CHALMERS INDUSTRITEKNIK

The case for OMOP in Sweden

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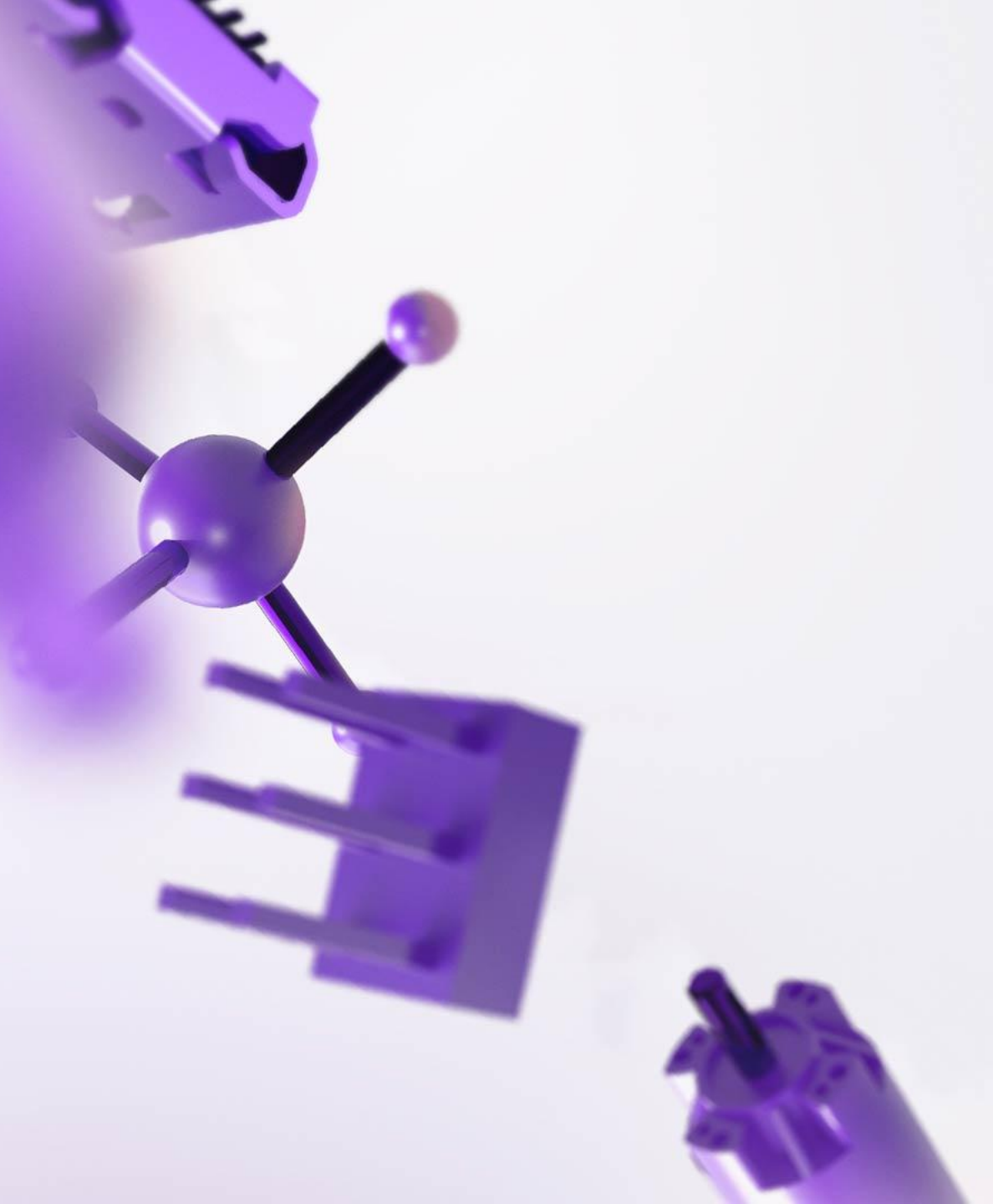
Co-lead: OMOP4Sweden



OMOP is not *'just another standard'* – it's a resilient global research system

OMOP's Standard Concept Layer insulates terminology changes and makes study logic portable, reproducible, and shareable across the entire network.

