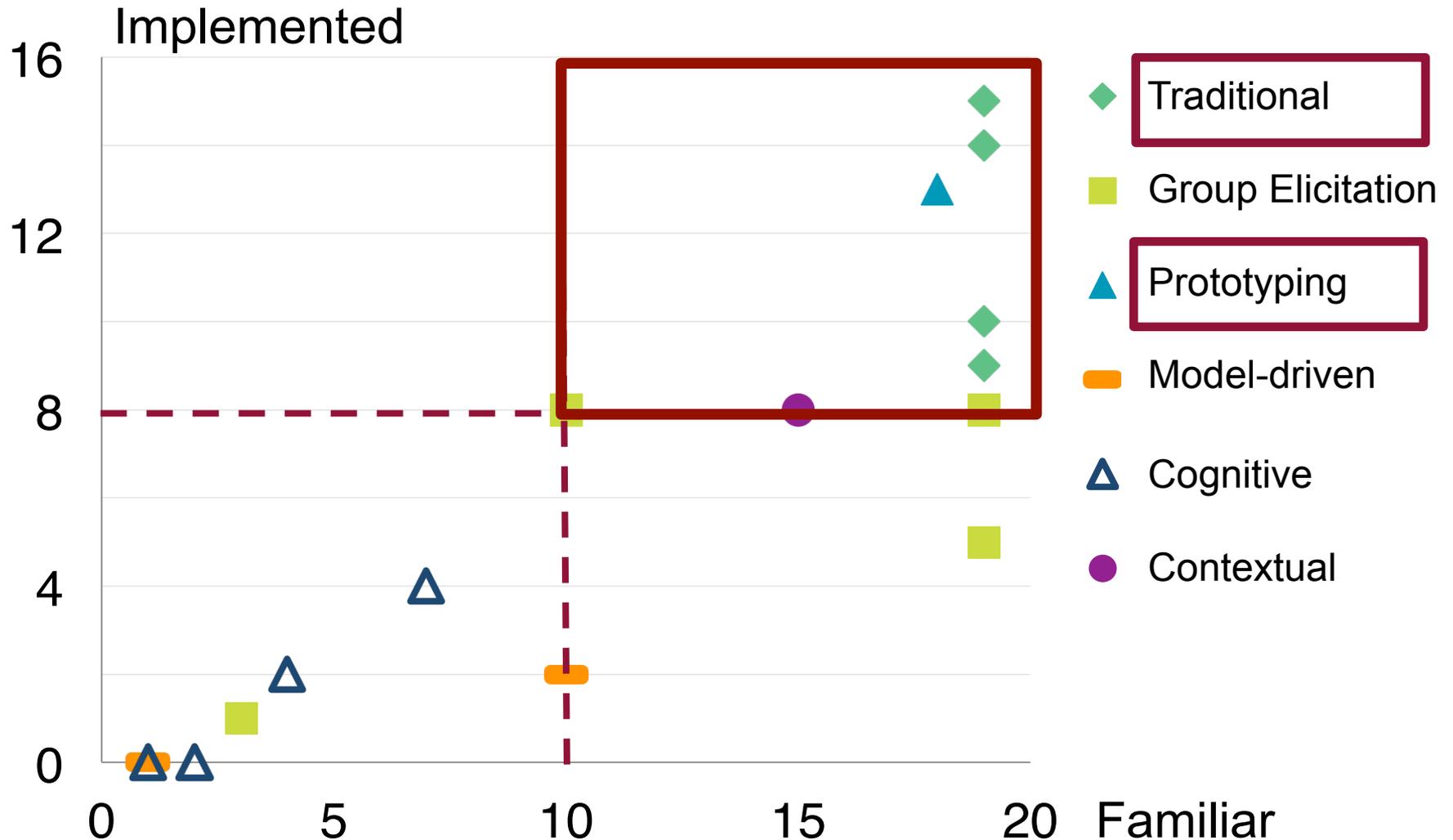
Most Popular Elicitation Methods



Most Popular Elicitation Methods



Most Popular Elicitation Methods

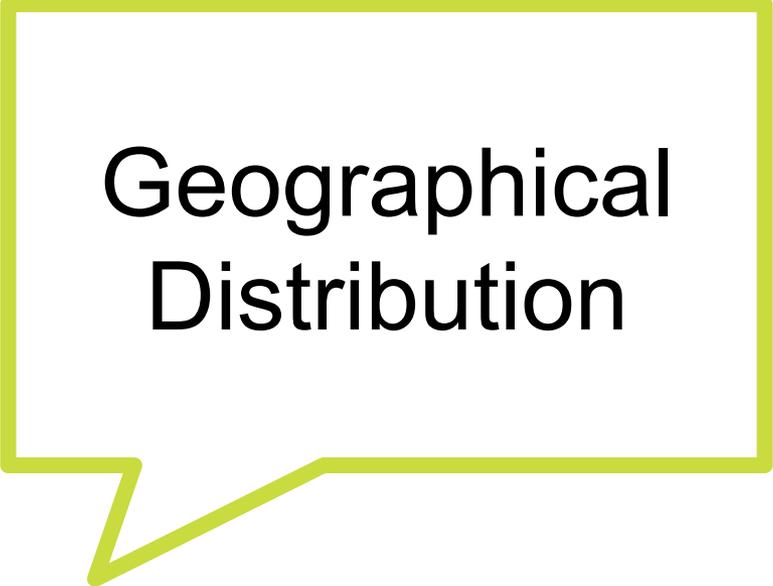


**...still inadequate
for the cloud.**

Cloud Providers Say...

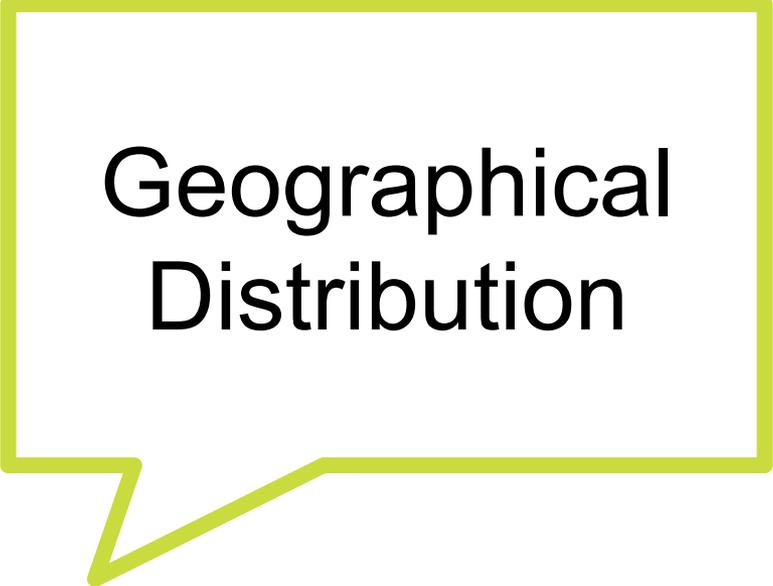
“I had to deny the request, we couldn’t have afforded such a client from a different continent.”

