

CCMAS45

Codex Committee on Methods of Analysis and Sampling
(CCMAS)

Development of a database for CXS 234

**Prototype to support discussion on future user
requirements**

Roberto Sciotti,

Codex Secretariat IT Expert

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Budapest, Hungary

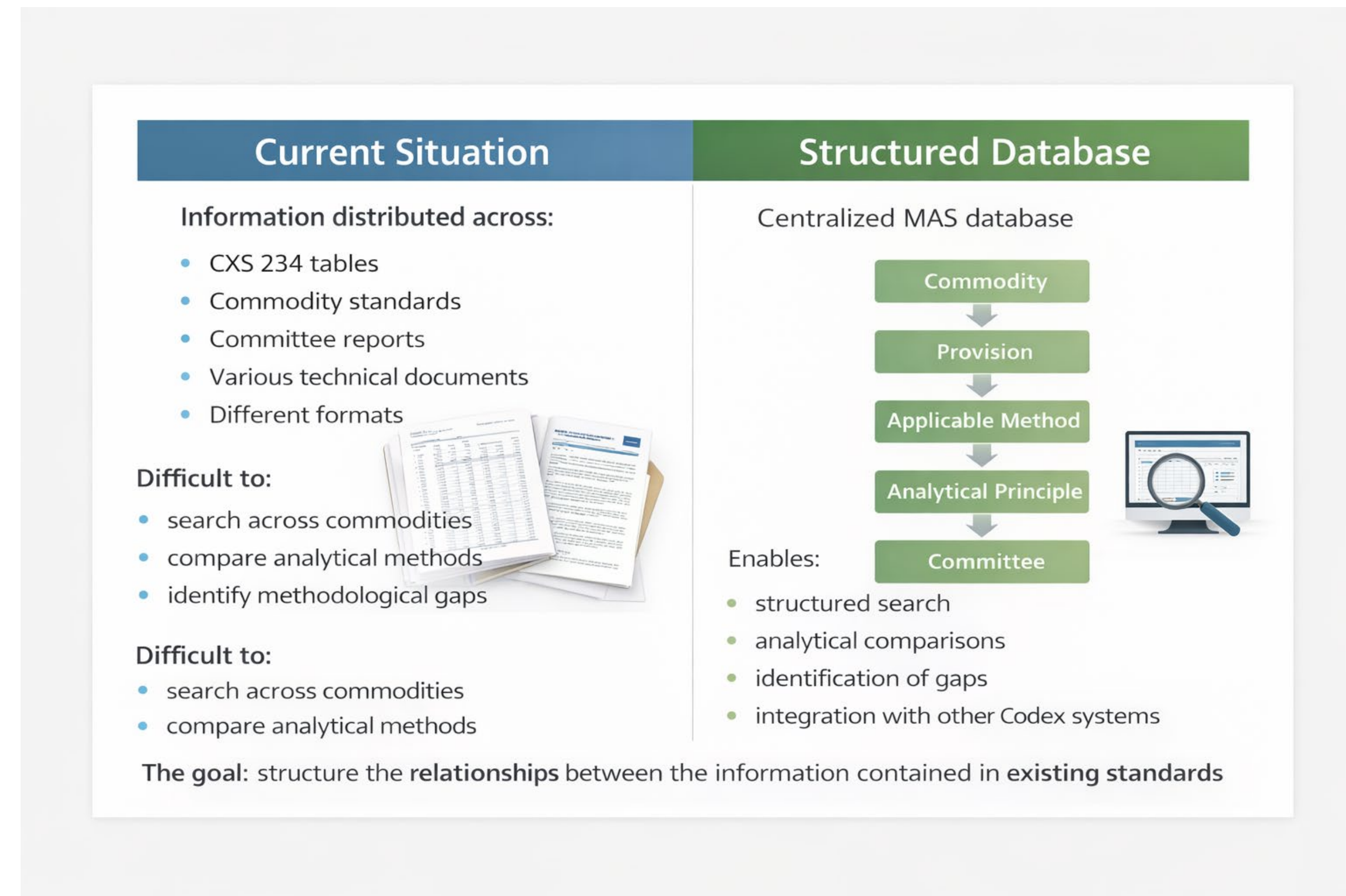
Context

Why explore a MAS database?

