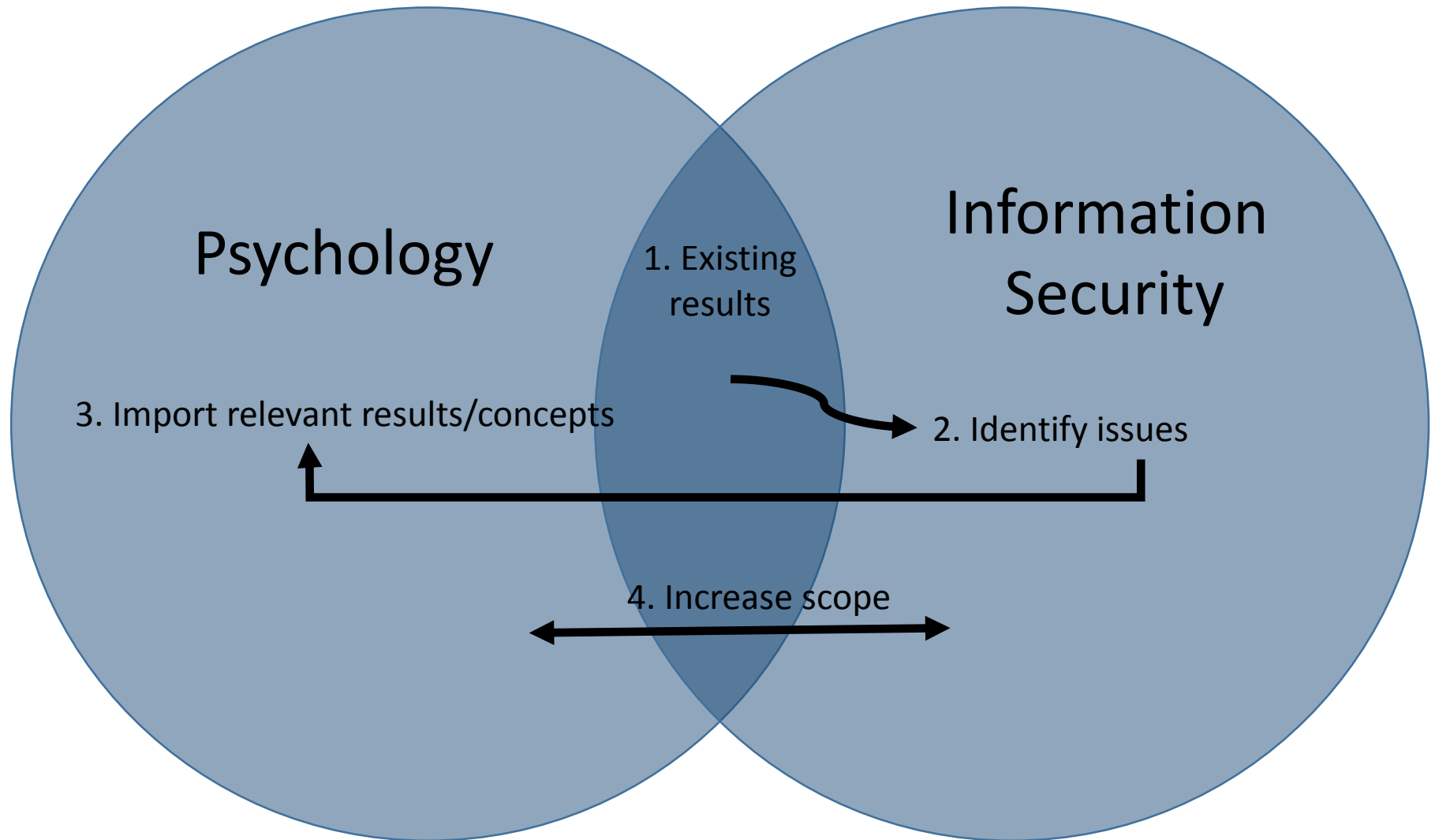
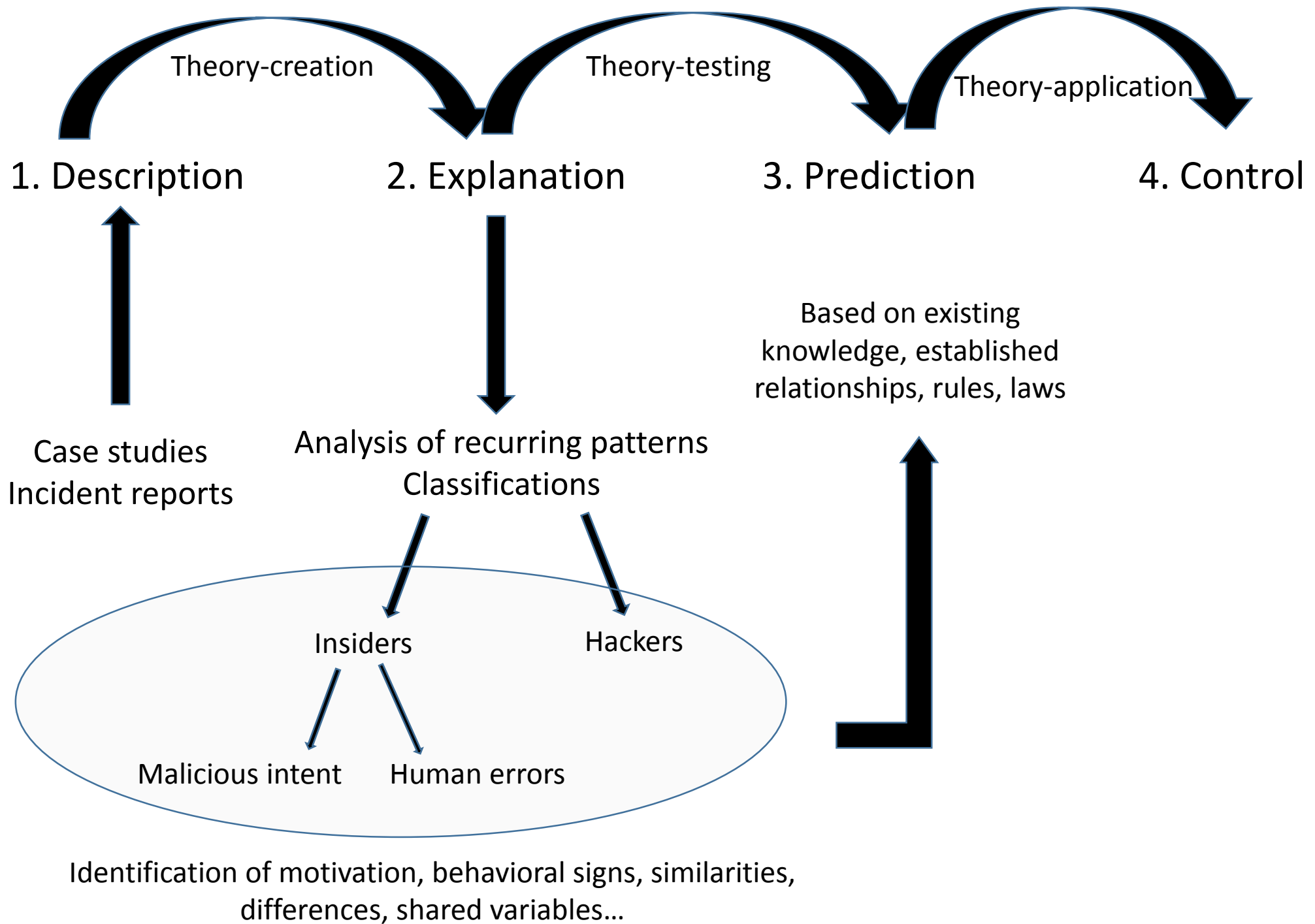