Cloud Providers Say...



Geographical
Distribution

Cloud Providers Say...



Geographical
Distribution

63%

Cloud Providers Say...

Geographical
Distribution

63%

“It’s difficult to use our
old practices in the
cloud.” [interviews]

Cloud Providers Say...

Geographical
Distribution

63%

Known Practices:
Inadequate

Cloud Providers Say...

Geographical
Distribution

63%

Known Practices:
Inadequate

90%

Cloud Providers Say...

Geographical
Distribution

63%

Known Practices:
Inadequate

90%

“We had some
attempts to adapt.
Most failed.”

Cloud Providers Say...

Geographical
Distribution

63%

Known Practices:
Inadequate

90%

Failed Attempts

Cloud Providers Say...

Geographical
Distribution

63%

Known Practices:
Inadequate

90%

Failed Attempts

65%

So what is adequate?

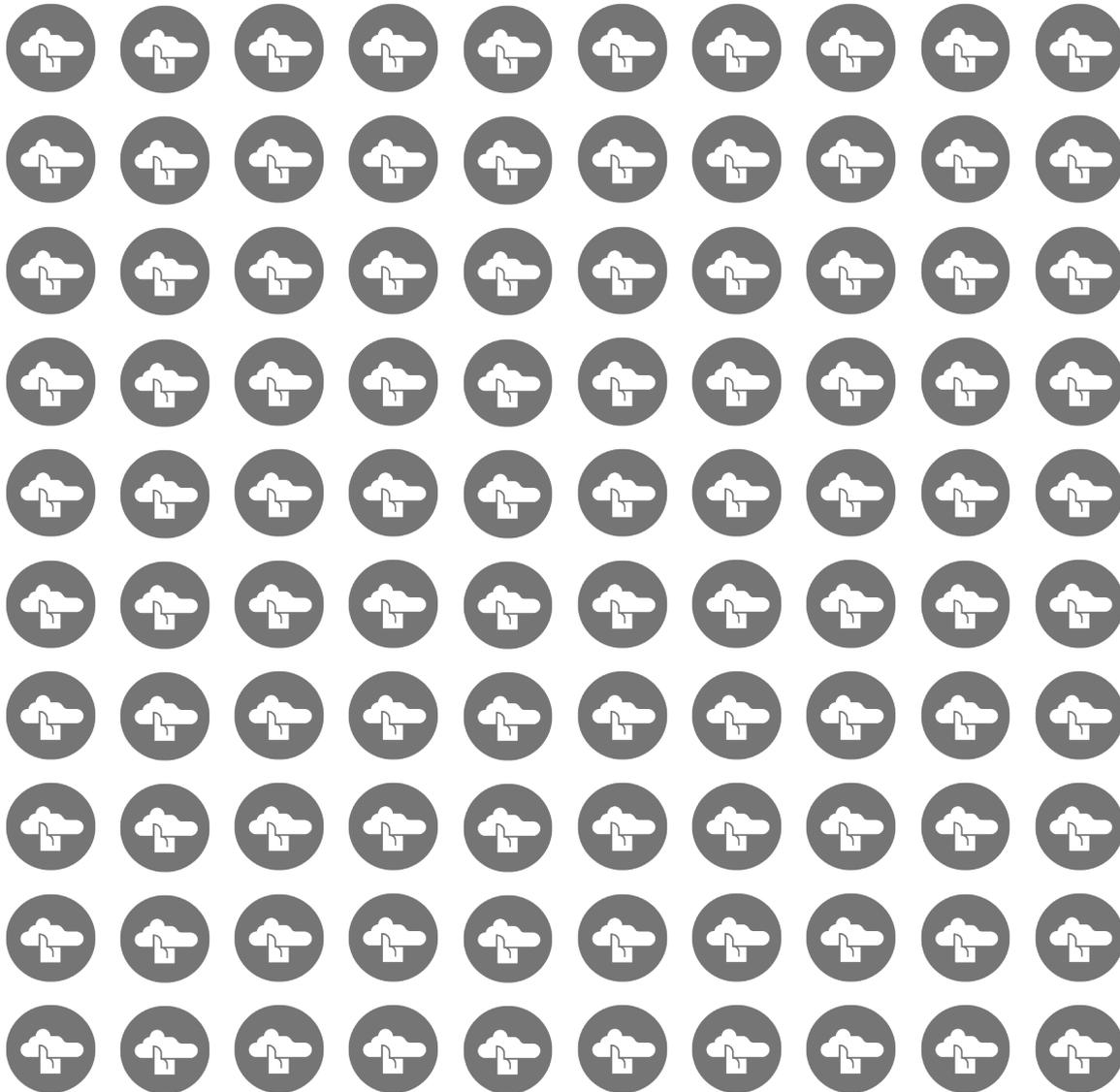
What do Providers Use?

What do Providers Use?