- Information distributed across several documents
- Difficult to navigate across commodities and analytes
- Limited ability to compare analytical approaches
- Identification of gaps requires manual review

Examples:

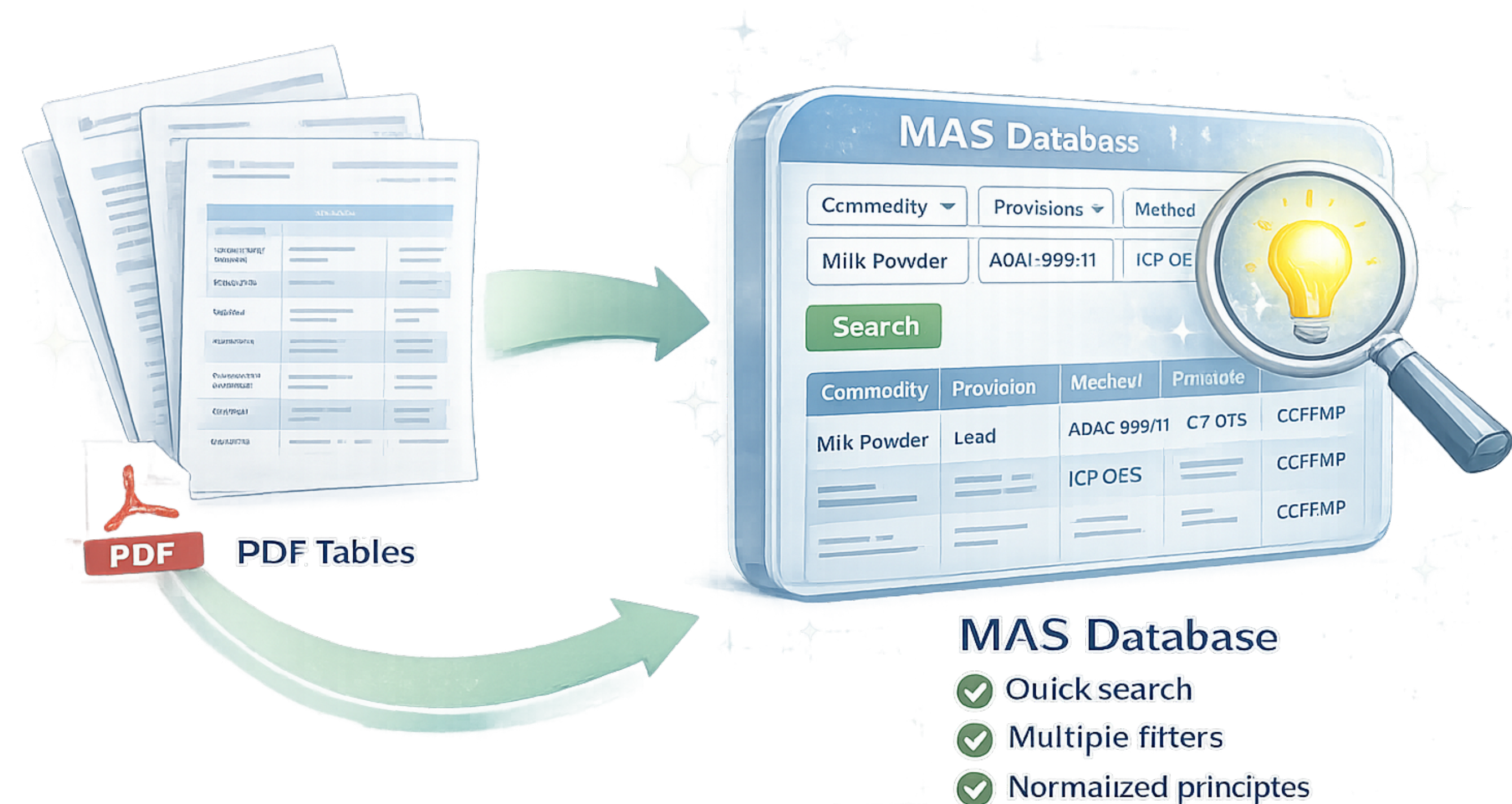
- Which methods exist for a given analyte?
- Which analytical principles are used across commodities?
- Which committees have developed specific methods?