Review of human behavior prediction methods

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Explanation example – Insider characteristics

Personal factors

Greed or Financial Need.
Excessive debt or overwhelming expenses.
Anger/Revenge.
Problems at work.
Ideology/Identification
Divided Loyalty.
Adventure/Thrill
Vulnerability to blackmail: Extra-marital affairs, gambling, fraud.
Ego/Self-image: An “above the rules” attitude, or desire to repair wounds to their self-esteem.
Compulsive and destructive behavior: Drug or alcohol abuse, or other addictive behaviors.
Family problems: Marital conflicts or separation from loved ones.
Introversion
Lack of empathy

Organizational factors

The availability and ease of acquiring proprietary, classified, or other protected materials.
Providing access privileges to those who do not need it.
Undefined policies..
The perception that security is lax and the consequences for theft are minimal or non-existent.
Time pressure
Employees are not trained on how to properly protect proprietary information.

Behavioral indicators

Without need or authorization, takes proprietary or other material home.
Unnecessarily copies material, especially if it is proprietary or classified.
Remotely accesses the network at odd times.
Disregards company computer policies.
Works odd hours without authorization.
Unreported foreign contacts.
Buys things that they cannot afford on their household income.
Engages in suspicious personal contacts, such as with competitors, business partners or other unauthorized individuals.

Prediction of insider threat example 1.

1. Identified psychological construct in connection with insider threats: **Narcissism**

2. Measurement of the construct:

2.a) **Data source:** social media (Twitter)

2.b) **Method of assessment (how the trait is inferred from behavioral data):** - graph

theoretic method:

– user’s influence over a social medium, as well as overall activity in the medium

- screening of the employees prior to employment, especially for those occupying high risk positions
- background check, not only on criminal background, but also under the prism of work group homogeneity.