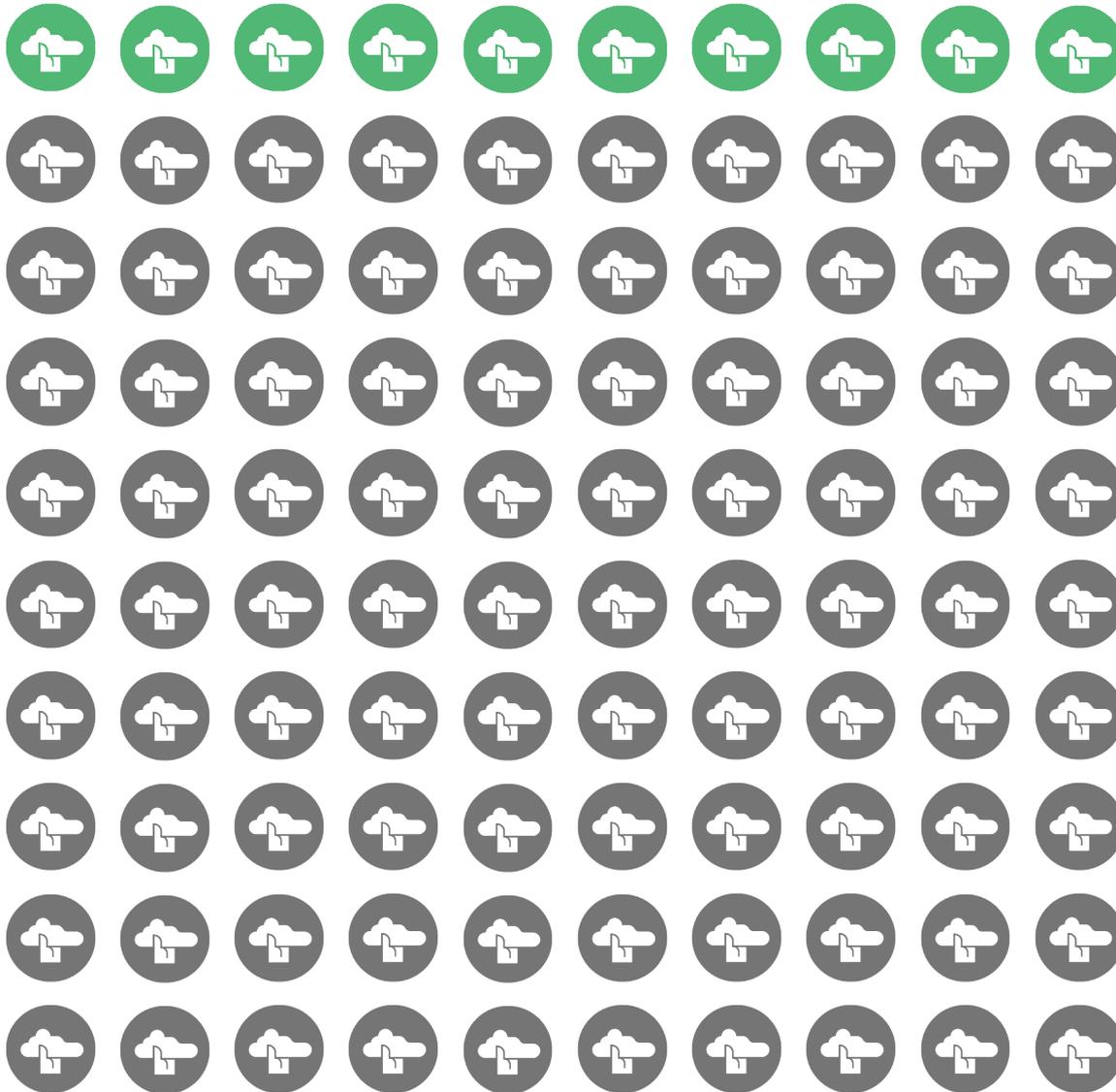
94.7%

ad-hoc

What do Providers Use?



What do Providers Use?



10%
invent & guess

What do Providers Use?



10%

invent & guess

21%

imitate

What do Providers Use?



10%

invent & guess

21%

26%

own knowledge

What do Providers Use?



10%

invent & guess

21%

imitate

26%

own knowledge

What do Providers Use?



