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University Hospital Basel, May 24th, 2018

ASSESS CT

ASSESSING SNOMED CT FOR LARGE SCALE EHEALTH DEPLOYMENTS IN THE EU

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(on behalf of ASSESS CT consortium)

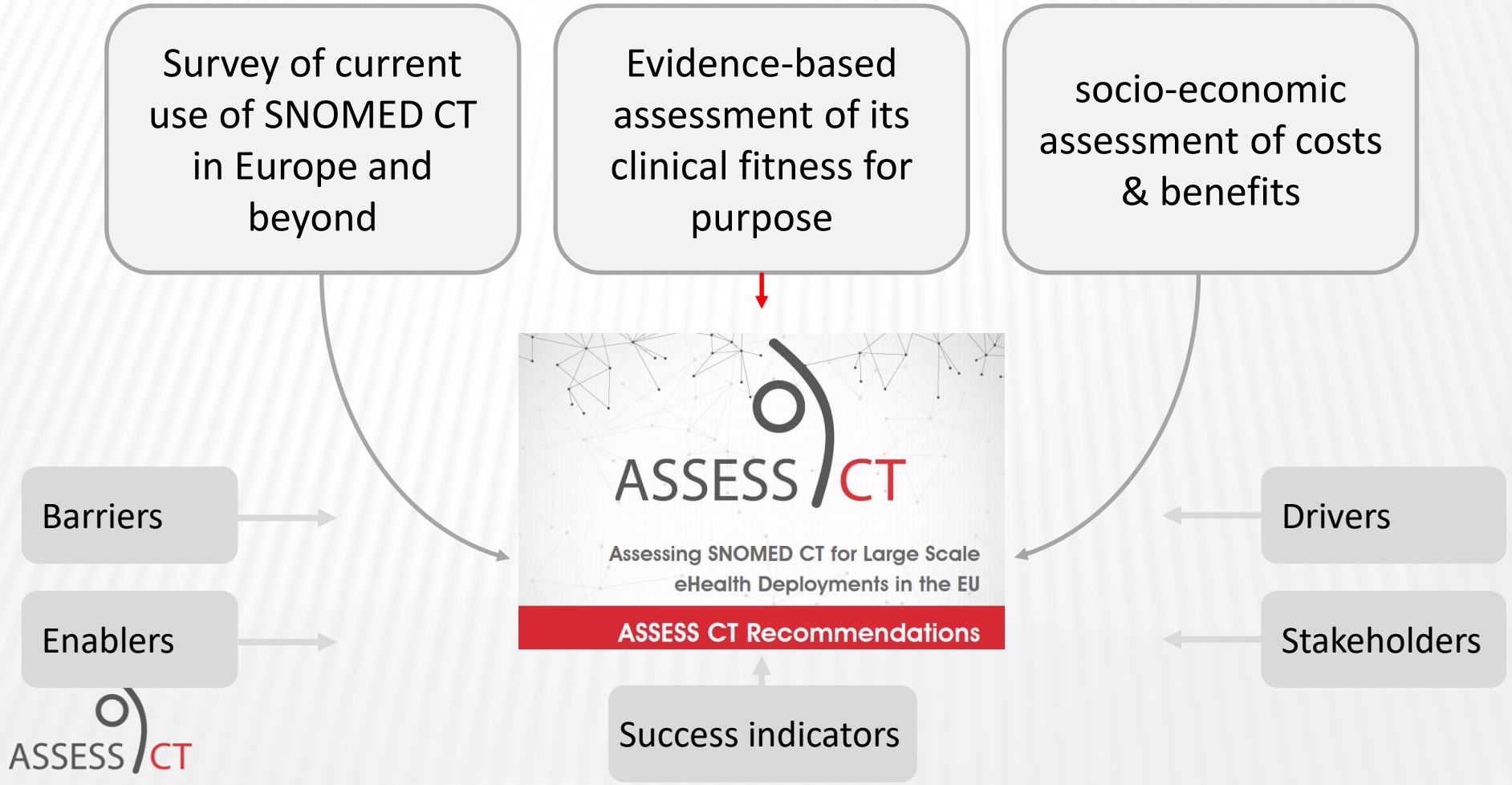
ASSESS CT GOAL

- **To contribute to the debate on semantic interoperability of eHealth services in Europe.**
- **To investigate SNOMED CT's fitness for EU-wide eHealth deployments.**
- **Within the Horizon 2020 Program of the European Commission**
- **Duration February 2015 - July 2016**
- **14 European partners**

Hochschule Niederrhein University of Applied Sciences
empirica
Medizinische Universität Graz
averbis text analytics
LIMICS
amc
THL
Hrvatski zavod za zdravstveno osiguranje
ASSESS CT
Linköpings Universitet
NICTIZ
Aalborg Universitet
Regione Lombardia
EuroRec

ASSESS CT METHODOLOGY

Goal: investigate the fitness of SNOMED CT as a potential core reference terminology standard for EU-wide eHealth deployments



ASSESS CT OBJECTIVES

Goal: investigate the fitness of SNOMED CT as a potential core reference terminology standard for EU-wide eHealth deployments

Survey of current use of SNOMED CT in Europe and beyond

METHODS:
Literature review, Questionnaires, Workshops, Focus groups, Case studies

