Privacy impact assessment beyond the 'virtual strip search'

An applied framework for the ethical evaluation of passenger security screening at airports on the system-level.

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SEVENTH FRAMEWORK PROGRAMME

XP-DITE

Outline of the presentation

- **Some premises of ACP evaluation**
- Component-level vs. system-level evaluation
- An applied framework for ethical evaluation

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Premises of ethical ACP evaluation

- **The past has seen a noticeable intensification of security measures at APCs**
  - Reactive mode of security → aftermath of attacks
  - Introduction of new practices and technologies
    - Body scanners
    - Explosives trace detection (ETD)
    - Enhanced pat down
    - Behavioral analysis
    - …
- **Protests arise against privacy intrusion**
  - 'virtual strip search' debate
  - 'don't touch my junk' protests
  - National opt-out day
  - …

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Premises of ethical ACP evaluation

- **Conflict of values for decision makers**
  - Provision of security against attacks from passengers
  - Economical factors
  - Privacy and other 'ethical and societal factors'
- **Task for technology assessment to evaluate impact of new technologies and practices**
  - Security
  - Cost
  - Ethics, especially privacy
    - Sociological studies on 'acceptance'
    - Applied ethics, e.g. privacy impact assessment on components like body scanners
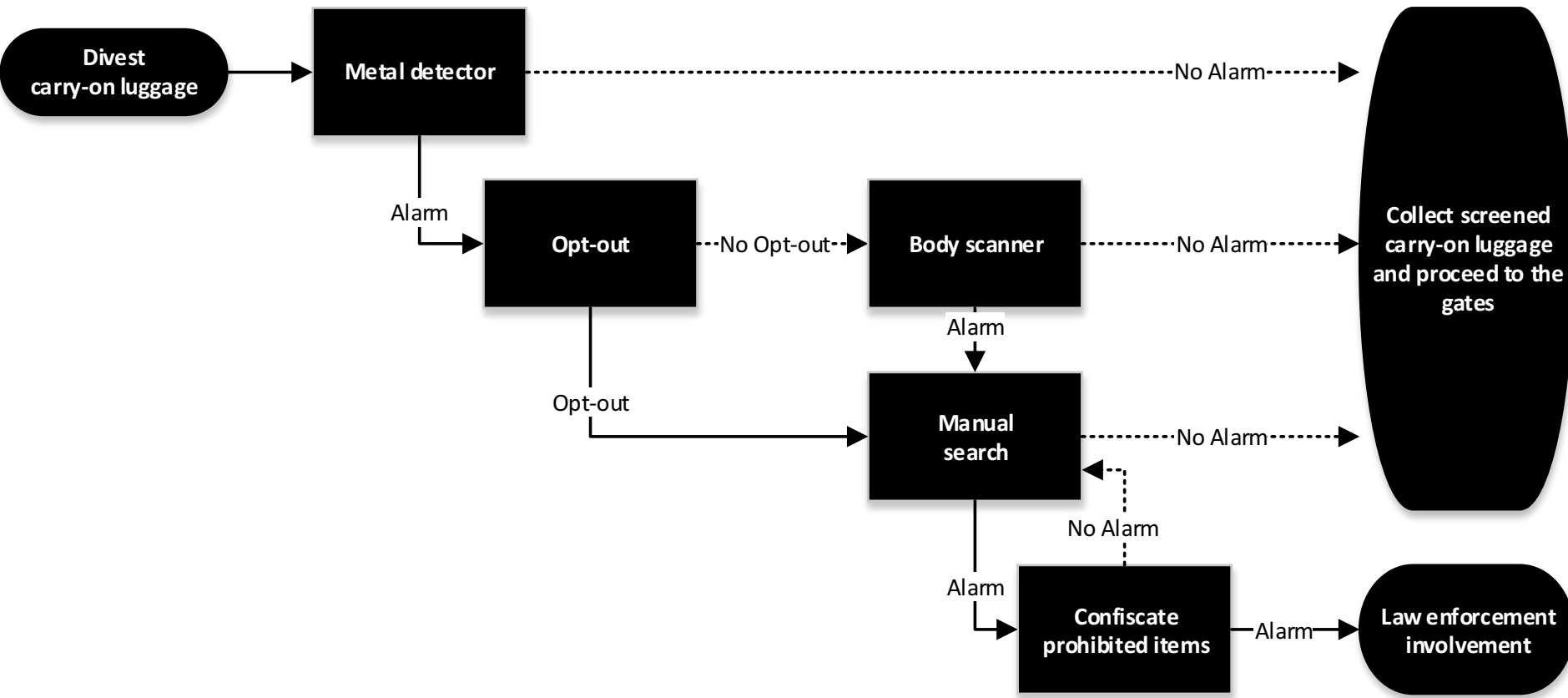   - …

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Component-level vs. system-level

- **Currently, ethical TA operates mostly on the component level**
  - E.g. privacy impact assessment of body scanners
- **Mitigation of privacy risk often seen in opt-out chances**
  - Problem of John Tyner → Pest or Cholera?
  - Analysis must take system-level into account!
- **ACP systems assemble a range screening techniques in a certain alarm/alarm-resolution logic**

Component-level vs. system-level

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Framework for ethical evaluation

- How can we compare the ethical / privacy impact of different ACP designs as a whole?
  - different technological artifacts
  - different practices of the screeners
  - different arrangements of the screening steps
- Proposition: 'Normative Measurement'
  - Differentiation of 'paths' through the ACP
  - Semantic disaggregation of ethical concepts (privacy)
  - Assessment against semantic components
  - Aggregation of evaluation results
  - Aggregation of paths through the checkpoint
- Measuring can also mean ranking!

