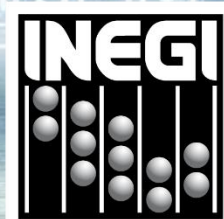# The use of Enterprise Architecture as a framework to fulfill OECD Quality Principles

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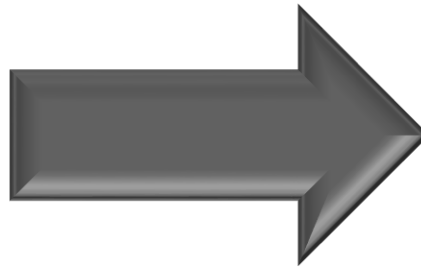3. Challenges.

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MOTIVATION

Modernization of the NSO's

National Statistical Offices require a transformation similar to the one seen in the circus industry after the Cirque du Soleil:

Commitment to Quality

- INEGI has always had a commitment to producing high-quality information, produced through the use of strict methodologies.

- In December 2014, INEGI issued an institutional ruling for Quality Assurance of Statistical and Geographical Information.

  - The ruling was inspired by the European Code of Practice and the UN Template for a Generic National Quality Assurance Framework.

  - The ruling triggered a Quality Assurance Committee that provides the governance for projects focused on quality measurement and improvement.

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Commitment to Quality

- The commitment to quality and the need to develop a comprehensive framework using international and national practices led to the adoption of *The Open Group Enterprise Architecture Framework* (TOGAF).

THE OPEN GROUP ENTERPRISE ARCHITECTURE FRAMEWORK

TOGAF core concepts

- Enterprise Continuum.
- Principles.
- Development Method.
- Content Metamodel.
- Domains:
  1. Process.
  2. Data.
  3. Application.
  4. IT infrastructure.

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TOGAF Enterprise Continuum

- Classifies tools for Architecture development:

  – Best Practices:
    - ➢ OECD Quality Guidelines.

  – Data:
    - ➢ Data Management Capability Assessment Model (DMCAM).
    - ➢ Generic Statistical Information Model (GSIM).
    - ➢ Data Documentation Initiative (DDI).

  – Processes:
    - ➢ Generic Statistical Business Process Model (GSBPM).
    - ➢ GSBPM Quality Indicators.

  – Software services:
    - ➢ Service Oriented Architecture (SOA).
    - ➢ Common Statistical Production Architecture (CSPA).
    - ➢ SDMX Reference Infrastructure.

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TOGAF Enterprise Principles

- Standardized description for Data Quality Principles.

- It can incorporate principles from other domains such as:

  - Documentation.
  - Data publication.
  - Prioritization.
  - Evaluation.

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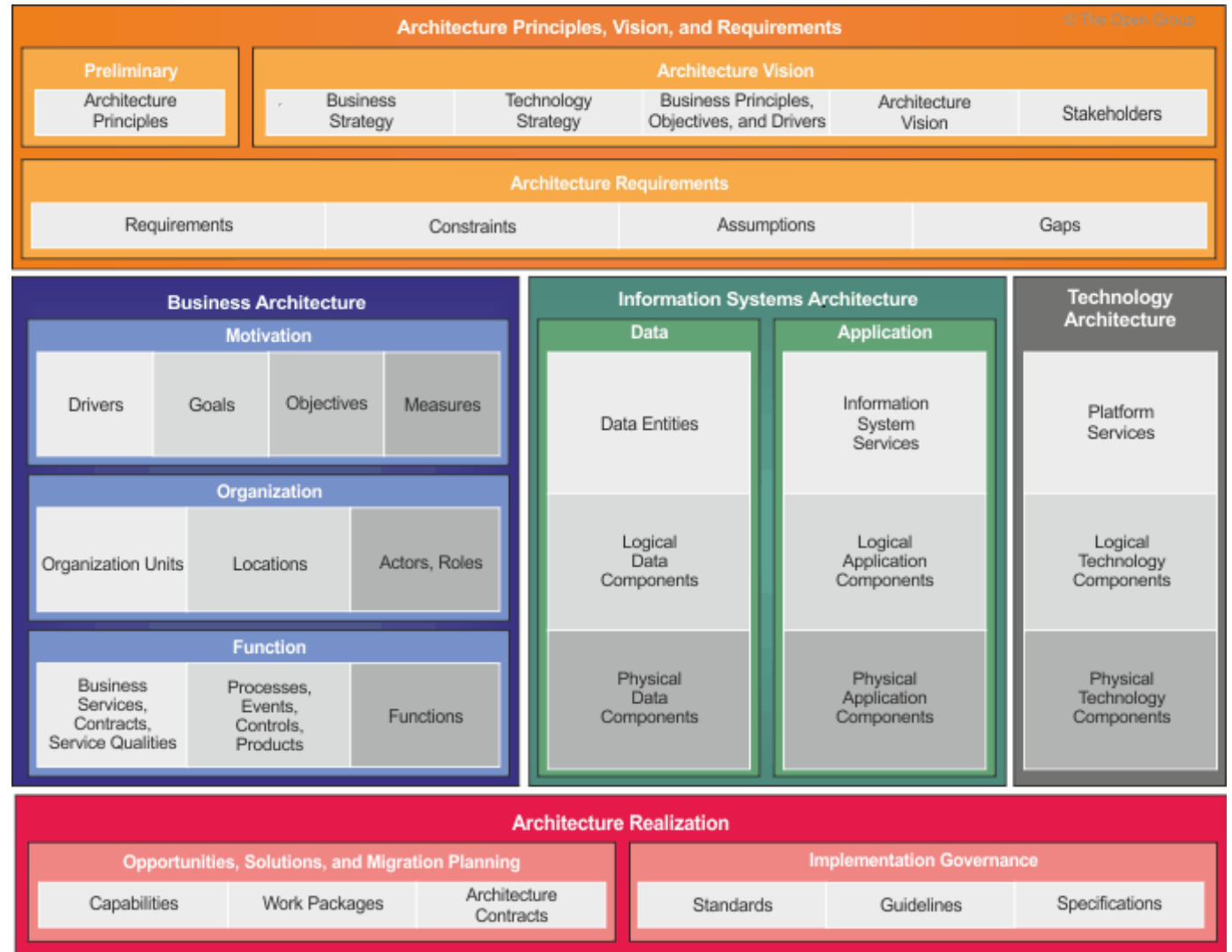INSTITUTO NACIONAL
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TOGAF Architecture Development Method (ADM)

