Evaluating the Usability of Privacy Choice Mechanisms

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"My Camera App" Would Like to Access the Camera
This app uses the camera to take auto pictures of cats.

Don't Allow | O

We use our own and third-party cookies to personalize content and to analyze web traffic. Read more about cookies

Accept | Reject

Ad personalization

more useful on Google services (such as Search or YouTube).

Ad personalization is ON

d personalization on other websites & apps that use Google ad services.

Select audience

Who can see your post?
Your post will show up in Feed, on your profile and in search results.

Public
Anyone on or off Facebook

Friends
Your friends on Facebook

Friends except...
Don't show to some friends

Only me

Unsubscribe

Do you really want to unsubscribe the following email address?

hello@mailmeteor.com

Yes, unsubscribe | No, cancel

Do Not Sell My Personal Information

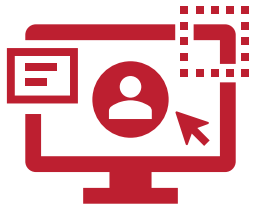# Privacy choices have poor usability

Testing privacy choices is hard

Studying privacy threats in an **ecologically valid** and **ethical** way
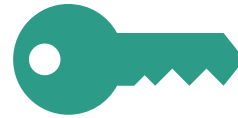
Privacy & security typically secondary tasks

What needs to be tested?
What makes a privacy choice interface usable?