Historical background

From PDF Tables → Searchable Knowledge

- Discussion within CCMAS
- Revision of CXS 234
- Need for structured access to MAS information



Why now?

Why explore this now?

- COVID period: transition to virtual meetings
- FAO digital infrastructure migration
- Modernization of Codex IT systems now nearing completion

Codex digital infrastructure

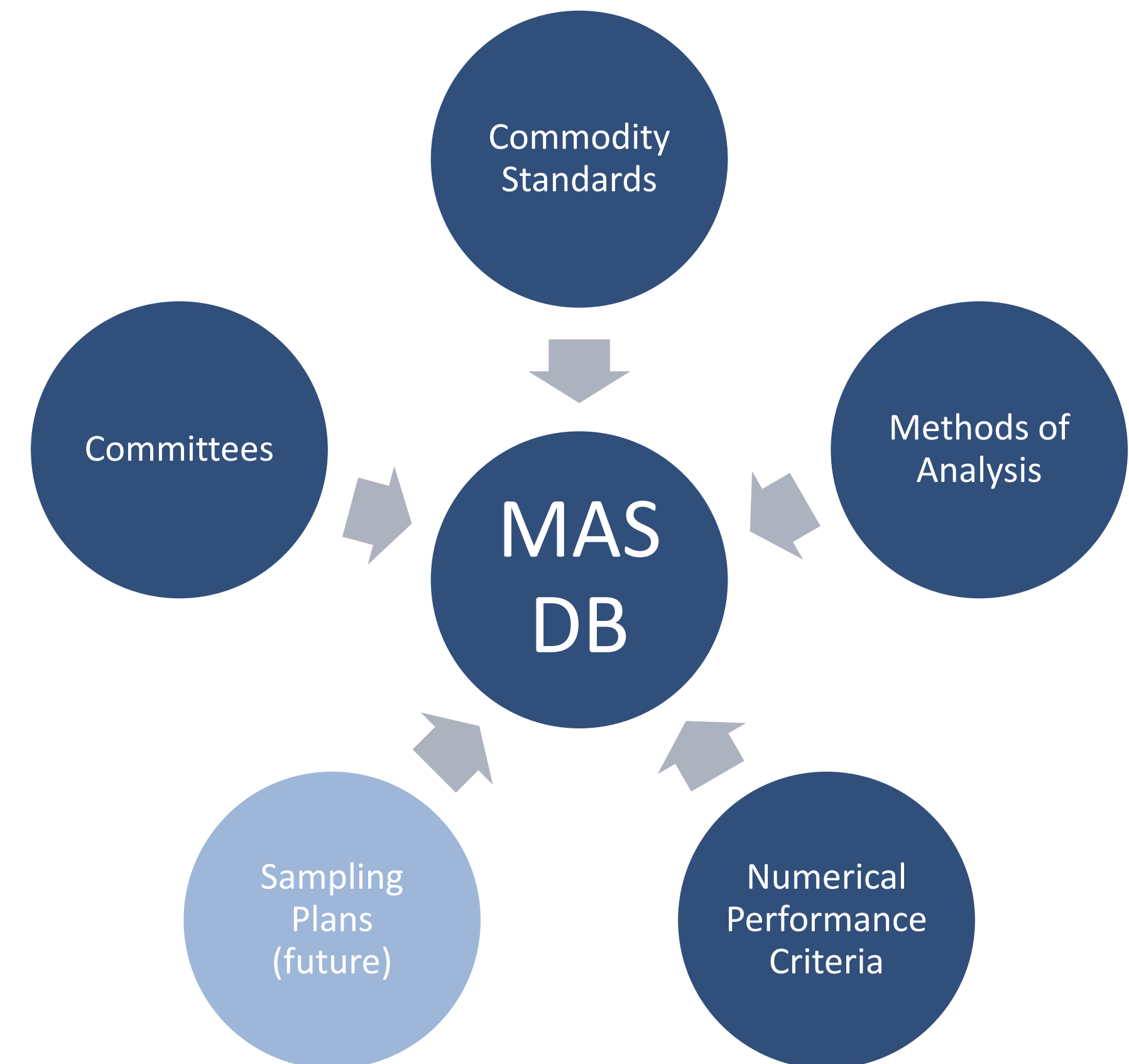
Codex Digital Ecosystem

- Applications developed using **Power Apps**
- Reporting through **Power BI**
- Integration within [Codex Online Databases](#)