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Stabilization:

- **OMOP 're-codes'** leading clinical terminologies
  - SNOMED CT, RxNorm, LOINC, UCUM, CVX +
  - Domained in CDM, versioned, relationships maintained
- Prevents disruption from **upstream terminology changes**
  - Keeping cohorts and queries stable over time and sites

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Acceleration:

- Reuse *everything*
  - local terminology mappings
  - cohort definitions & phenotypes
  - queries, analytics
  - common tooling (maintenance, analysis)
  - network-wide quality assessment
  - versioned studies reproducibly

OMOP's Standard Concept Layer insulates terminology changes and makes study logic portable, reproducible, and shareable across the entire network.

This creates powerful benefits

Scalable – very large global cohorts, comparable network

Fast – map once, *re-use everything*

Broad – cross therapeutic areas and disciplines

Private – aggregation cuts privacy risk, opening-up access

Open-Source – no vendor lock-ins, global development community

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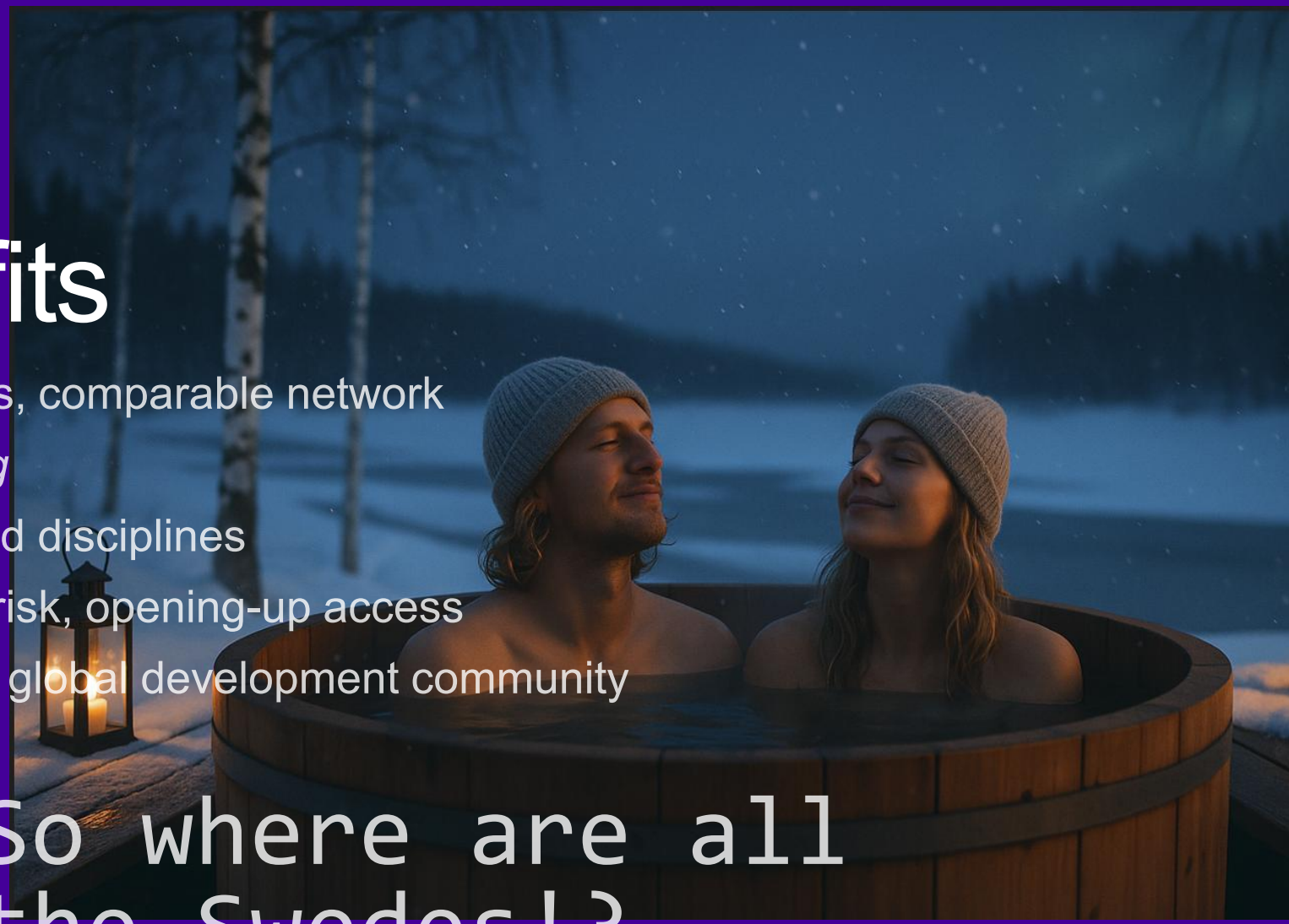
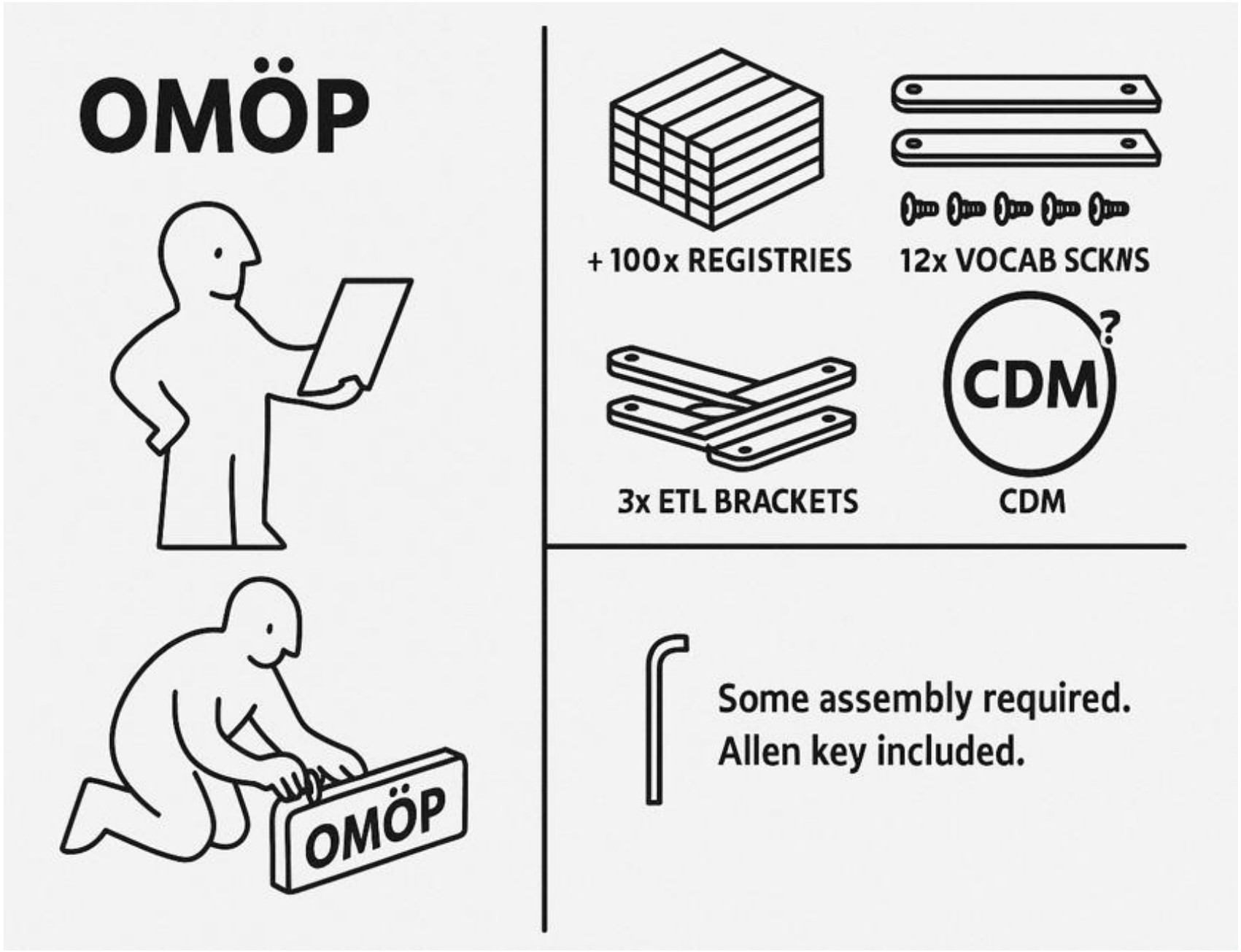