The Privacy Choice Evaluation Framework

Proposes criteria to consider in evaluations of privacy choice interfaces

Guidance on how to evaluate privacy choice interfaces

Organizations

Regulators

The Privacy Choice Evaluation Framework

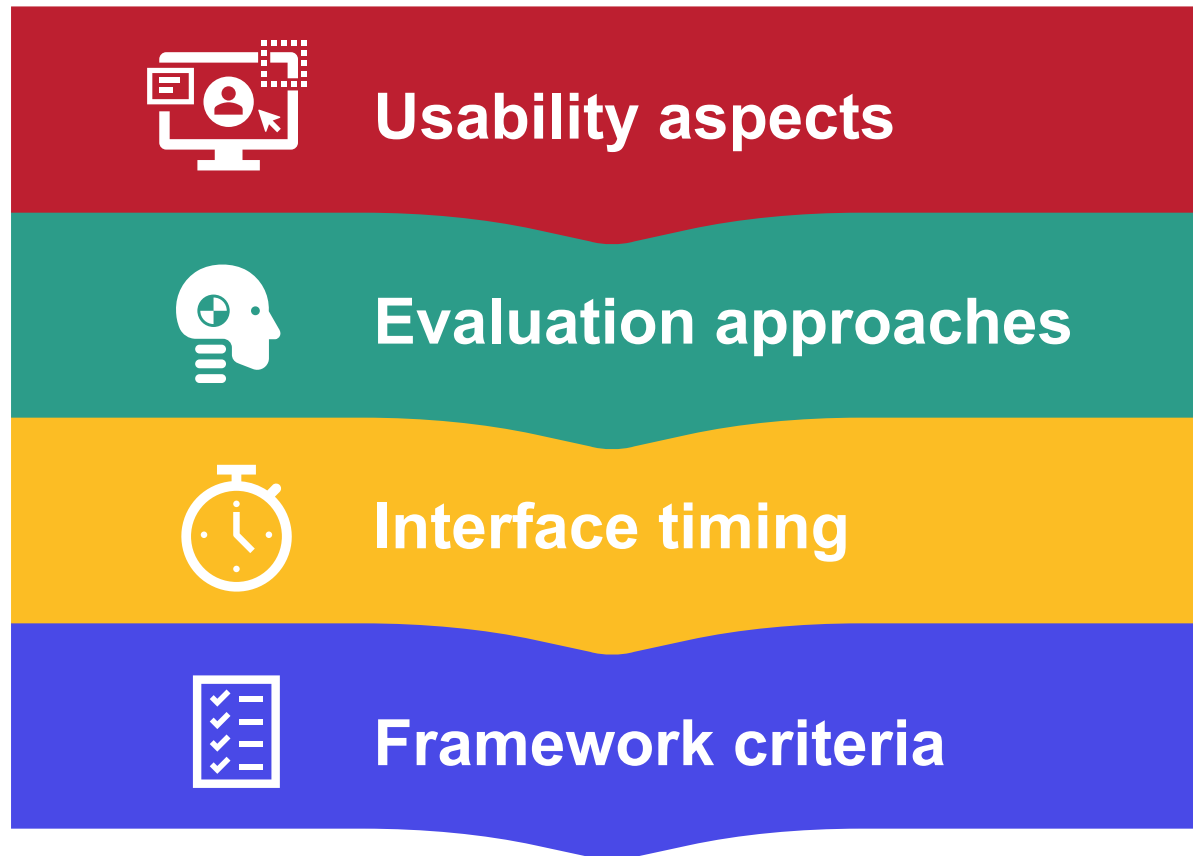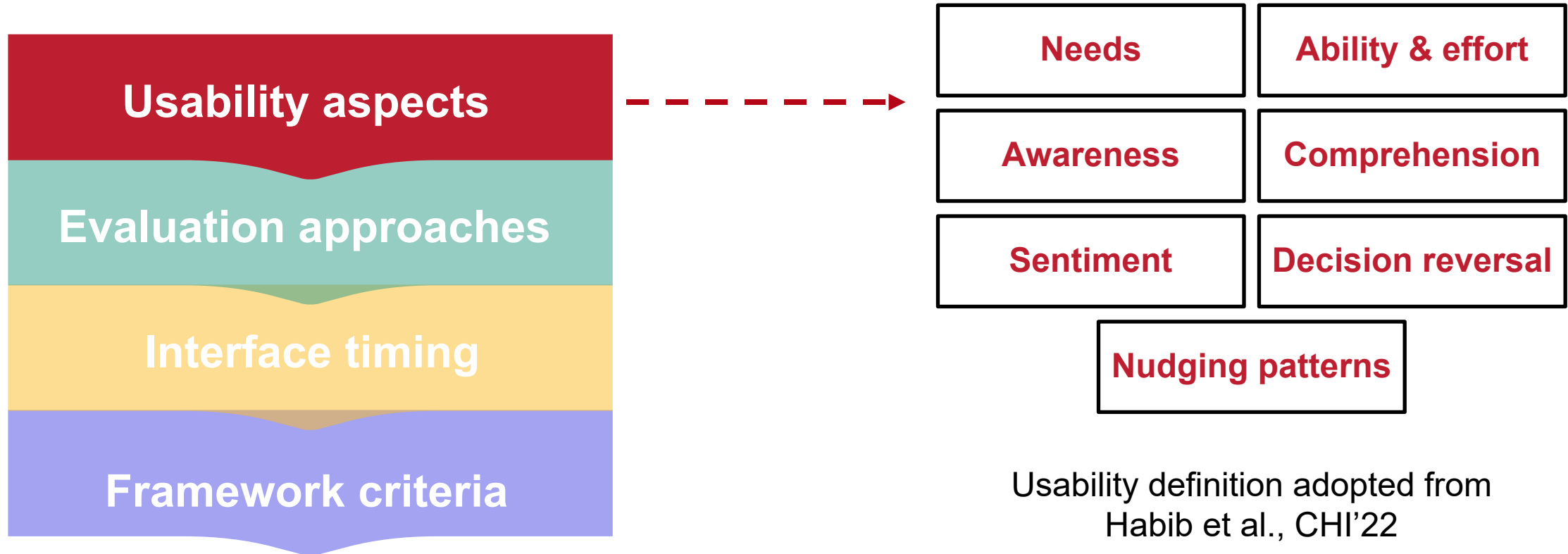| Framework Criterion	Usability Aspect							Evaluation Approach					Interface Timing	
	Needs	Ability & Effort	Awareness	Comprehension	Sentiment	Decision Reversal	Nudging Patterns	Expert Evaluation	Self-Report	Observation	Privacy Task	Distraction Task	Interruptive	On-demand
Users' privacy objectives	●						●		●	●	●		●	●
Users' intentions	●								●		●	●	●	●
Interface completeness	●							●					●	●
Interface accuracy	●							●					●	●
Ability - make privacy choice		●				●	●		●	●	●	●	●	●
Time taken - make privacy choice		●				●	●			●	●	●	●	●
User actions - make privacy choice		●				●	●			●	●	●	●	●
Perceived effort - make privacy choice		●				●			●		●		●	●
Estimated effort - make privacy choice		●				●		●					●	●
Awareness of choice existence			●			●	●		●			●	●	●
Ability - find privacy choice			●			●				●	●			●
Time taken - find privacy choice			●			●				●	●			●
User actions - find privacy choice			●			●					●			●
Perceived effort - find privacy choice			●			●				●	●			●
Estimated effort - find privacy choice			●			●		●						●
Objective knowledge - focused attention				●		●	●		●		●		●	●
Objective knowledge - unfocused attention				●			●		●			●	●	
Perceived effort - comprehension				●		●					●	●	●	●
Estimated effort - comprehension				●		●		●			●		●	●
Perceived transparency & control					●		●		●		●	●	●	●
Subjective knowledge					●		●		●		●	●	●	●
Levels of comfort & trust					●		●		●		●	●	●	●
Investment in decision-making					●		●		●		●	●	●	●
Impact on individual welfare								●	●		●	●	●	●
Unintended societal consequences								●	●				●	●
Alignment with regulatory objectives								●	●				●	●
Individual autonomy								●		●	●	●	●	●