Objective of the prototype



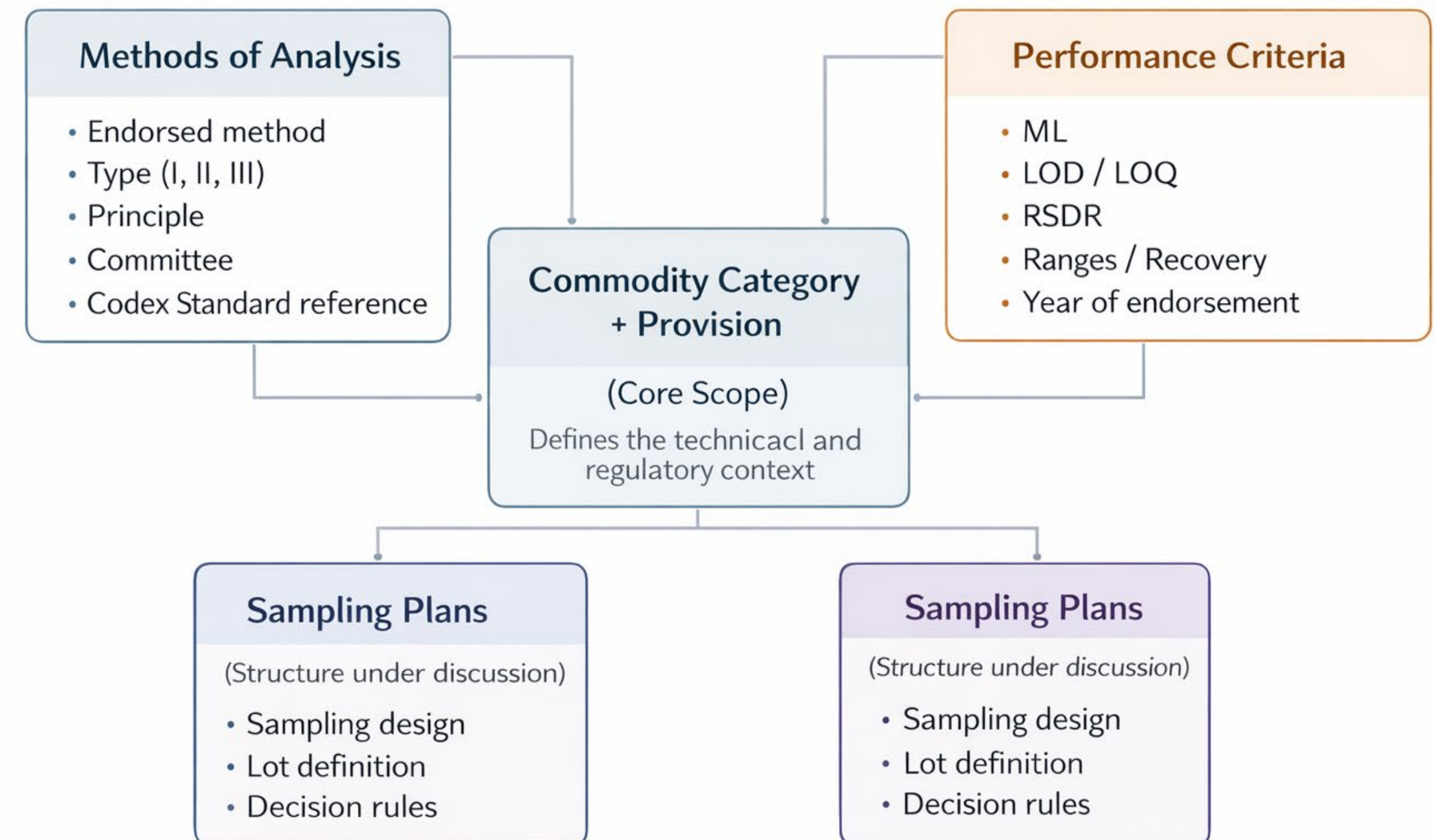
- One important aspect of this prototype is that the database is not intended to exist in isolation.
- Instead, it could potentially function as a **central node within the broader Codex information ecosystem**.
- For example, the database could be connected with existing information on **commodity standards**, allowing users to navigate directly from standards to the applicable analytical methods.
- It could also integrate **numerical performance criteria**, making it easier to compare analytical performance across different methods.
- In the future, it may even be possible to link **sampling plans**, creating a more comprehensive MAS information system.
- Since the Codex Secretariat already manages several internal datasets, the potential exists to connect these elements within a coherent structure.
- In this way, the MAS database could gradually evolve into a central reference point for methods of analysis and sampling within Codex.