RESULTS
- Use of SNOMED CT rather limited (2016)
- Reuse and standardisation major benefits
- Need to map to local terminologies and information models
- Tooling & Education crucial for adoption
- Context of use to be well-defined
- Incremental, use case based introduction
- International collaboration
- Ecosystem of standards needed
- Major barriers: expertise, licence policy, costs, complexity

Barriers

Enablers

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METHODS:
Annotation experiments for multilingual clinical corpus and information models
NLP compared to human annotation
SNOMED CT compared to UMLS-based terminology scenario

Evidence-based assessment of its clinical fitness for purpose

Barriers

Enablers

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Success indicators

RESULTS
- For English: concept coverage (70-90%) and agreement comparable / better than alternative
- Generally fair / poor inter-annotator agreement (40-60%)
- Partly localised versions (NL, FR): insufficient coverage
- NLP comes 80% close to human annotations
- Term coverage: acceptable only for English → need for interface terms
- Feasibility of bootstrapping interface terminology

ASSESS CT OBJECTIVES

Goal: investigate the fitness of SNOMED CT as a potential core reference terminology standard for EU-wide eHealth deployments

METHODS:

- economic and financial analysis of SNOMED CT adoption
- business modelling
- develop indicators for cost/benefit modelling
- analyse adoption barriers

RESULTS

- Business model with step-wise path to adoption
- Cost indicators: Licence, decision-making, release management, translation, mapping, piloting, terminology mapping, capacity-building, tooling
- Net economic value of SNOMED CT adoption and implementation yet to be demonstrated
- Observatory needed collecting and analysing existing regional and MS evaluations

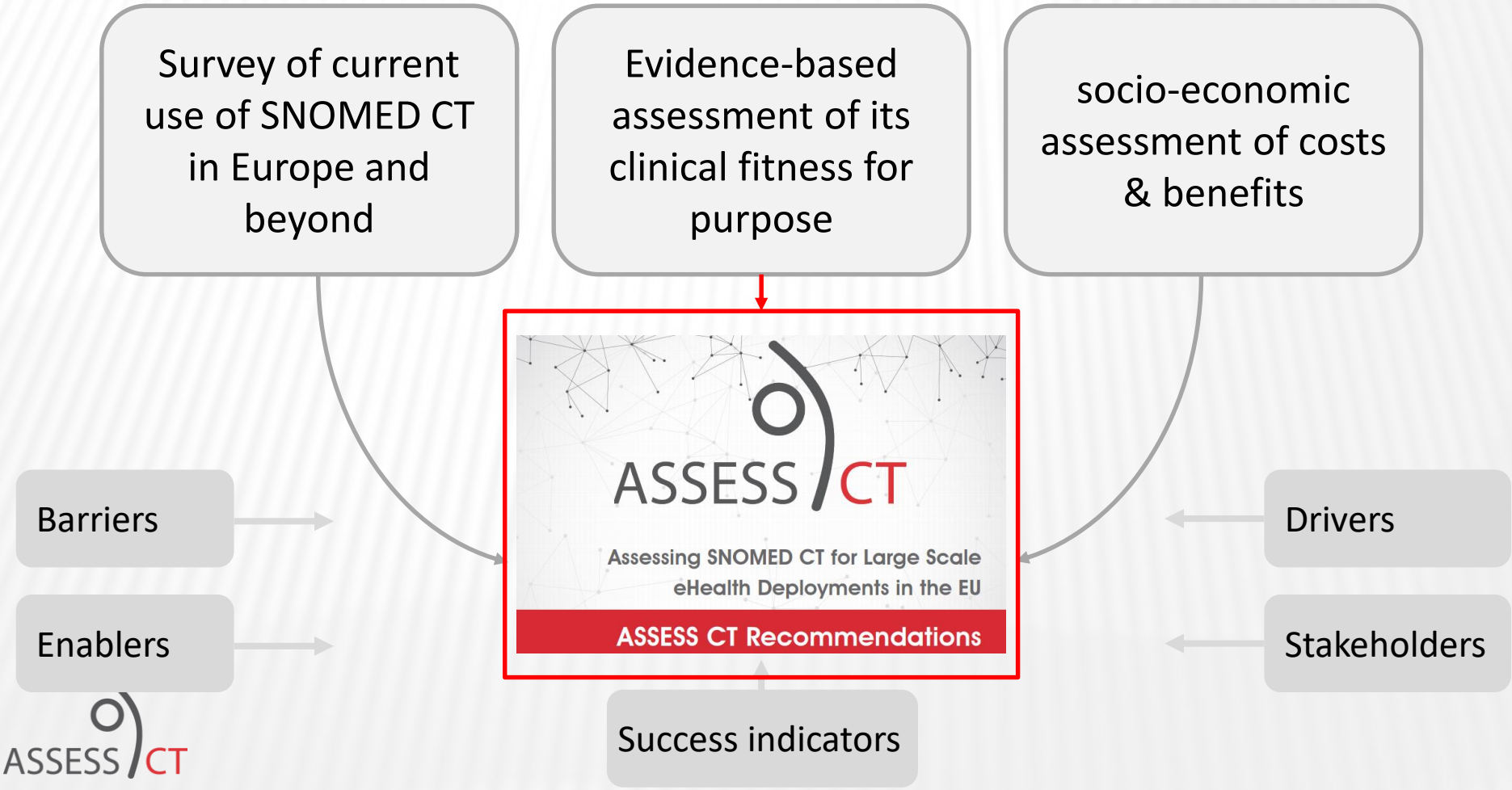
socio-economic assessment of costs & benefits