Summary of the Privacy Choice Evaluation Framework

The Privacy Choice Evaluation Framework

Usability aspects

Evaluation approaches

Interface timing

Framework criteria

The Privacy Choice Evaluation Framework

Usability aspects

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Needs	Ability & effort
Awareness	Comprehension
Sentiment	Decision reversal

Nudging patterns

Usability definition adopted from
Habib et al., CHI'22

The Privacy Choice Evaluation Framework

The Privacy Choice Evaluation Framework

Corresponds to the Timing component of the Privacy Choice Design Space taxonomy from Feng et al., CHI'21
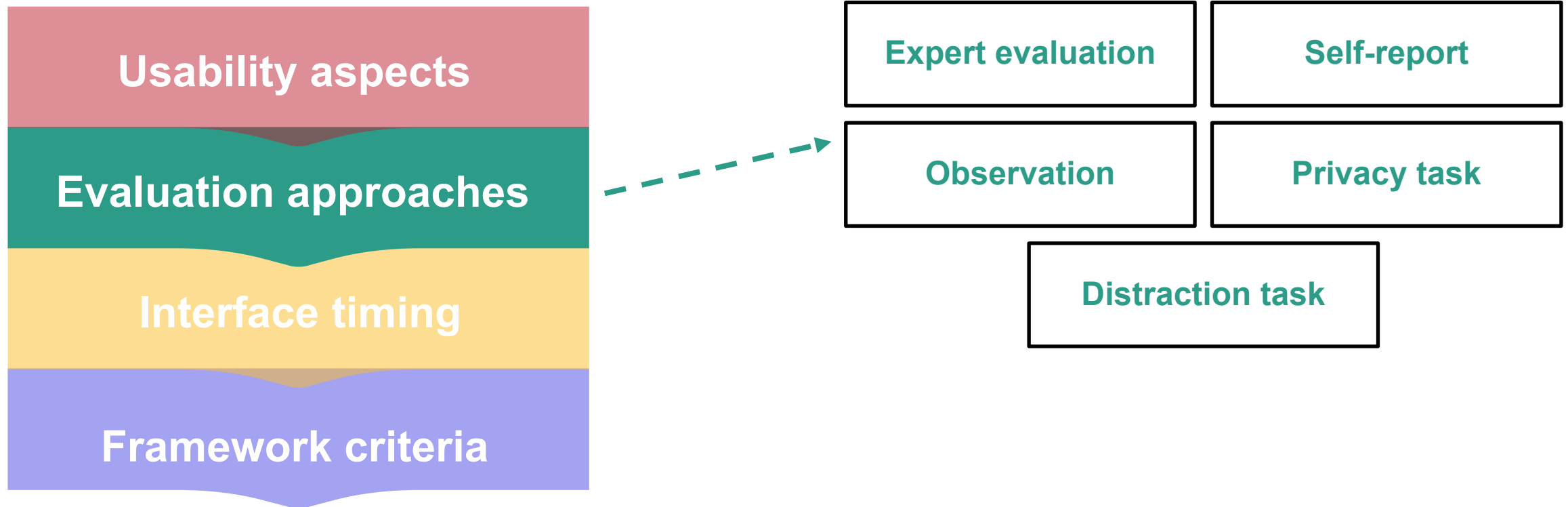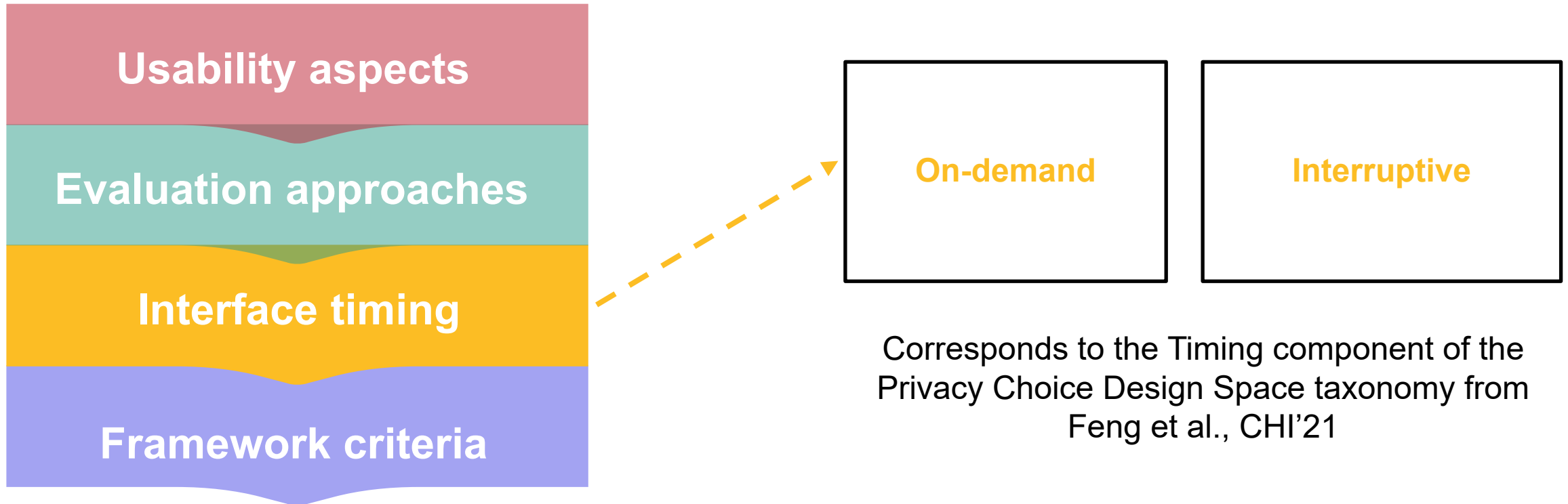
The Privacy Choice Evaluation Framework
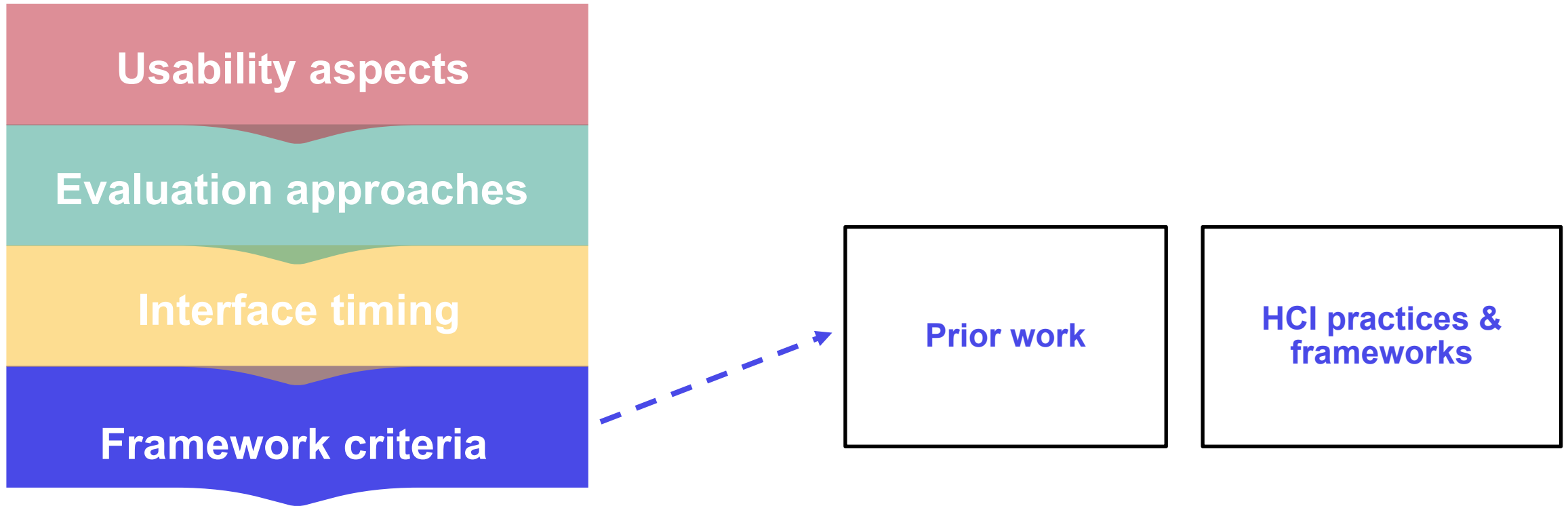
Applying the framework