Framework for ethical evaluation I

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Framework for ethical evaluation I

Intrusion into passenger's privacy			
Spatial privacy	Bodily privacy	Private life	Public disclosure
Screener touches belongings	Screener touches passenger's body	Screening limits conscious self-expression	Screening compromises passenger's appearance publicly
Exposure of belongings to a screener's gaze	Exposure of body to screener's gaze	Screening incentivizes self-monitoring of non-conscious behavior	Screening exposes belongings to public view
Screener gains information on insides	Screener gains information about body	Screening impact based on external data	Screening discloses private information on passenger
Screener stores collected data	Screener stores biometric data	Screening stores data impacting future screening	Screening discloses information about passenger's belongings

Framework for ethical evaluation II

- ■ **Selection of indicators**
  - Yes/No-questions about those observable aspects that are relevant for establishing a 'more' or 'less' with respect to intrusiveness
  - In total, over 170 binary indicators
  - Example "exposure of the body to the screener's gaze"
    - Is the passenger required to divest covering clothes?
    - Is an image of the body made visible to the screener?
      - If yes, are intimate zones included in the image?
      - If yes, can the screener see details of intimate areas?

- ■ **Four point ordinal scales**
  - Realistic best case and worst case scenarios
  - Two intermediate steps

Positive pole of the scale

3 — CLOSE TO A REALISTIC BEST CASE SCENARIO IN ACP SCREENING WITH RESPECT TO A CERTAIN RISK TYPE

2 — MORE POSITIVE THAN NEGATIVE WITH RESPECT TO A CERTAIN RISK TYPE

1 — MORE POSITIVE THAN NEGATIVE WITH RESPECT TO A CERTAIN RISK TYPE

0 — CLOSE TO A REALISTIC WORST CASE SCENARIO IN ACP SCREENING WITH RESPECT TO A CERTAIN RISK TYPE

Negative pole of the scale

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Respect public appearance

It would be commmonly agreed that passengers have reason to...

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HARDLY INTRUSIVE ACP → ACP RESPECTS BODILY PRIVACY
...feel that their body is NOT touched AND that body extensions are NOT handled by the screener AND that the passenger is NOT required to divest covering clothes AND an image of the body is NOT visible to the screener AND (trace detection is NOT used OR (used AND certain medicinal products or drugs are NOT known to cause alarms AND trance detection is NOT not combined with a random alarm)) AND (anomaly detection is NOT used OR (used AND common body modifications do NOT cause a alarm AND is NOT not combined with a random alarm)) AND (biometric data is NOT stored OR NOT stored in a non-passenger-controlled way).

2

SLIGHTLY INTRUSIVE ACP → MORE RESPECTFUL THAN EXPOSING
...feel that their intimate zones are NOT touched AND that they are NOT touched beneath covering clothes AND that a screener touching them does NOT have a different sex AND that body extensions are NOT handled by the screener AND that the passenger is NOT required to divest covering clothes AND the screener can NOT see intimate areas In a body image AND (trace detection is NOT used OR (used AND certain medicinal products or drugs are NOT known to cause alarms)) AND (anomaly detection is NOT used OR (used AND common body modifications do NOT cause an alarm)) AND (biometric data is NOT stored OR NOT stored in a non-passenger-controlled way) AND the passenger does NOT have the option to leave.

1

MODERATELY INTRUSIVE ACP → MORE EXPOSING THAN RESPECTFUL
...feel that their intimate zones are NOT touched AND that they are NOT touched beneath covering clothes AND that a screener touching them does NOT have a different sex AND that body extensions are NOT handled by the screener AND that the passenger is NOT required to divest covering clothes AND the screener can NOT see details of intimate areas AND (trace detection is NOT used OR (used AND certain medicinal products or drugs are NOT known to cause alarms)) AND (anomaly detection is NOT used OR (used AND common body modifications do NOT cause an alarm)) AND biometric data is NOT stored longer than short term or communicated to others AND the passenger does NOT not have the option to leave.