Conceptual model

The prototype is based on a relatively simple conceptual structure linking several core elements.

Conceptual Structure of the MAS Prototype



All MAS components are anchored to a common scope but may follow distinct structural logic.

Prototype Dataset: Example of Structured MAS Information

Each row represents a specific analytical option linked to a provision within a commodity category.

The structure allows experts to quickly navigate:

- commodities
- provisions
- analytical methods
- analytical principles
- responsible committees
- performance criteria

Commodity	Provision	Method	Principle	Committee	Year
Fish oils	Peroxide value	ISO 3960	Titrimetry	CCFO	2019
Milk powder	Fat content	ISO 1736	Gravimetry	CCMMP	2018
Cocoa	Cadmium	ICP-MS	Mass spectrometry	CCCF	2021

Q.: Looking at this structure, do you think it reflects how experts typically navigate information when working with methods of analysis?

Numerical Performance Criteria

- One of the most interesting aspects of the prototype is the possibility to structure **numerical performance criteria**, which today are often embedded in narrative text.
- Parameters such as **LOD, LOQ, recovery, precision and measurement range** are already present in many Codex texts, but they are not easily comparable across methods.
- By structuring these criteria in a database, we can move from descriptive information to **analytical, queryable data**, supporting method selection, comparison and transparency.
- This does not replace expert judgment, but rather **supports it with structured evidence**.
- This approach could also support future discussions on harmonisation and equivalence of analytical methods.

Q.: Which numerical performance criteria are essential for your work and should always be captured in a MAS database?

Analytical principles

Observed Challenge

- Gas chromatography – FID
- GC-FID
- LC-MS/MS

Variations may represent:

- Same principle
- Principle + Detector
- Principle + Attribute

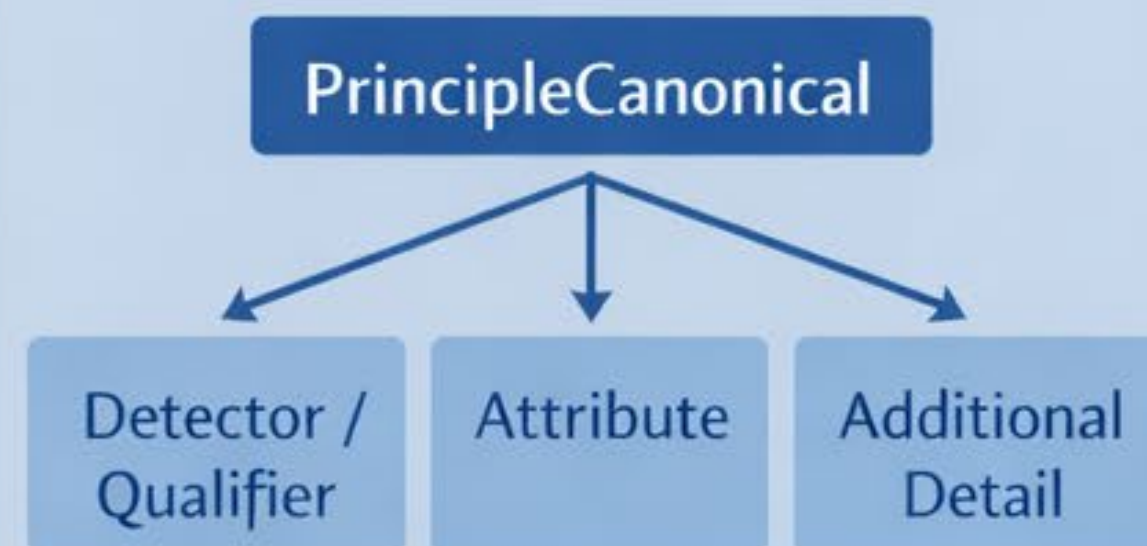
Issues Without Normalization

- Difficult to search by principle
- Hard to compare methods
- Inconsistent terminology

IDApplicable	PrincipleRaw
499	Gas Chromatography - FID
499	Gas Chromatography -FID
500	Gas Chromatography - FID
500	Gas Chromatography -FID
501	Ion exchange chromatography - UV
501	Ion exchange chromatography-UV
502	Ion exchange chromatography - UV
502	Ion exchange chromatography-UV

Prototype Approach

Separate *Core Principle* & *Qualifiers*



Example:

PrincipleCanonical: Gas Chromatography

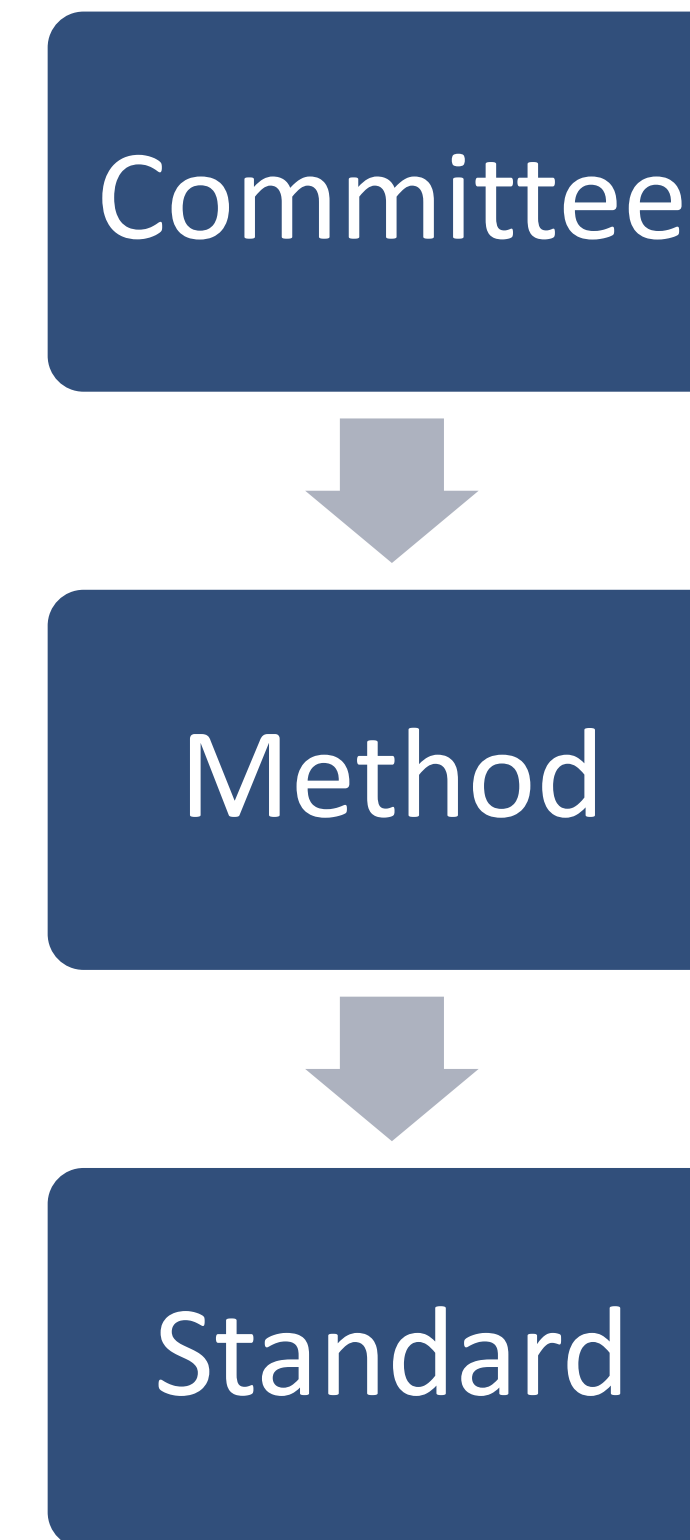
Qualifier: FID

Attribute: MS/MS

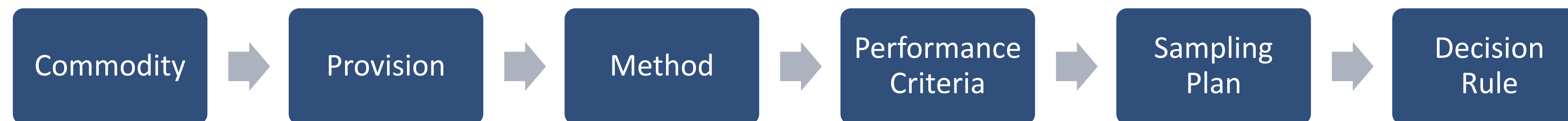
Q.: Would it be useful to separate **core principles** from additional qualifiers such as detectors or instrumentation?

Committee attribution

- Linking methods with the committees that developed or reviewed them.
- Traceability of method origin



Future Development: Sampling Plans Module



Sampling plans are an essential component of the Methods of Analysis and Sampling framework.

The prototype database has been designed to allow future integration of:

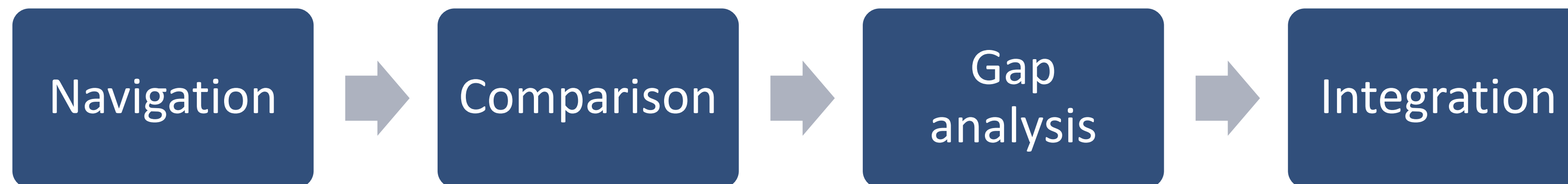
- sampling plan types
- sample size
- acceptance numbers
- decision rules
- statistical parameters

Q.: If sampling plans were included in the MAS database, what key parameters should always be captured?

Future integration possibilities

A structured MAS database could support:

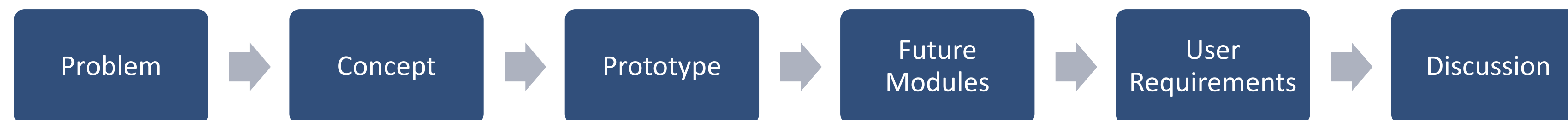
- easier navigation of methods
- comparison of analytical approaches
- identification of methodological gaps
- better integration of Codex information



Identifying Key User Requirements

To support the work of experts, a MAS database should address key practical questions.

1. What types of searches should the database allow?
2. Which analytical parameters are essential to capture for each method?
3. Should analytical principles be standardized?
4. Should methods be explicitly linked to committees?
5. How should sampling plans be integrated in the future?



Q.: if such a database existed today, what would be the first feature you would want to use?

THANK YOU FOR YOUR ATTENTION