Evaluating choices for a new domain

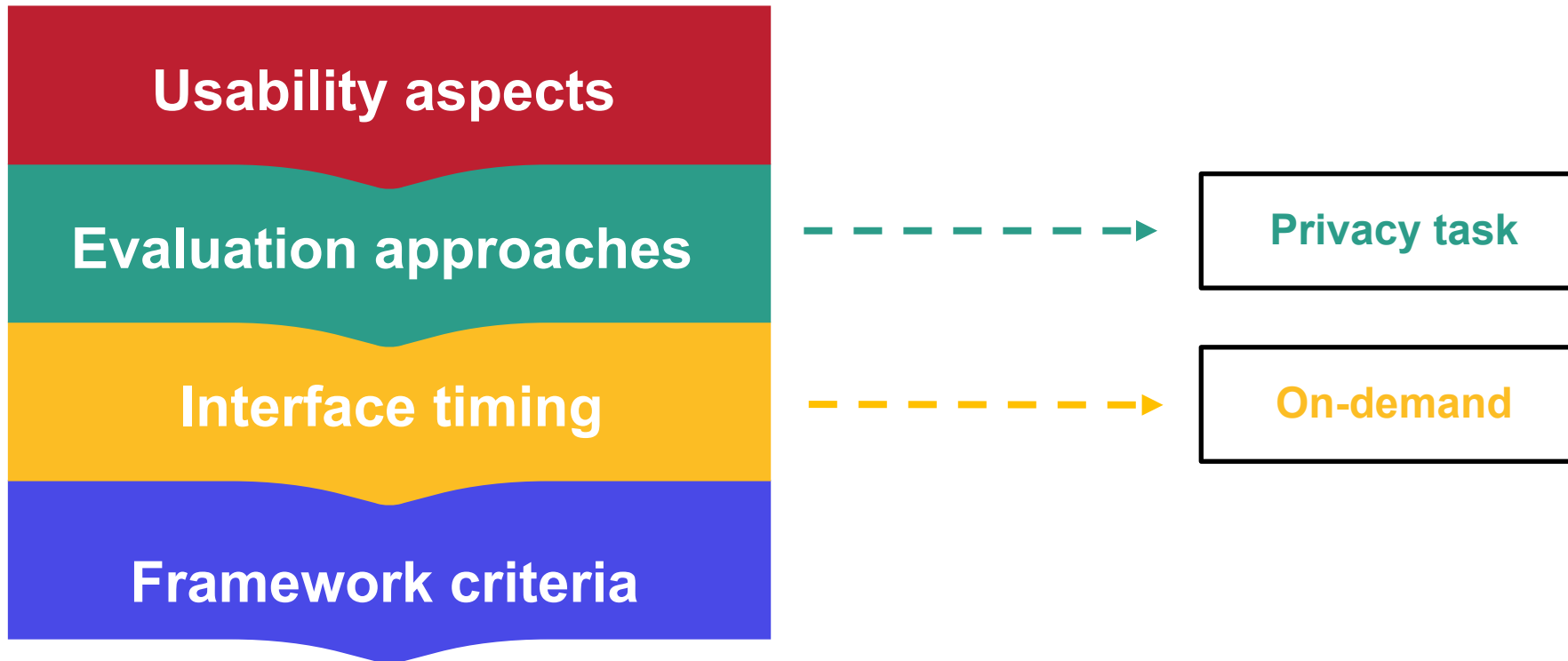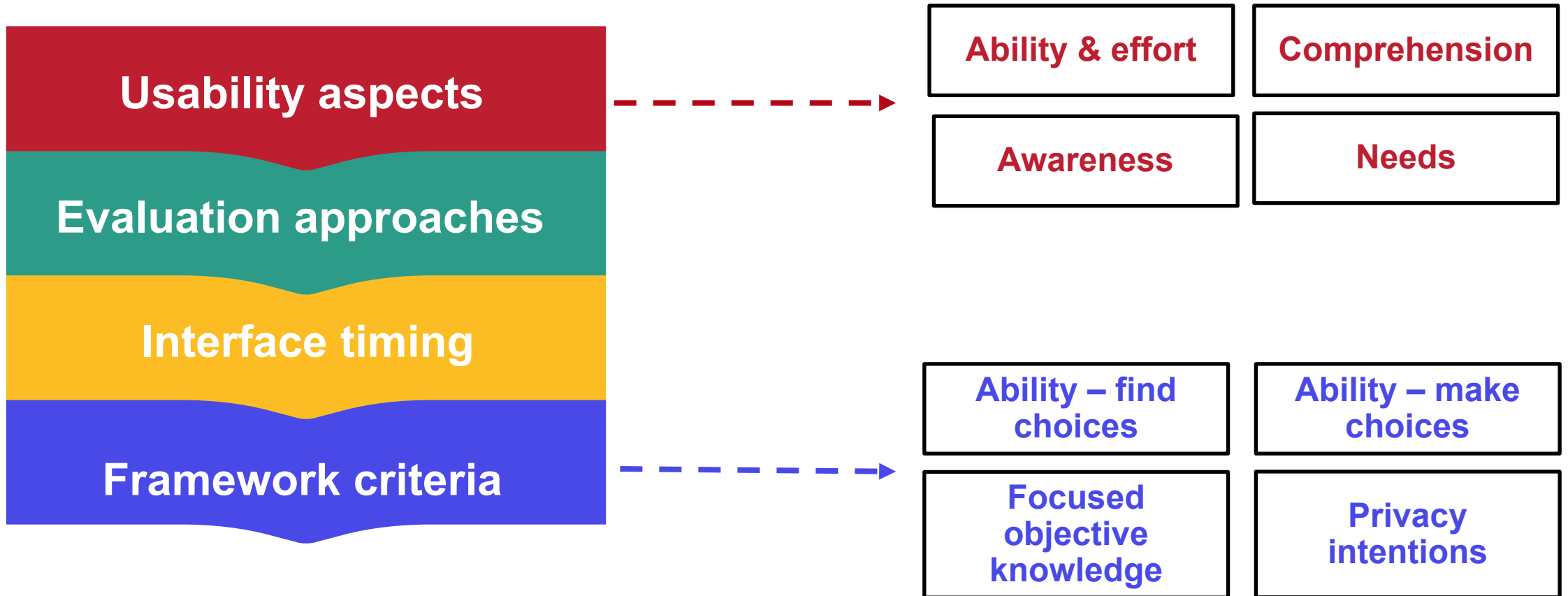|	
Usability aspects	**Needs**
Evaluation approaches	**Self-report**