So where are all the Swedes!?



Does OMOP *feel* Swedish to you?

Strong standards focus

Mature disclosure control framework for aggregated statistics

Distributed informatics capability across regions

Strong observational research culture

Belief in evidence and prevention

BUT where should OMOP live *'in the system'?*

Can Sweden's Registries Benefit from OMOP?

Yes – for growing research.

- Global research participation → research quality, collaboration
- Perform global studies → impact, smaller sub-groups
- Efficient analysis → re-use everything, research output
- Auditable / reproducible analysis → integrity

Can Sweden's Registries Benefit from OMOP?

What about infrastructure?

100+ registries, many >50 years data!

Different: data models / pipelines / locations

= scaled duplication of data / cost / privacy risk

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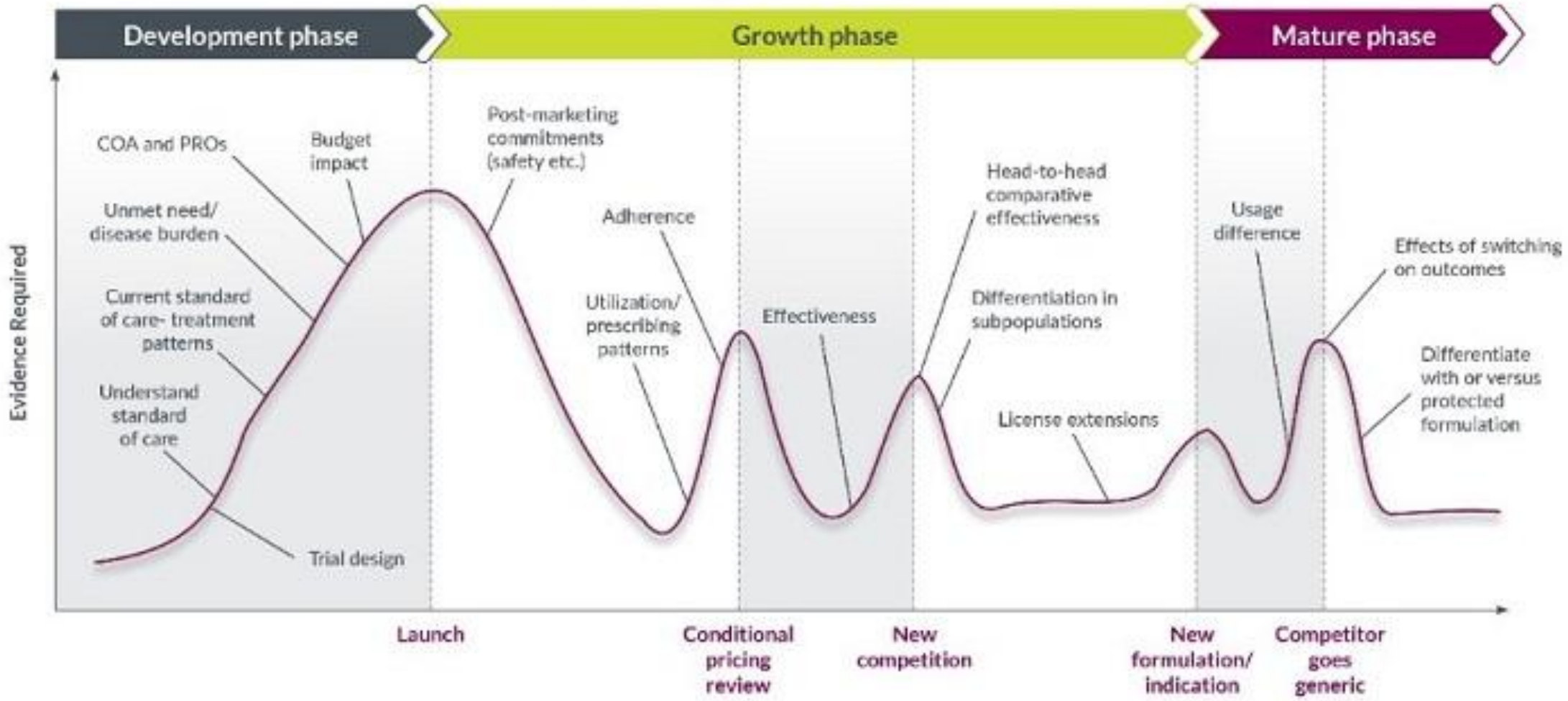
Is this scale of duplication justifiable?

- In principle, yes, if the data models deliver the use cases that justify funding for each.

KEY QUESTION:

- How much can the data models be harmonised while preserving core use-cases?

RWE drives value across the full medicine development lifecycle



What role could industry play in sustainable data infrastructure?

How could OMOP change industry engagement in Sweden?