10%

invent & guess

21%

imitate

26%

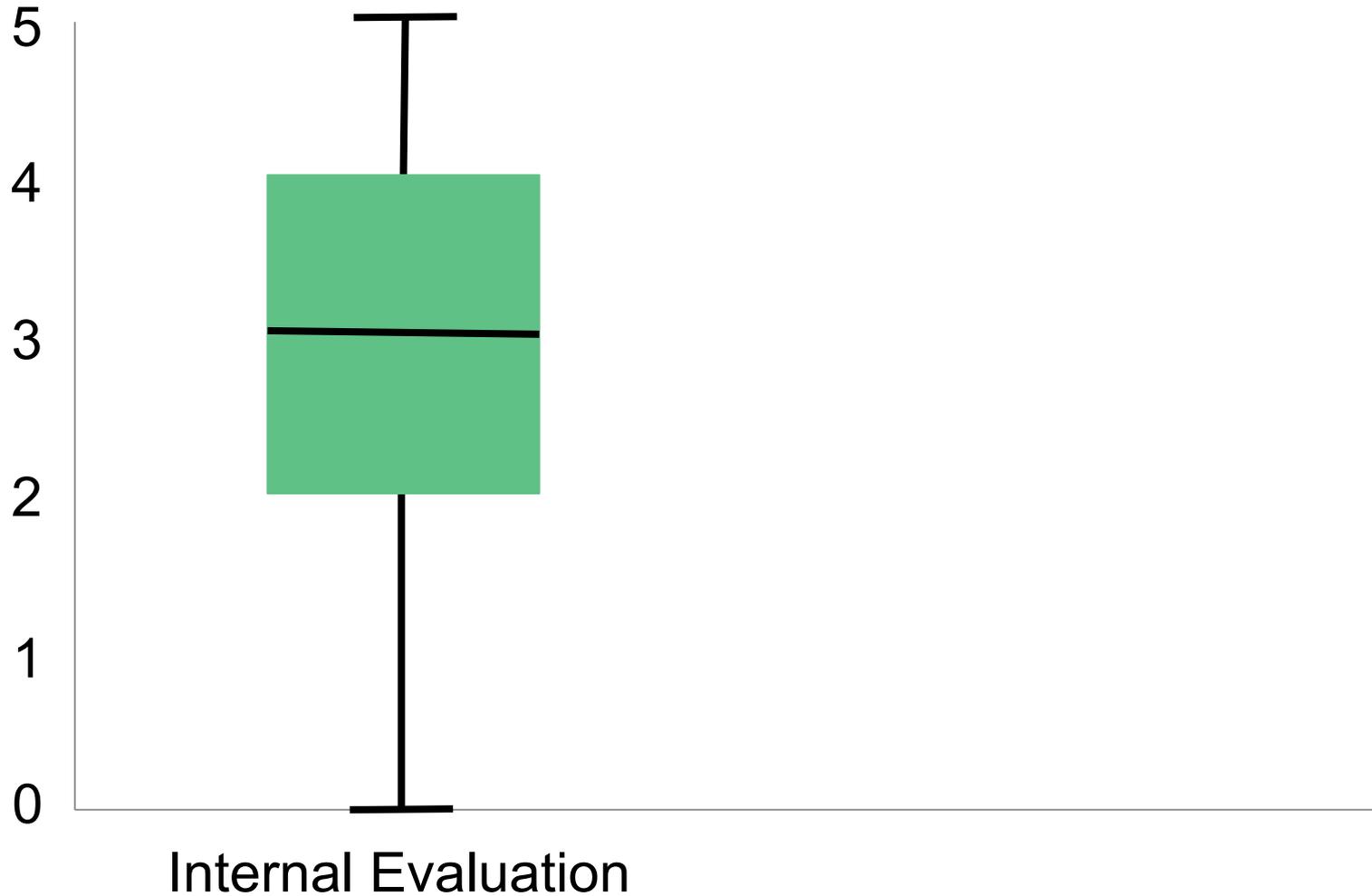
own knowledge



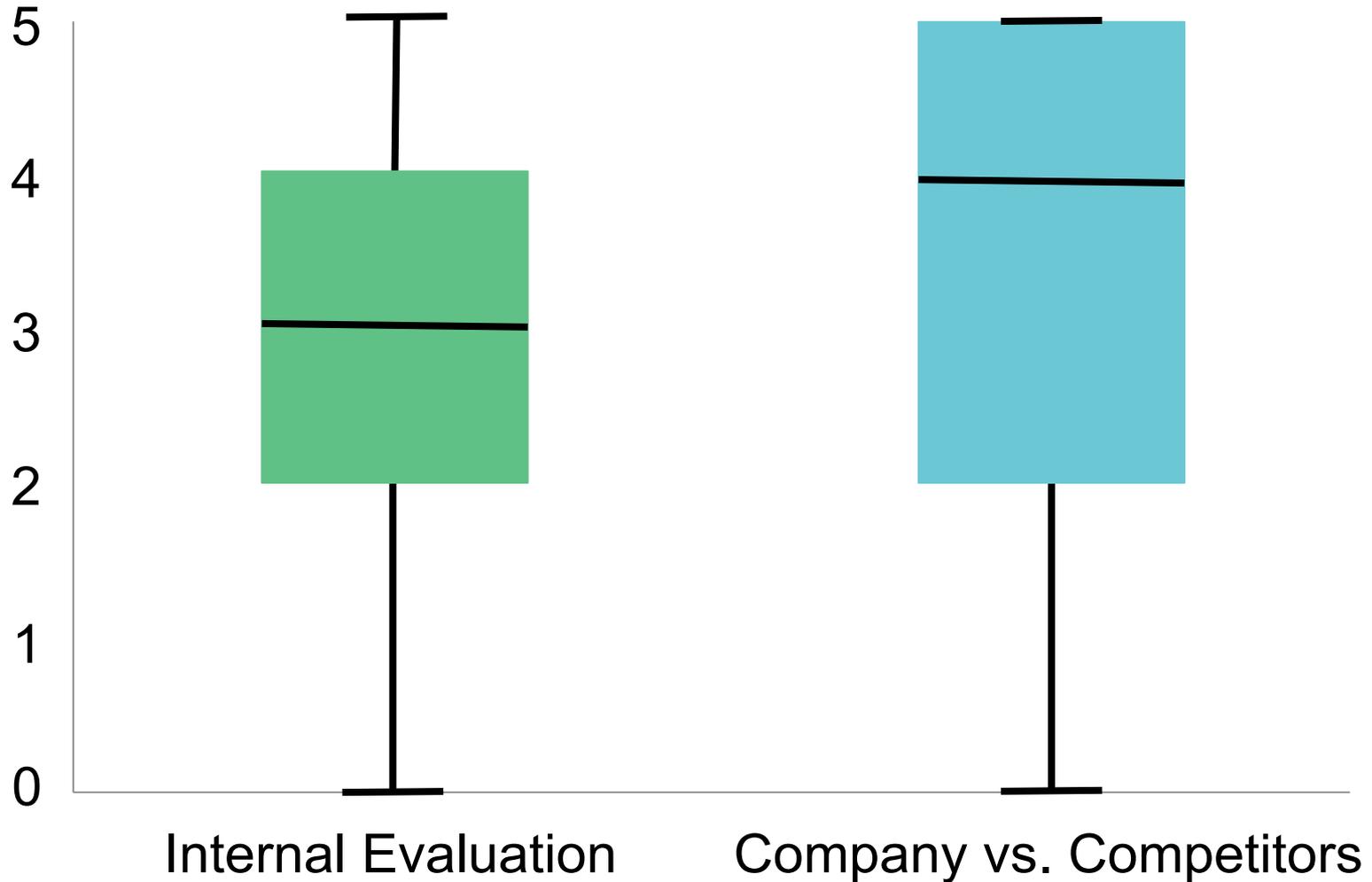
Good enough?