Drivers

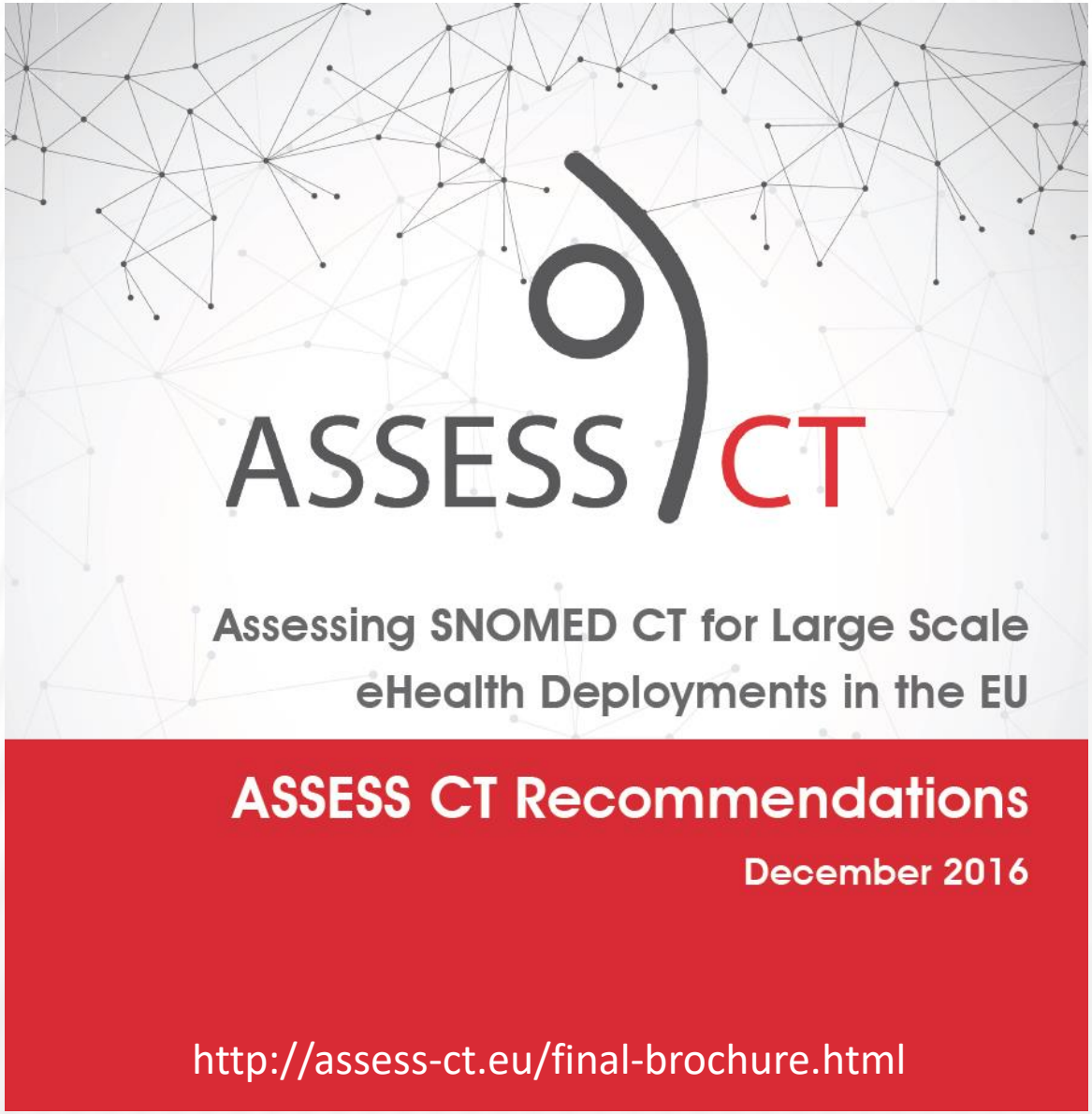
Stakeholders

ASSESS CT METHODOLOGY

Goal: investigate the fitness of SNOMED CT as a potential core reference terminology standard for EU-wide eHealth deployments



FIVE RECOMMENDATIONS



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FIRST RECOMMENDATION

Any decision about the adoption and role of terminological resources, including SNOMED CT, must be **part of a wider**, coherent and priority-driven **strategy** for optimising the benefits of **semantic interoperability** in health data, and of the overarching eHealth Strategy of the European Union and its Member States.

SECOND RECOMMENDATION

SNOMED CT is the **best candidate** for a core reference terminology for cross-border, national and regional eHealth deployments in Europe.

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THIRD RECOMMENDATION

SNOMED CT should be part of an **ecosystem of terminologies**, including international aggregation terminologies (e.g., the WHO Family of **Classifications**), and including local/national user **interface terminologies**, which address multilingualism in Europe and clinical communication with multidisciplinary professional language and lay language.

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FOURTH RECOMMENDATION

The adoption of SNOMED CT should be realised **incrementally** rather than all at once, by developing terminology subsets that address the interoperability requirements for **prioritised use cases**, and expanding this set over some years.