0

INVASIVE ACP → ACP EXPOSES PASSENGER´S BODY
...feel that their intimate zones are touched OR that they are touched beneath covering clothes OR that a screener touching them has a different sex OR that body extensions are handled by the screener OR that the passenger is required to divest covering clothes OR the screener can see details of intimate areas OR (trace detection is used AND certain medicinal products or drugs are known to cause alarms) OR (anomaly detection is used AND common body modifications do NOT cause an alarm) OR biometric data is stored longer than short term or communicated to others.
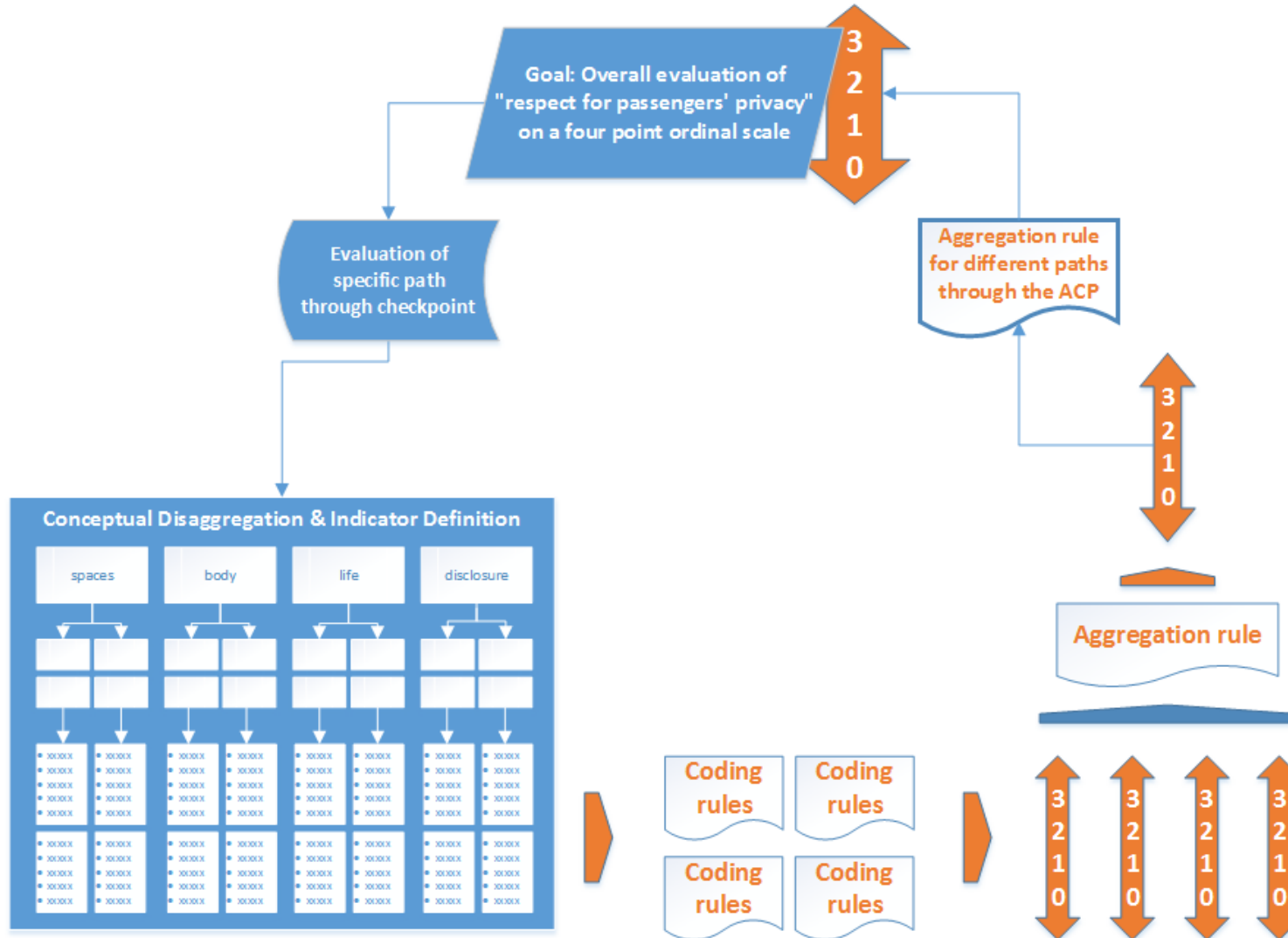
Exposure of passenger's body

- Coding rules make "common sense arguments" about better or worse combinations of indicators
- Goal is a comparison of checkpoints, not an absolute measurement of "normative" properties

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Framework for ethical evaluation III

- Two steps of aggregation:
  - Aggregation of different privacy aspect on each path
    - Allows some level of trade-offs
    - Requires a minimum level of respect for privacy for that
  - Aggregation of different paths to overall score
    - 'Quantitative' element to reflect frequentation of paths
    - Qualitative justification of thresholds against several requirements

- Aggregated value is meant to give a good idea of "what kind of checkpoint" one faces from an ethical perspective
  - Thresholds will have to prove their worth in how well they differentiate current and future checkpoint designs

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Framework for ethical evaluation

Thank you for your attention!

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