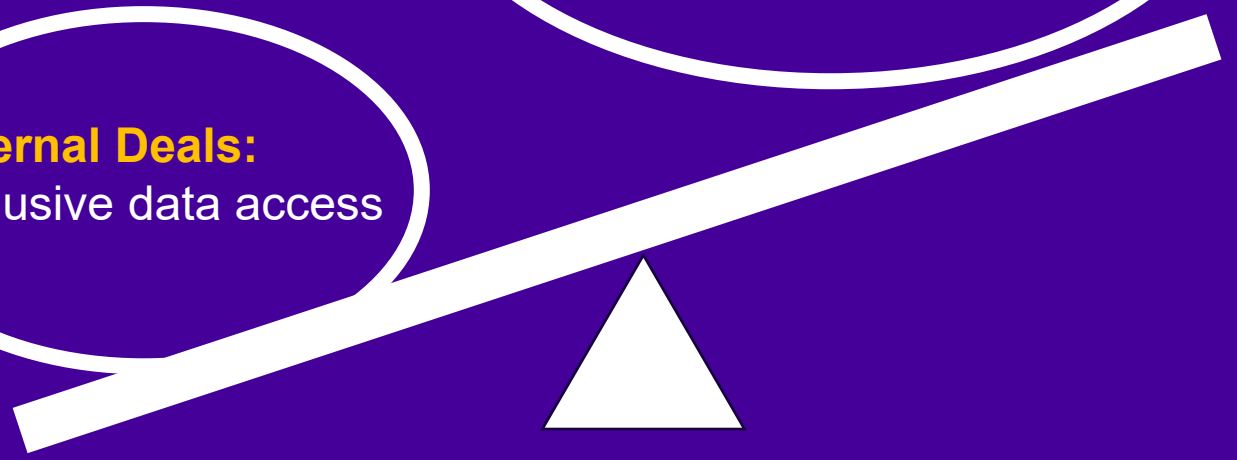
Shifting lifescience competitive advantage towards data-driven capabilities

OMOP equalises access to insights

- Faster insights possible
- Minimized data sharing

Data-driven capabilities:
- Identifying commercial indsights
- Effective promotion
- Generating insight

External Deals:
Exclusive data access



How can the lifescience industry strengthen insight capabilities

while

Advancing common Public/Private strategic needs:

- Policy alignment
- Shared research capacity
- Collective risk management

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Investment Approach	
1. Data Utilisation Centres of Excellence	• “Health Data Learning Labs” with hospitals and universities • National training curricula on OMOP analytics
2. Federated Evidence Acceleration Hubs	• RWE sub-networks (geographic, TA, method etc) • Develop open analytics tools in partnership with academia
3. Embedded Data-Science Fellowships in Hospitals	• Clinician–data scientist joint roles • Rotations between pharma and hospital analytics projects
4. Public–Private RWE Governance Forums	• RWE Governance Roundtable • Guidelines on data governance, synthetic data, FAIR use, etc.
5. Joint Clinical–Commercial Evidence Sprints	• 6-week OMOP-based “evidence hackathons” with clinical partners • Co-branded RWE prototypes (e.g., outcomes dashboards)
6. Open Data Literacy & Fellowship Programs	• OMOP courses, scholarships, MOOCs, micro-credentialling • Partner with universities for postgraduate training in RWE
7. Real-Time Evidence-to-Action Pilots	• Co-develop live dashboards tracking key HTA assumptions • Jointly test/explore tiered access models under EHDS frameworks
8. Health-System Co-Innovation Platforms	• Multi-sector OMOP innovation consortia (Digital health solutions) • Open challenges around unmet needs
9. Data Ethics & Transparency Index	• Annual transparency reporting by pharma on RWE use • Voluntary data-ethics charter for OMOP use cases
10. OHDSI Ecosystem Participation	• OHDSI Working Groups operations • OHDSI nodes administrative and event support

Industry investment goals can align with OMOP sustainability needs

Investment approach → OMOP needs ↓	CoE (methods & training)	Federated hubs / node hosting	Embedded fellowships	Governance forums	Evidence sprints (methods)	Data-literacy programs	Real-time pilots	Co-innovation platform	Ethics & transparency index	OHDSI Ecosystem Participation
Map OMOP data sets	○	●	○	○	●	○	○	○	–	○
Maintain OMOP data sets	○	●	○	○	–	–	○	○	–	○
Quality control activities	○	○	○	–	●	○	●	○	○	●
Hosting	–	●	–	–	–	–	○	○	–	○
Governance & compliance capacity	○	–	○	●	–	–	–	○	●	○
Training & literacy	●	–	●	–	○	○	○	○	–	○
Federated participation costs	–	●	–	–	–	–	○	○	–	○
Metadata & catalogue work	○	○	○	○	○	–	–	●	○	○
Benchmark data / Portals	○	○	○	–	●	–	●	○	–	○

Chart works both ways

Fill public gaps
OR
Action industry priorities

Legend: ● strong fit ○ partial fit – minimal fit

AstraZeneca invests 1.3 billion euros in its R&D center in Barcelona, doubling its job creation forecast to 2,000

15 MAR 2024

AstraZeneca Global Hub in Barcelona was inaugurated in 2023 and is expected to be one of **Europe's largest centers of excellence and clinical innovation**.