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FIFTH RECOMMENDATION

Mechanisms should be established to facilitate and co-ordinate European Member State **co-operation on terminology and semantic interoperability**, including common areas of governance across national terminology centres, eHealth competence centres (or equivalent national bodies).

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THANK YOU FOR YOUR ATTENTION

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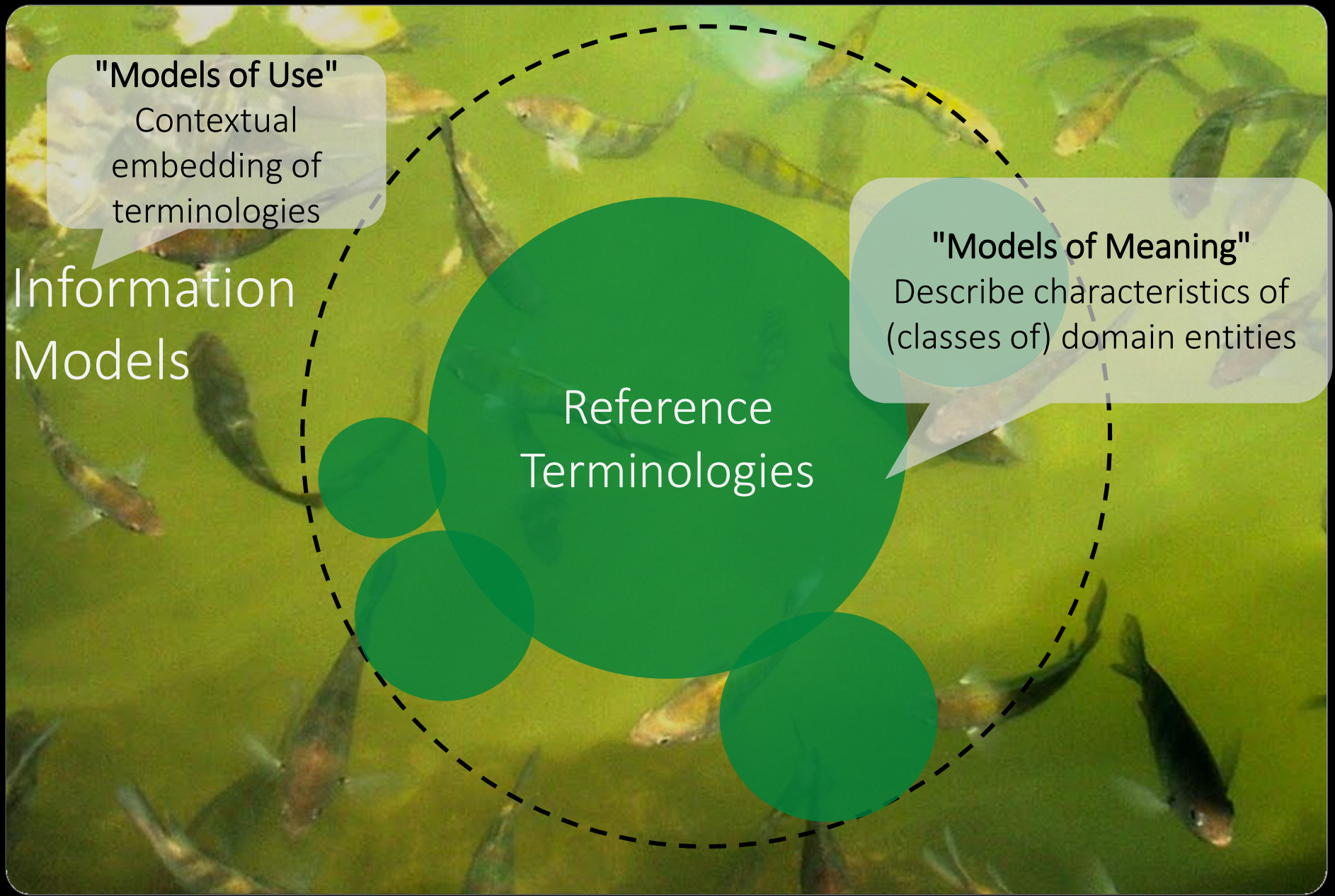
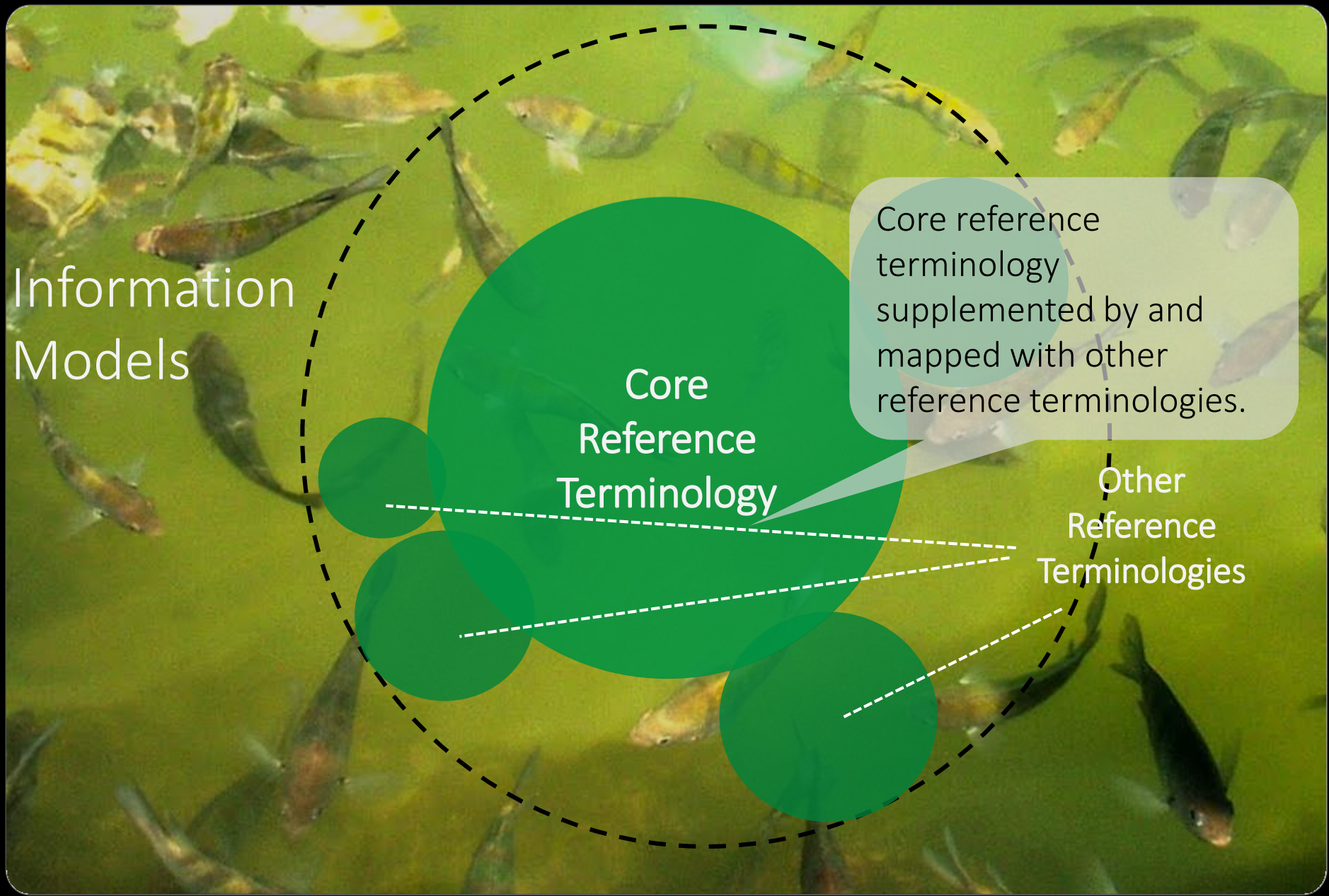
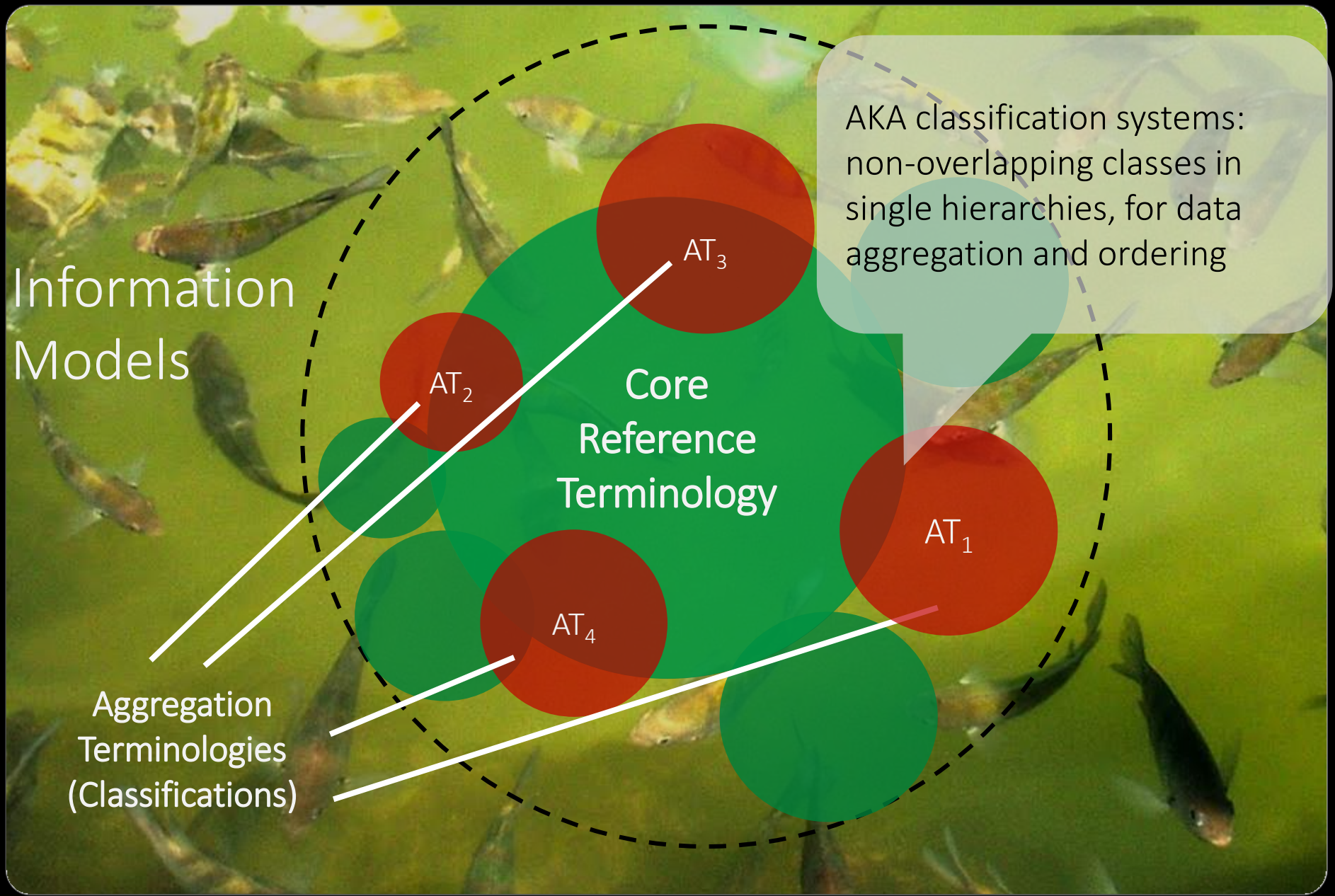
Interoperability ecosystem