Satisfaction Level with Existing Methods

Satisfaction Level with Existing Methods



Satisfaction Level with Existing Methods

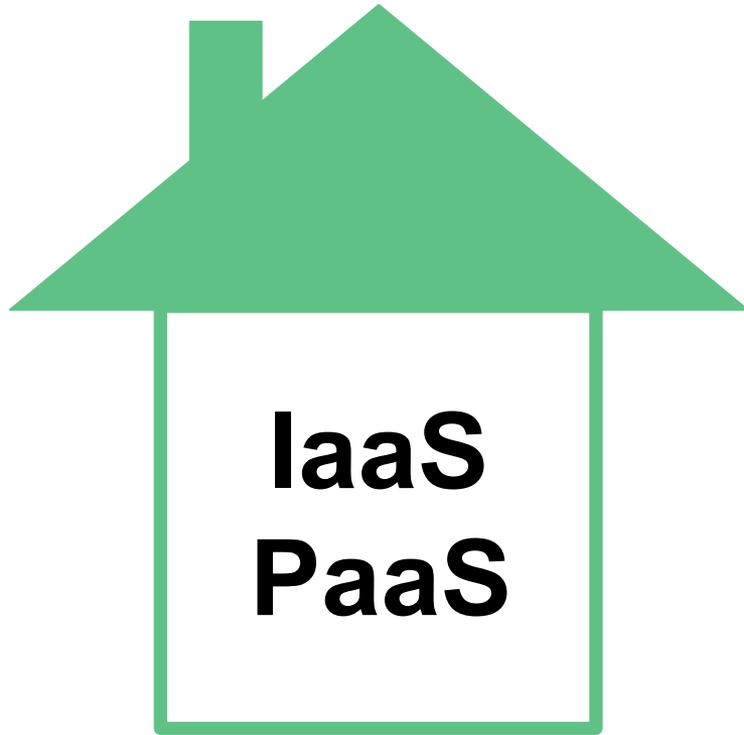


Causes for the Dissatisfaction Level

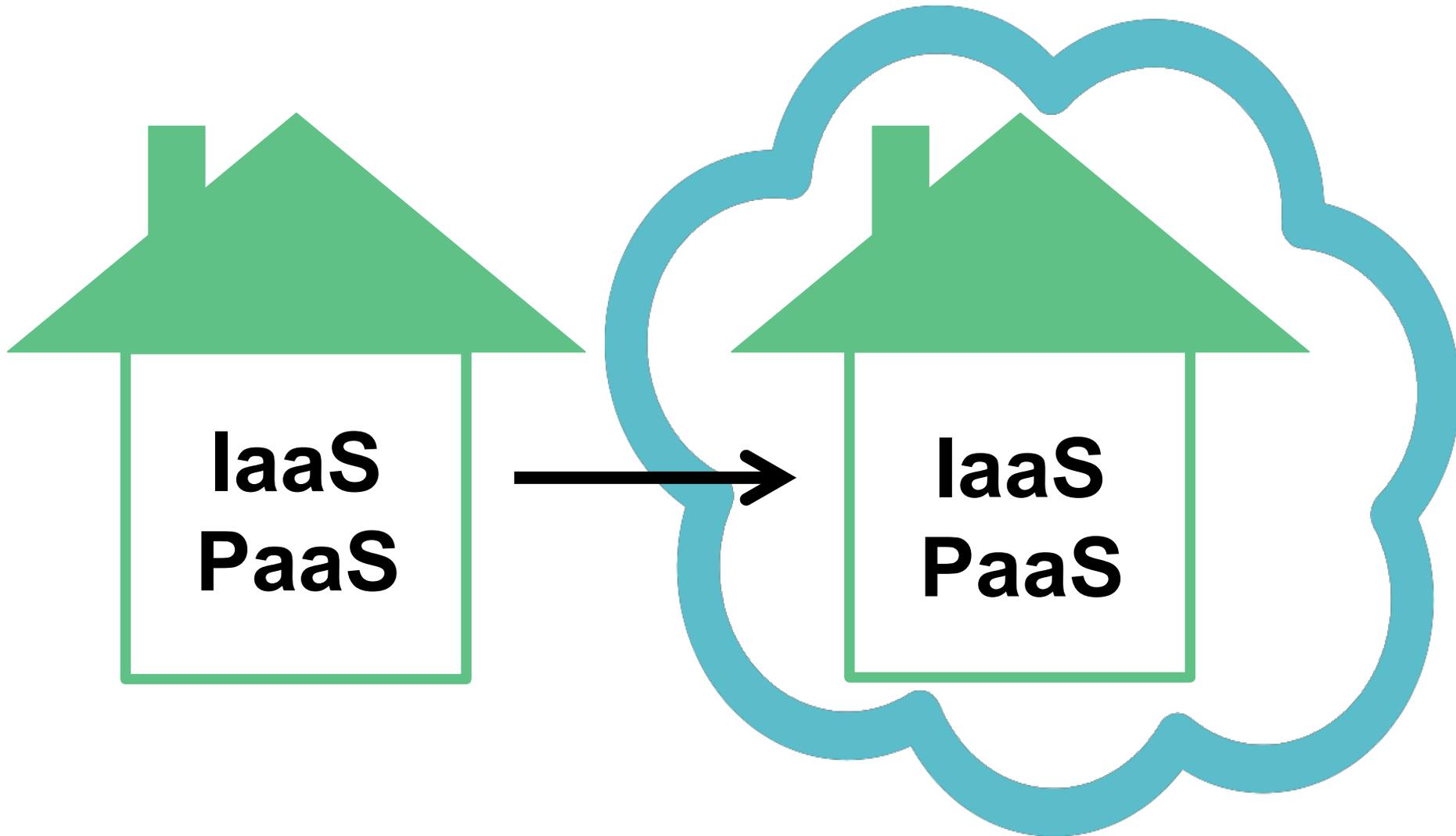


IaaS
PaaS

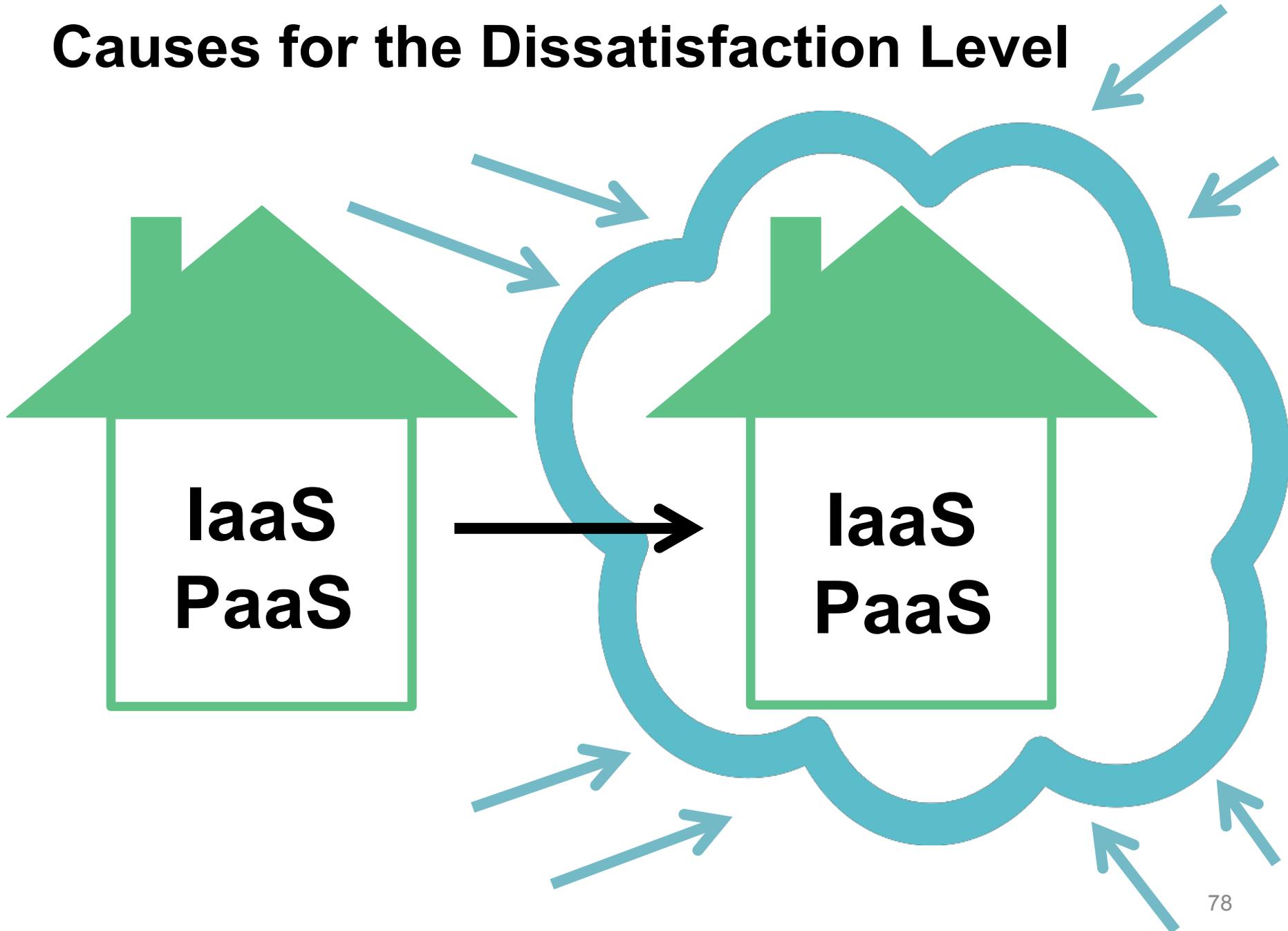