Suggested procedure:

- (a) how well could a new user fit to an existing group, in terms of group homogeneity,
- (b) how homogeneous is an existing group inside the organization,
- (c) how similar is the specific user’s social media behavior to other users’ of the same profession

Prediction of insider threat example 2.

0. Underlying premise: word use frequency reveals an individual's underlying personality

1. Identified psychological constructs in connection with insider threats:

Neuroticism

Agreeableness

Conscientiousness

from Big 5

2. **Dataset:** publicly available emails from 150 senior executives at Enron Corporation from the period when execs were actively committing a variety of financial crimes

+3 convicted individuals, who would represent risk to any organization: Aldrich Ames, a notorious Soviet mole; Ted Kaczynski, the Unabomber; and Rod Blagojevich, the former governor of Illinois, who was recently convicted of corruption.

3. **Analyzed with**



Linguistic Inquiry and Word Count (LIWC)



4. **Inference of personality**

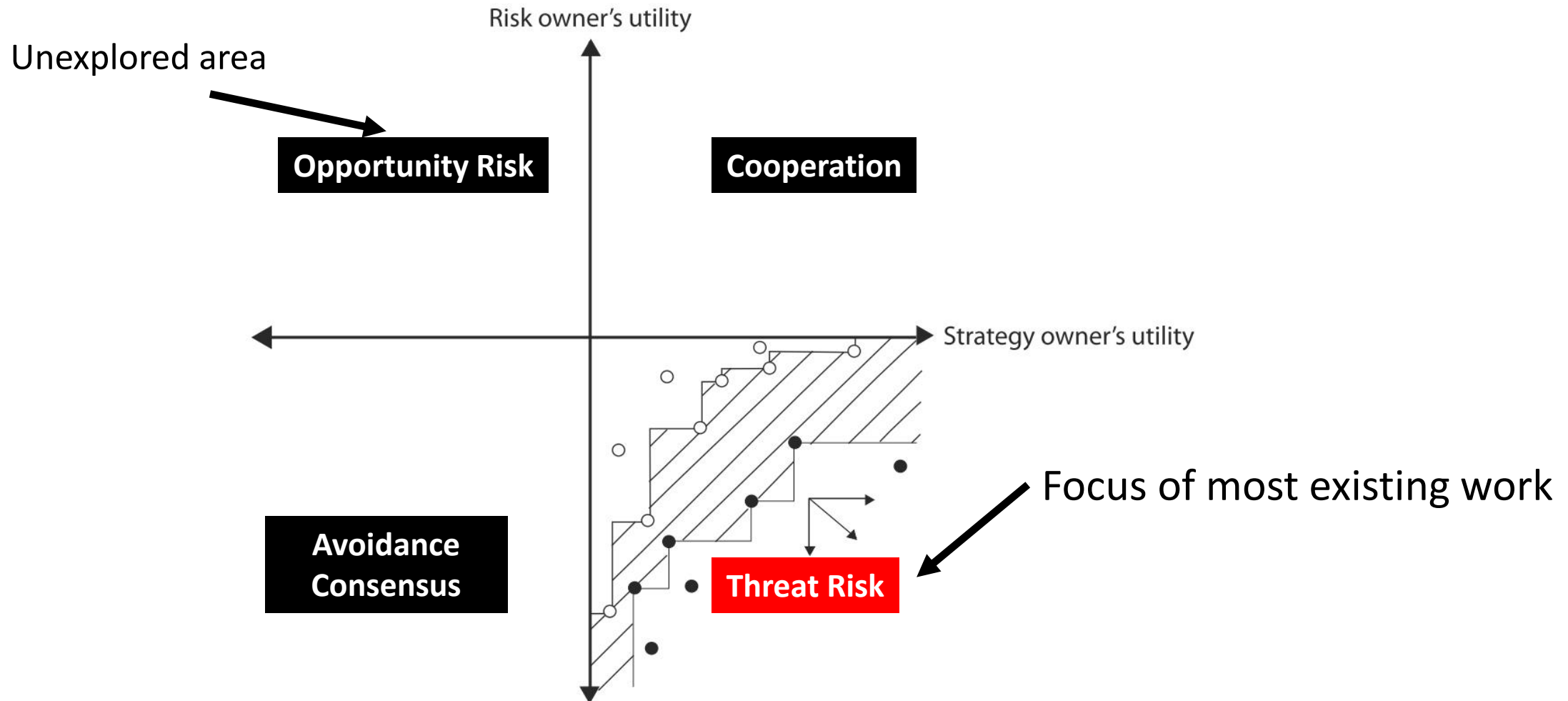


5. **Prediction of threat possibility**

Critical issues

- What behaviors (known and unknown) pose threat?
- What is the most accurate explaining concept in psych. in relation to the behavior?
- If it is identified – how is it possible to infer the characteristic in question, using unobtrusive methods/public info?

In terms of CIRA – possible directions



Thank you!
Questions?