- Provides a general guide to plan and develop architecture domains.

- Separates design from implementation.

- Allows for the prioritization of projects.

- Includes explicit evaluation and analysis for improvement.

- Allows for quick hits in the development of the projects.
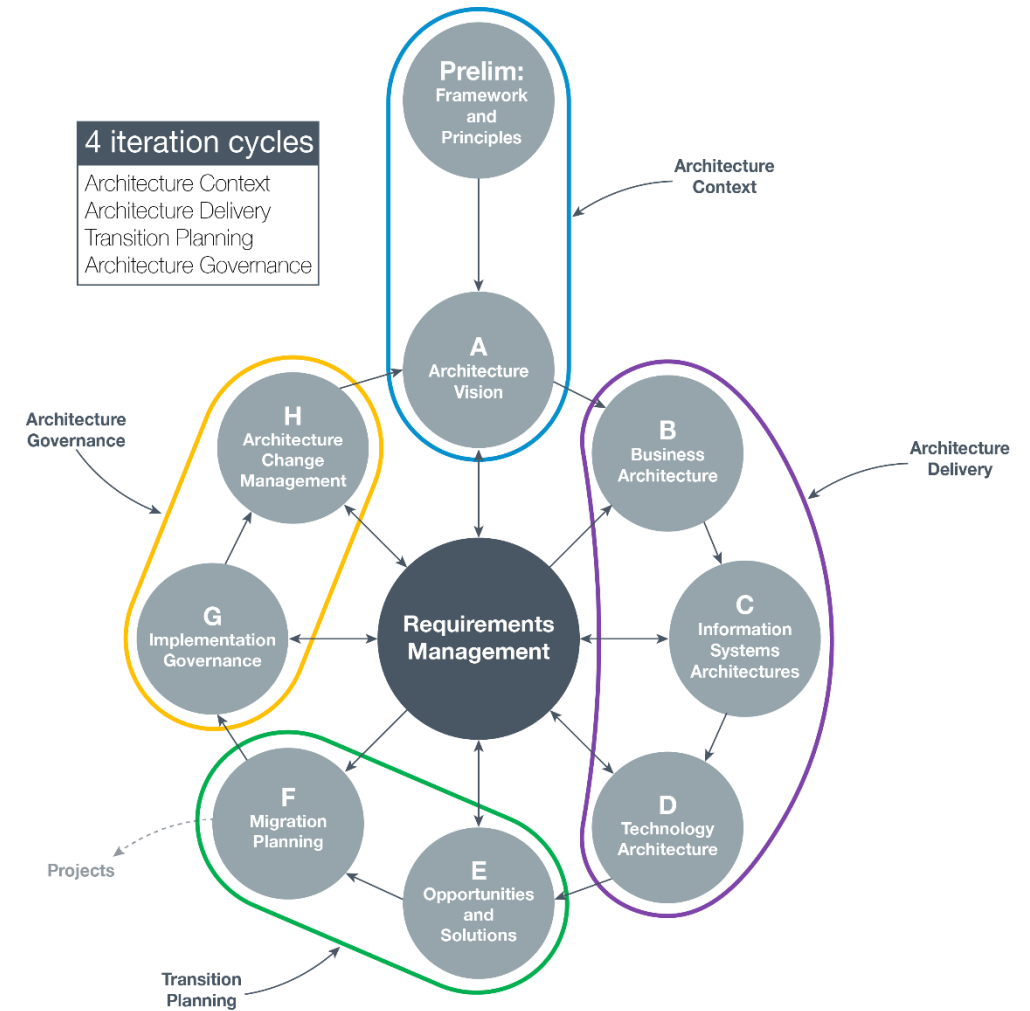
Content Metamodel

- The hundreds of information products and processes demand a comprehensive and standardized way of managing and storing documentation.