Causes for the Dissatisfaction Level



Causes for the Dissatisfaction Level



Causes for the Dissatisfaction Level



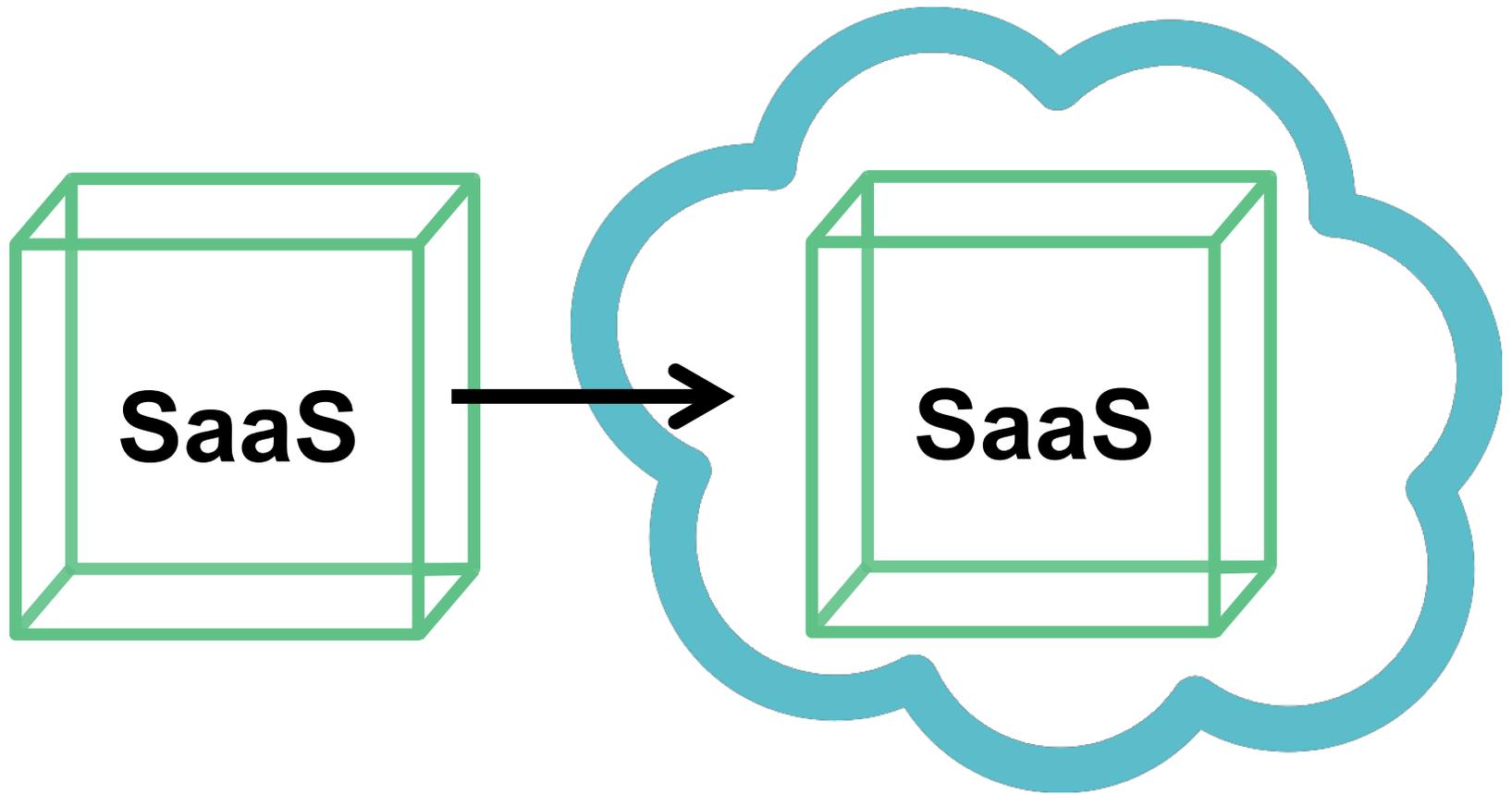
Causes for the Dissatisfaction Level

SaaS

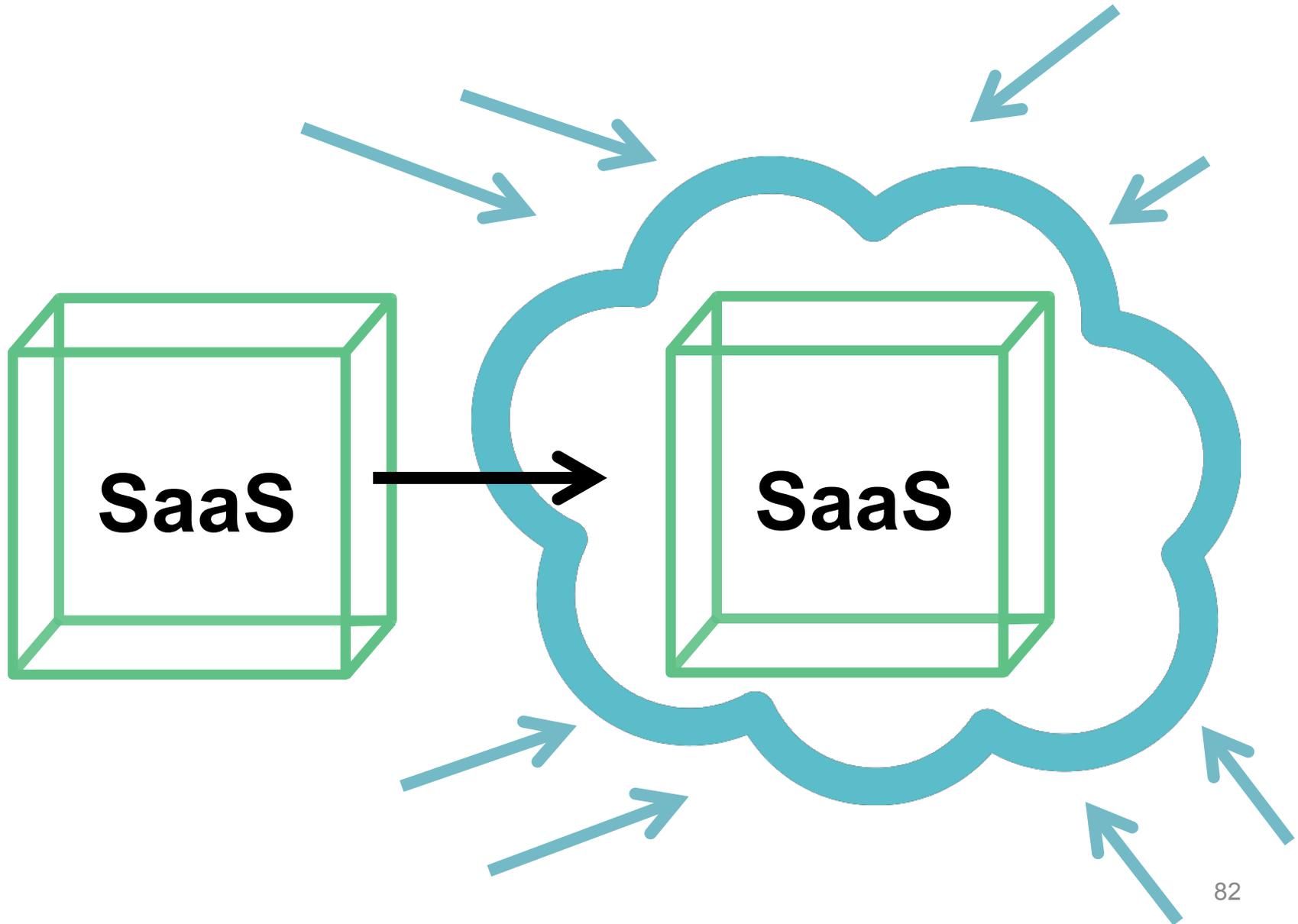
Causes for the Dissatisfaction Level



Causes for the Dissatisfaction Level