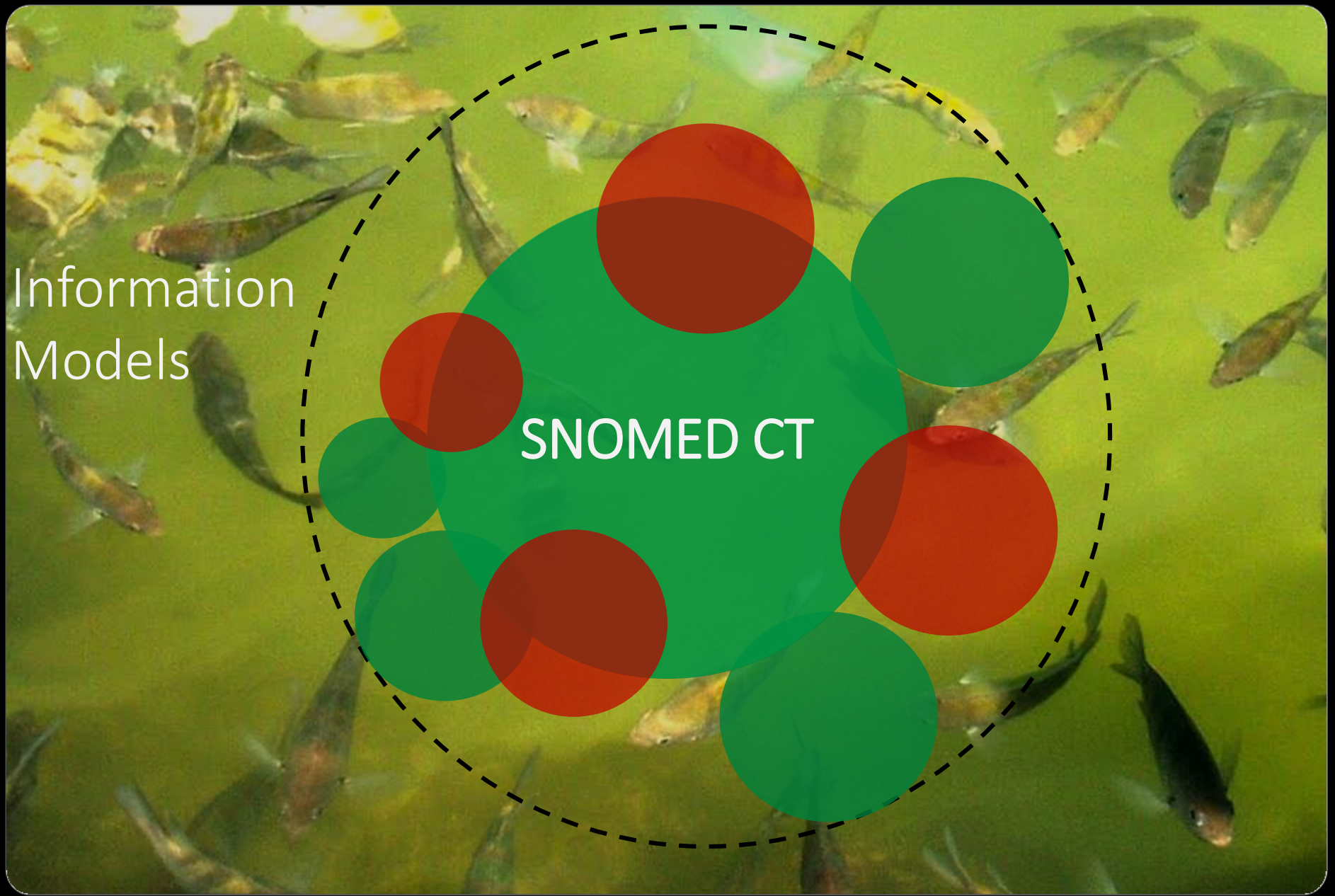
Interoperability ecosystem



Interoperability ecosystem

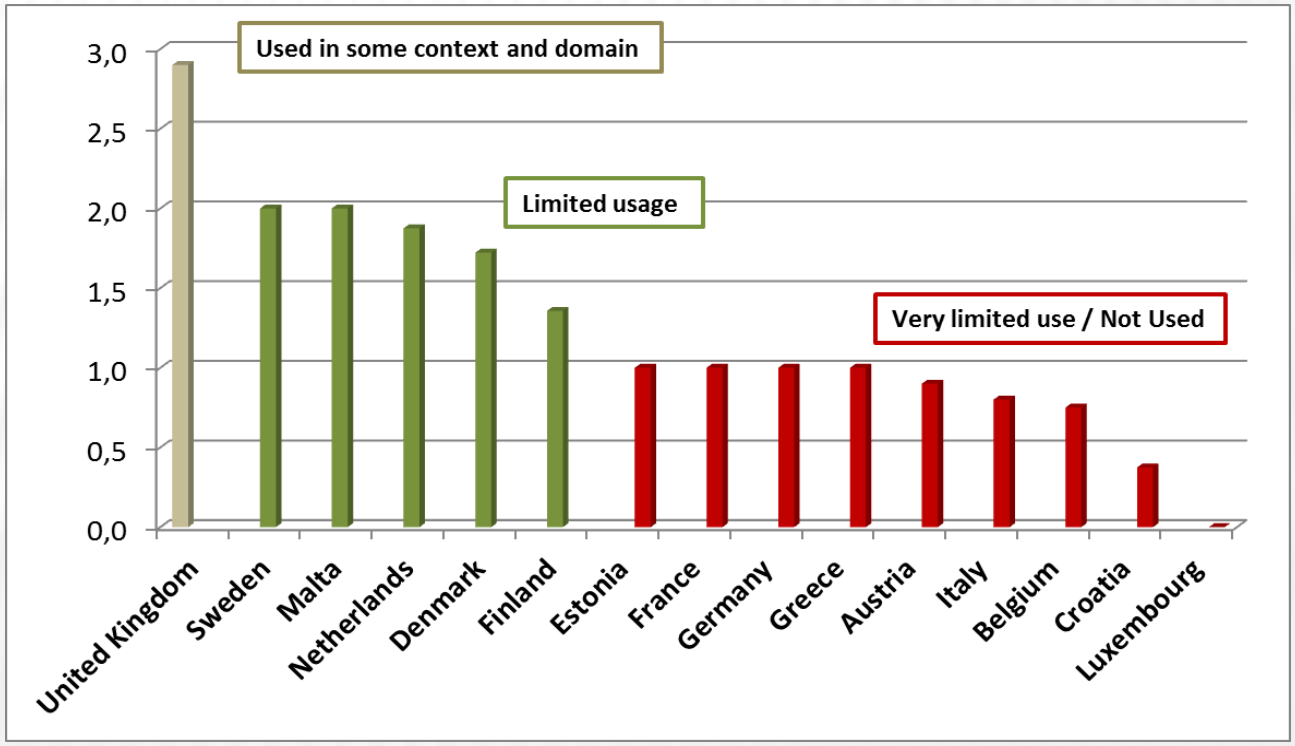


Interoperability ecosystem



CURRENT USE OF SNOMED CT

- Methodology:
  - Literature review
  - Focus groups, Questionnaires, Workshops
  - Case studies



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CASE STUDIES: DRIVERS FOR ADOPTION

Driver		X-Border PS Problem List		Rare Diseases Registries		National PS Problem List		National Laboratory Report	
Better quality and safety of care to individual patients	More complete coded documentation.		↑		↑		↗		↑
	Better overview of each patient's information.		↑		↑		→		↑
	Better records to enable decision support.	↗	↓	↑	↗	→	↘	↑	↑
	Support the adoption of point of care evidence based clinical guidelines		↓		↑		↓		↗
	Improved patient safety		↑		↑		↗		↑
Enriched EHR data exchange for continuity of care	Underpinning multi-professional collaboration.	→	→	↗	→	→	↗	↑	↑
	Sharing EHRs with patients.		→		↑		→		↗
Cost reduction (in the healthcare system)	Reduce duplicate data capture through better interoperability		→		↑		↑		↑
	Capture reporting and reimbursement codes at source, in a more efficient way.	→	↓	↑	↑	→	↘	↗	↓
	Consolidate from multiple existing terminologies.		↑		→		↓		↑
Optimising reimbursement		↓		↓		↘		↓	
Analysis (secondary) uses		↓		↑		→		↑	
Cross-border information and knowledge sharing		↑		↑		→		↗	