The *shift* is real

So, **where** should Sweden consider implementing OMOP?

Tourist to farmer:
“***Can you tell me how to get from Malmö to Dalarna?***”

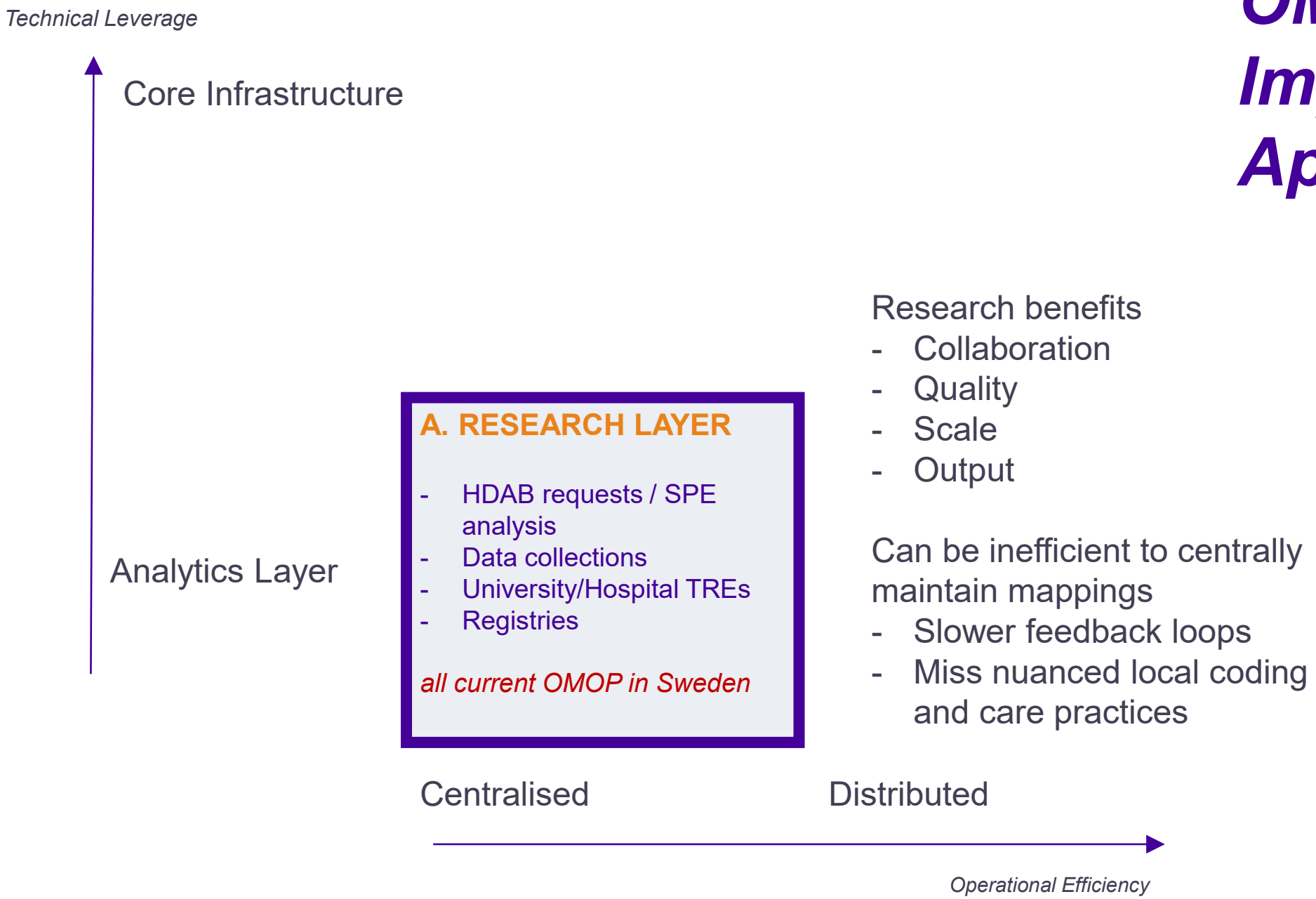
So, **where** should Sweden consider implementing OMOP?

Tourist:
"***Can you tell me how to get from Malmö to Dalarna?***"

It would be vastly simpler if it was legal to build a national research data base of all health care data….