Causes for the Dissatisfaction Level



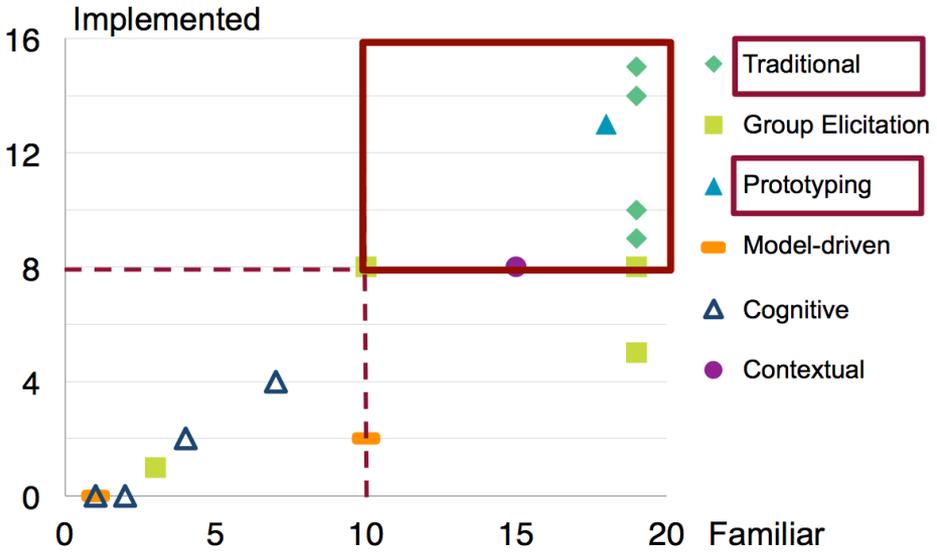
What's new

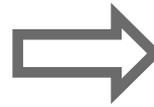
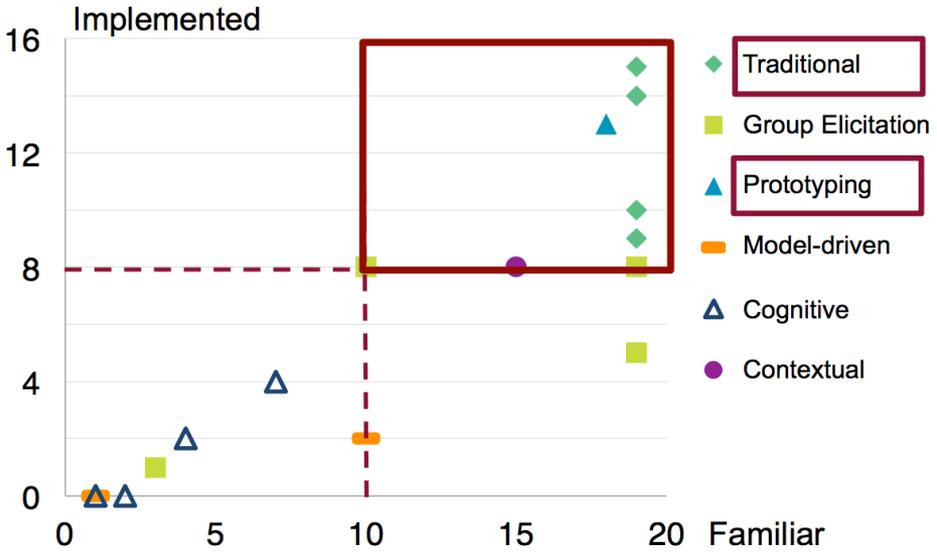
Method

Findings

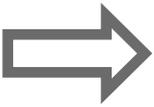
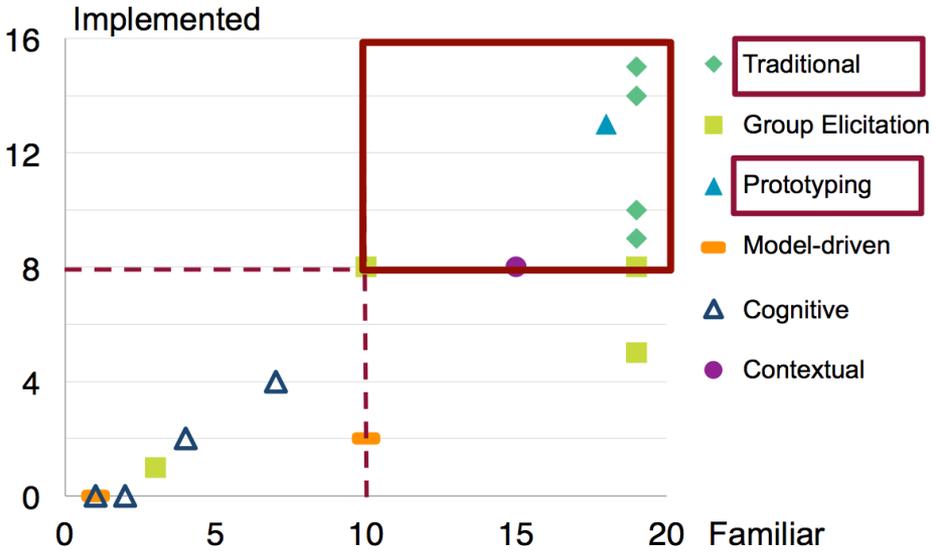
Discussion