Legenda									
↑	Yes	↗	Substantially Yes	→	Partially	↘	Substantially No	↓	No

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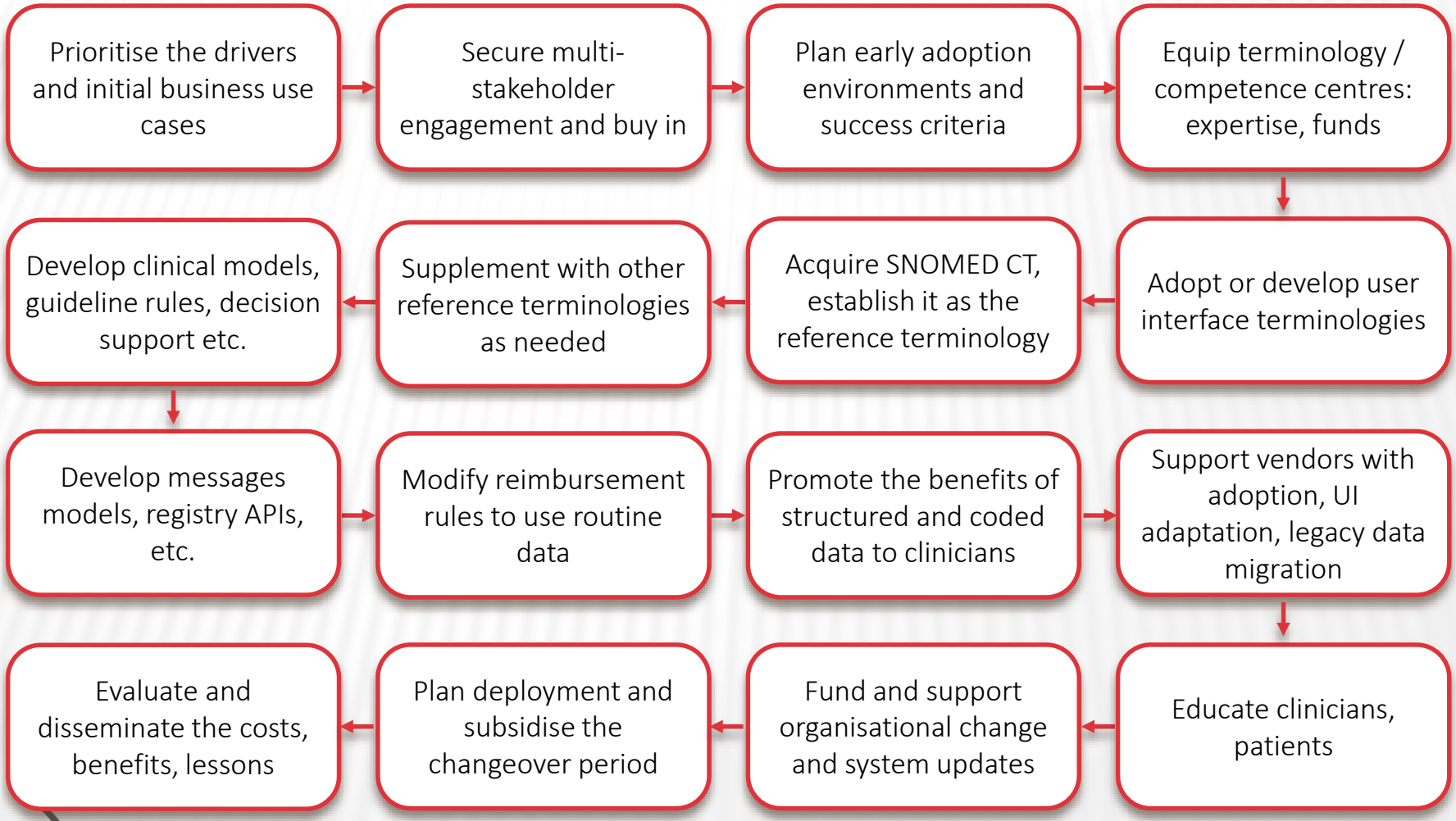
AN EXAMPLE ADOPTION WORKFLOW



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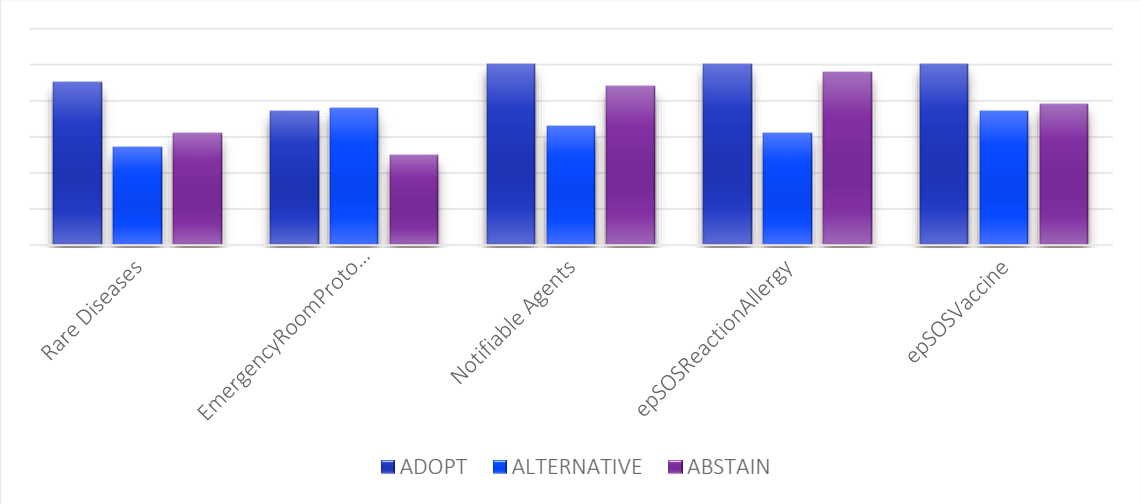
ANNOTATING VALUE SETS

- End point: Concept coverage
- Methods
  - ADOPT: SNOMED CT only
  - ALTERNATIVE: UMLS subset
  - ABSTAIN: local German terminologies



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