Farmer:
"Well, if you wanted to get to Dalarna, I wouldn't start in Malmö"

OMOP Implementation Approaches



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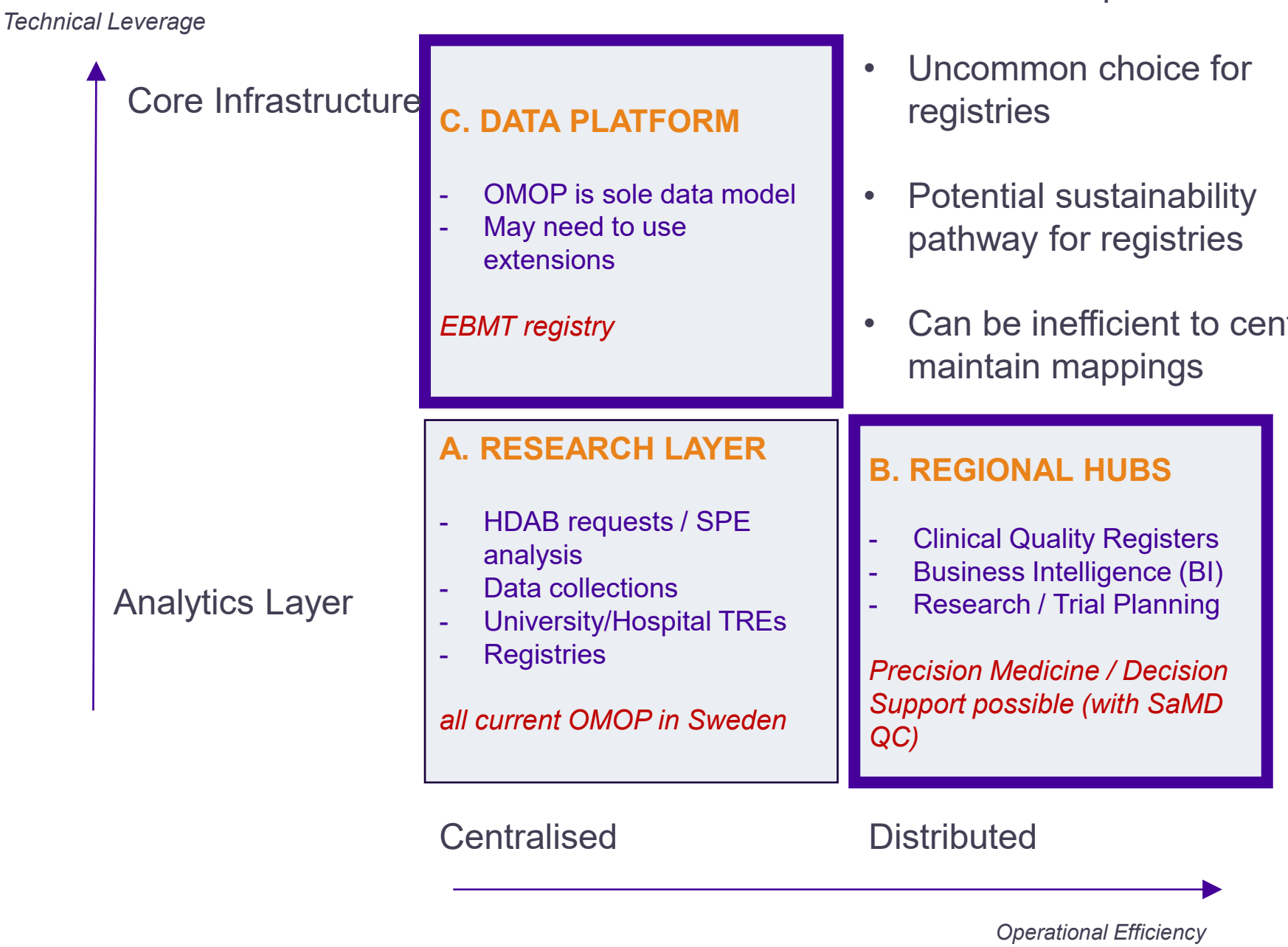
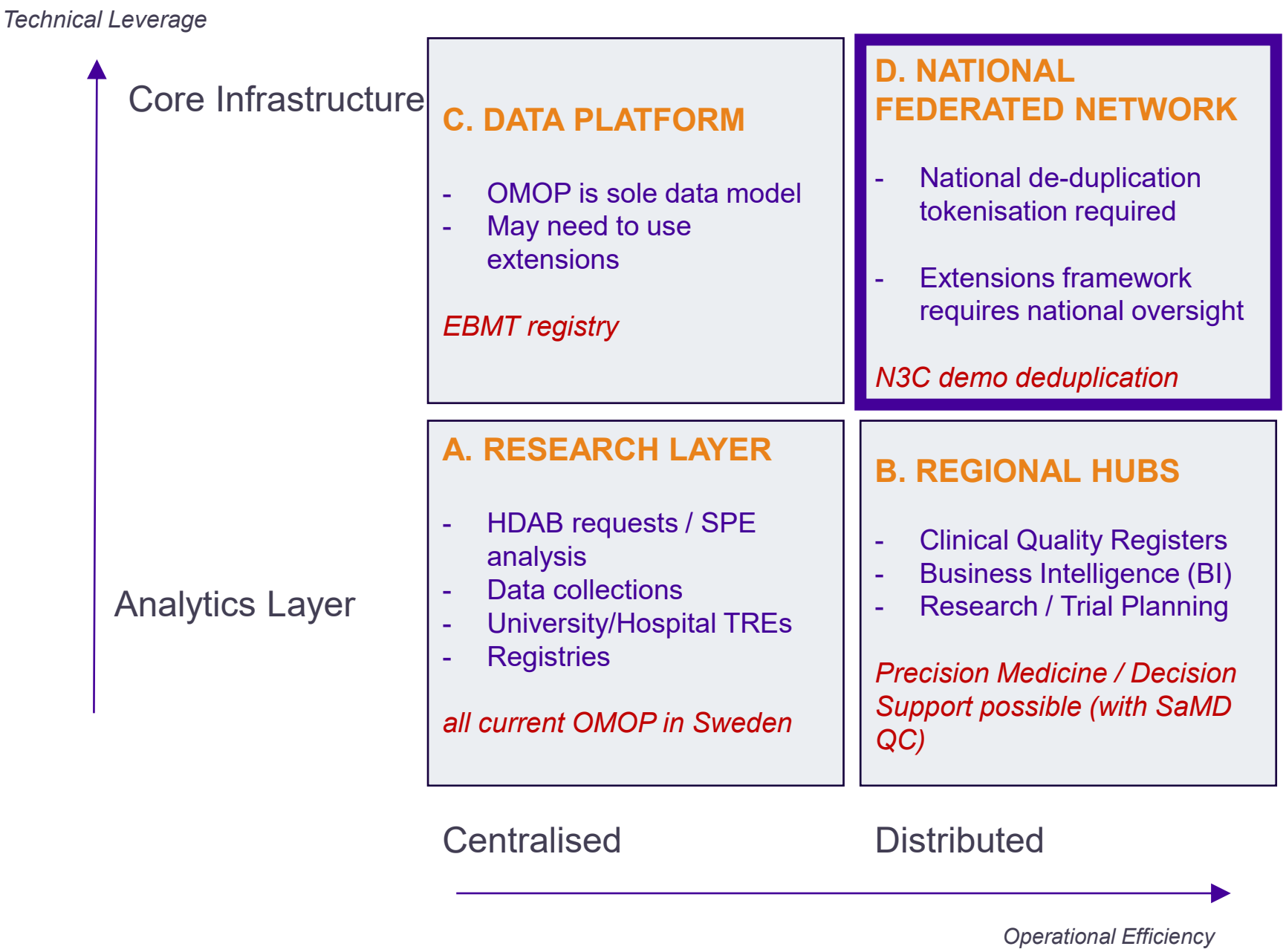


- National scope
- Uncommon choice for registries
- Potential sustainability pathway for registries
- Can be inefficient to centrally maintain mappings

- The original and intended use-case for OMOP
- Close to care expertise: strengthens mapping quality
- Richest variables possible
- Lacks national scope



OMOP Implementation Approaches

- Retains key benefits of all others
  - Research
  - Richness
  - Efficiency (proximity)
  - National scope

- Depends upon emerging solutions
  - Deduplication
  - Extension framework

How should we design OMOP pilots to best align with Sweden's needs?

A – Analytics Layers

- Grow Skill & Community
- Align pilot funding

B – Regional Hubs

- Optimise implementation process

C – Registry Platform

- Design a scalable extensions framework

D – National Analytics Framework
(Prove concept)

- Adapt and evaluate tokenisation for federated de-duplication
- Build prototype extensions framework
- Define new base-funding mechanism

Prioritise pilots on
- **National strategy alignment**
- **Funding priorities**
- **Early adopter needs**
- **Capability building impact**

Phase 1 ***Phase 2*** ***Phase 3***