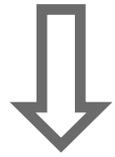




94.7%
ad-hoc

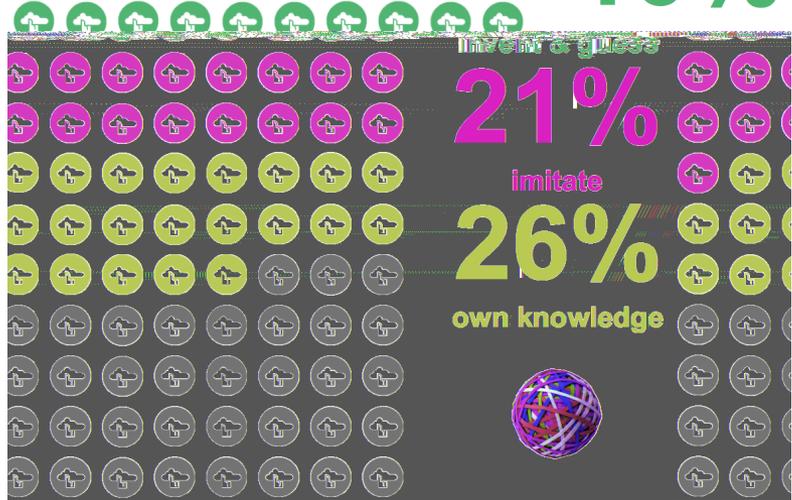


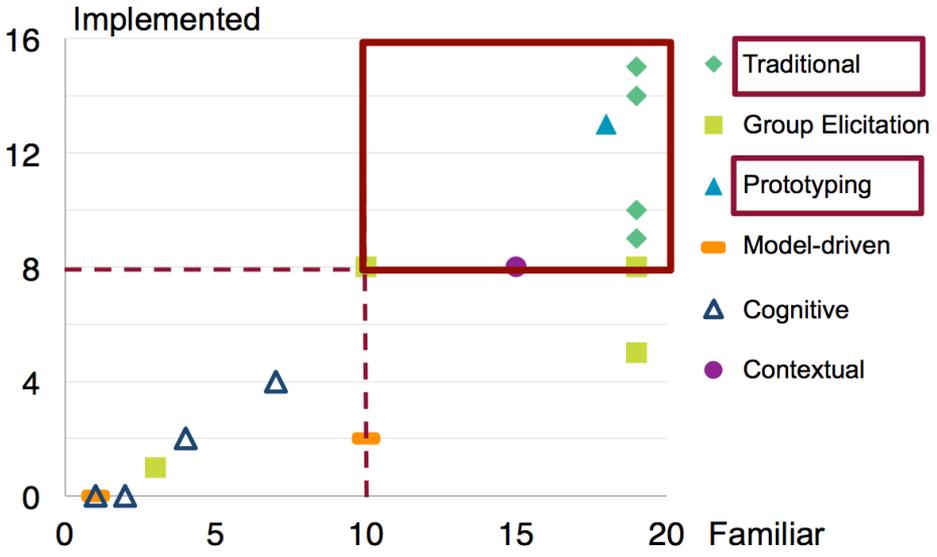
94.7%
ad-hoc



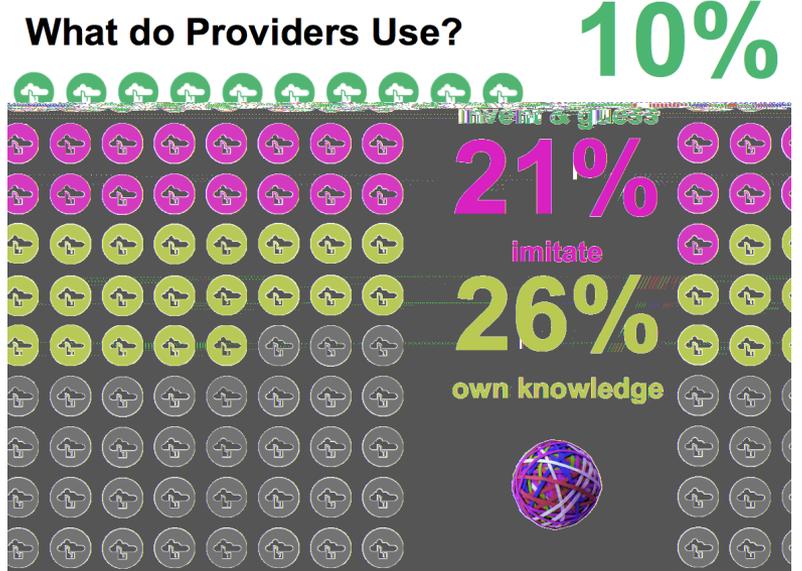
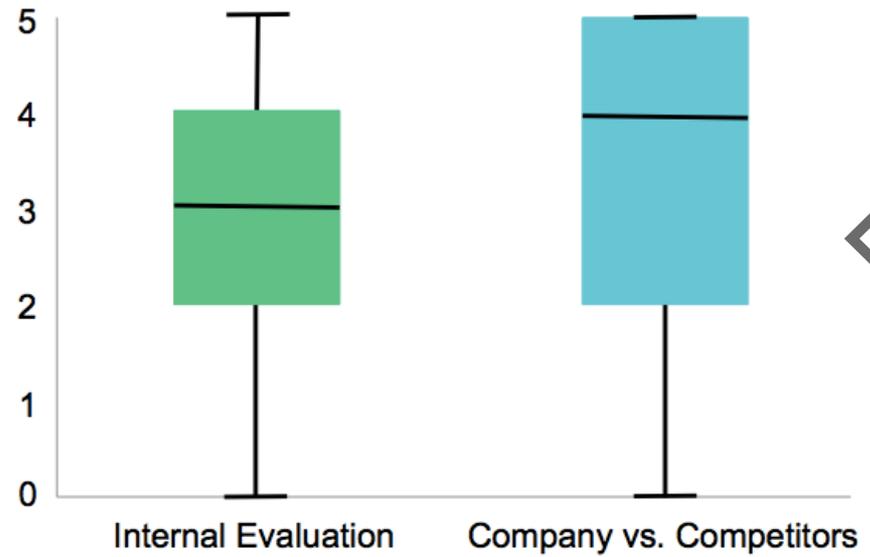
What do Providers Use?

10%





94.7%
ad-hoc



The methods used are
inadequate
for the cloud.

Future Work:
Investigate
elicitation methods
for cloud providers.

Future Work:
Investigate
elicitation methods
for cloud providers.

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Thank you.

[A1] Companies' Domains of Activity



[A2] Geographical Distribution