Interface timing	**On-demand** **Interruptive**
Framework criteria	**Privacy objectives**
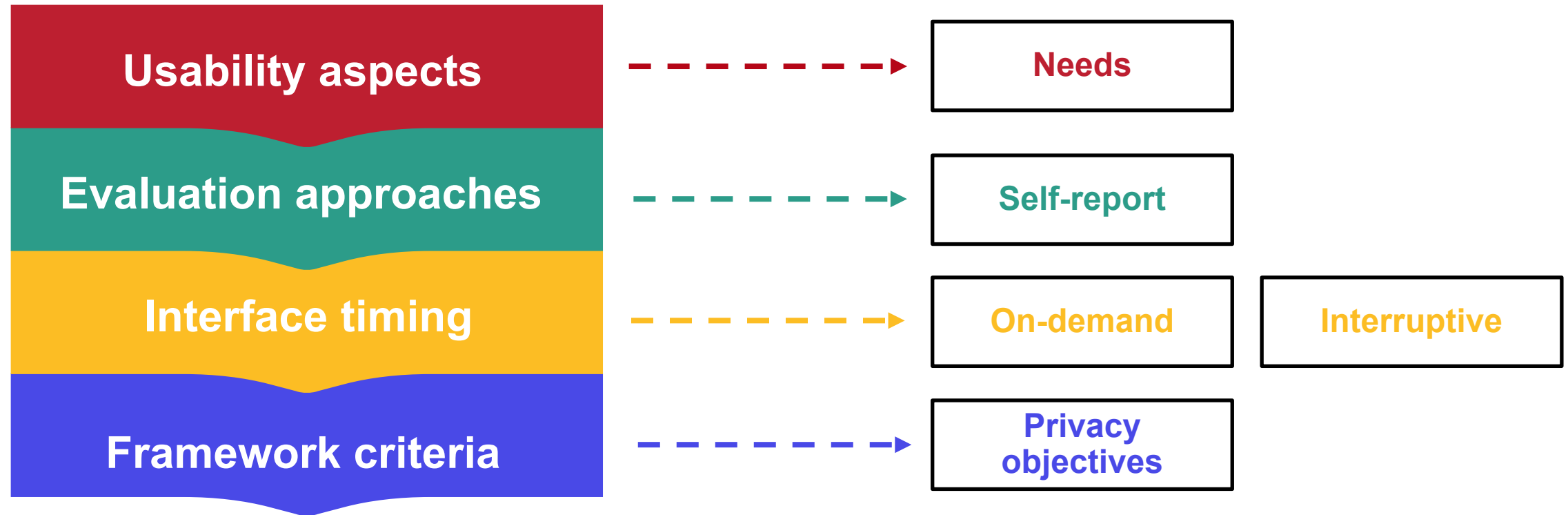
Possible insights:

- Preference for fine-grained vs course controls
- Groups of users with similar needs

Evaluating new privacy settings

Evaluating new privacy settings

Usability aspects

Evaluation approaches

Interface timing

Framework criteria

Ability & effort	Comprehension
Awareness	Needs

Ability – find choices	Ability – make choices
Focused objective knowledge	Privacy intentions

Evaluating a new privacy prompt

Usability aspects

Evaluation approaches ----→ Distraction task

Interface timing ----→ Interruptive

Framework criteria

Evaluating a new privacy prompt

Usability aspects	→	Awareness	Comprehension
		Sentiment	Nudging patterns

Evaluation approaches

Interface timing

Framework criteria	→	Awareness of choice	Unfocused objective knowledge
		Investment in decision-making	Individual autonomy

Supplementing user study data

Supplementing user study data

Usability aspects

Evaluation approaches

Interface timing

Framework criteria

Needs | Comprehension

Awareness | Ability & effort

Nudging patterns

Interface completeness | Interface accuracy

Estimated effort | Alignment with regulations
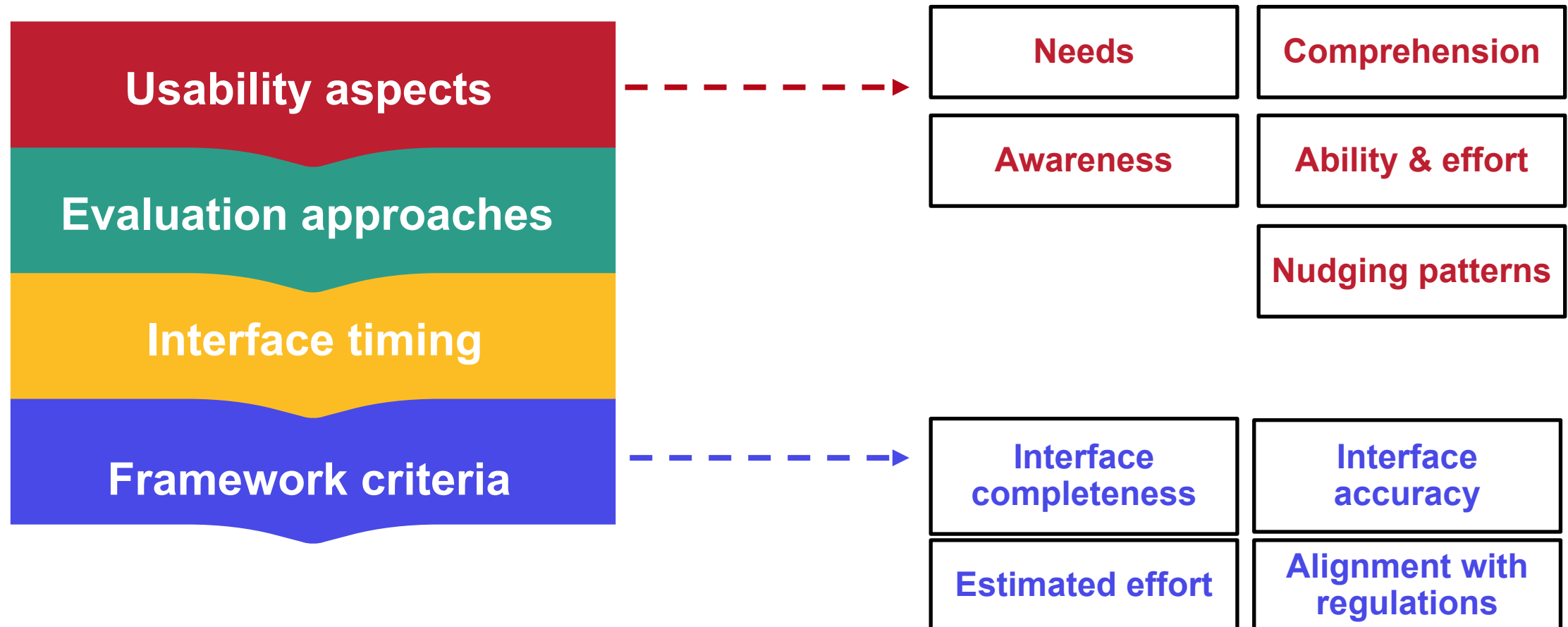
Considerations when planning evaluation studies

- Tension between privacy & usability

- Vulnerable populations

- Organizational considerations

- Limitations of privacy choice usability

Summary

Usability aspects

Evaluation approaches

Interface timing

Framework criteria

- Guidance on how to conduct usability evaluations of privacy choice interfaces

- Case study of how the framework could be applied

Summary

Usability aspects

Evaluation approaches

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