- A metamodel helps define the minimum set of documentation for each domain. It has to be tailored to the needs of every institution.

- A metamodel provides consistency by enforcing the relationship among artifacts. For instance: Principles vs. Sub processes, Applications vs. Data Models.
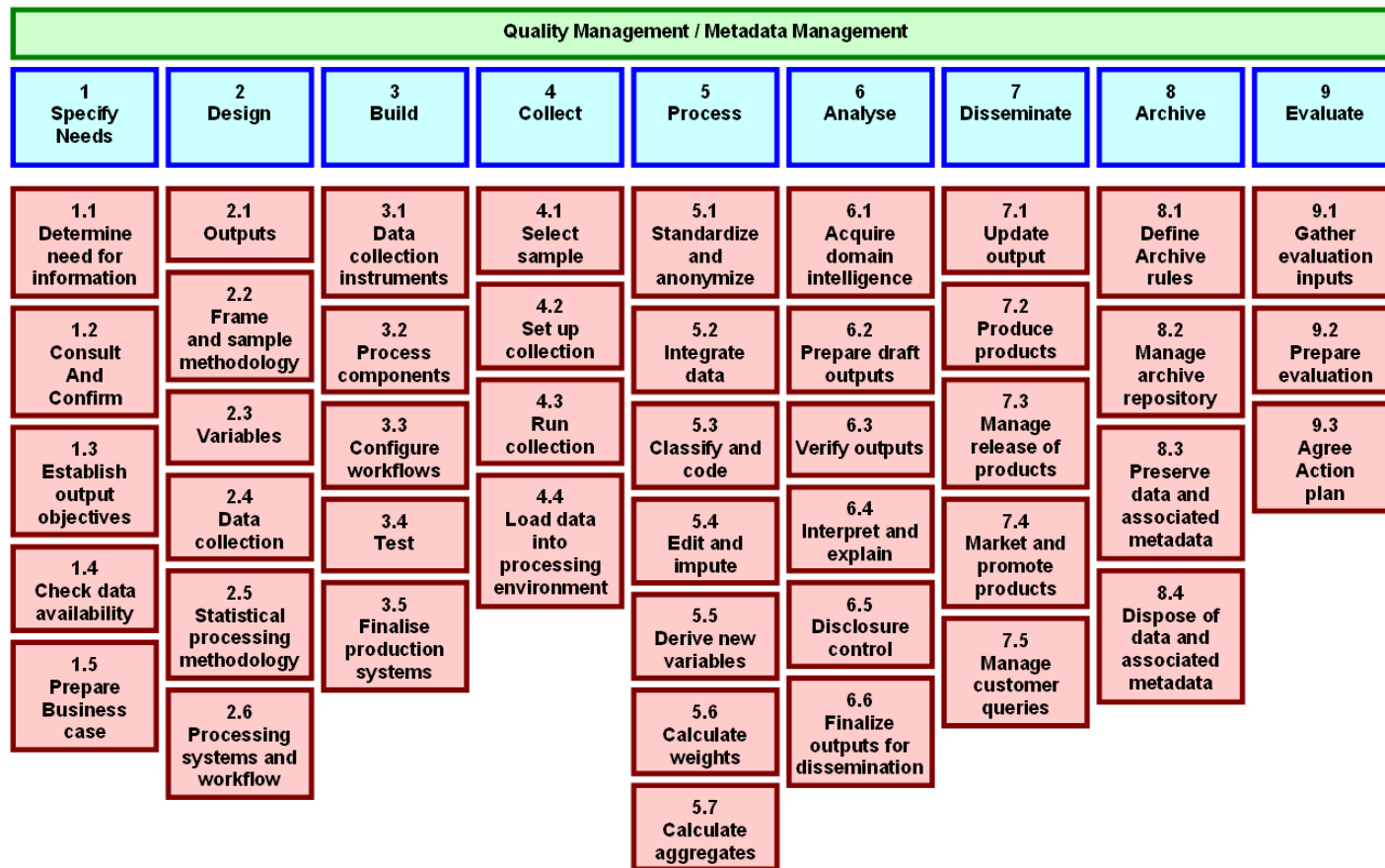

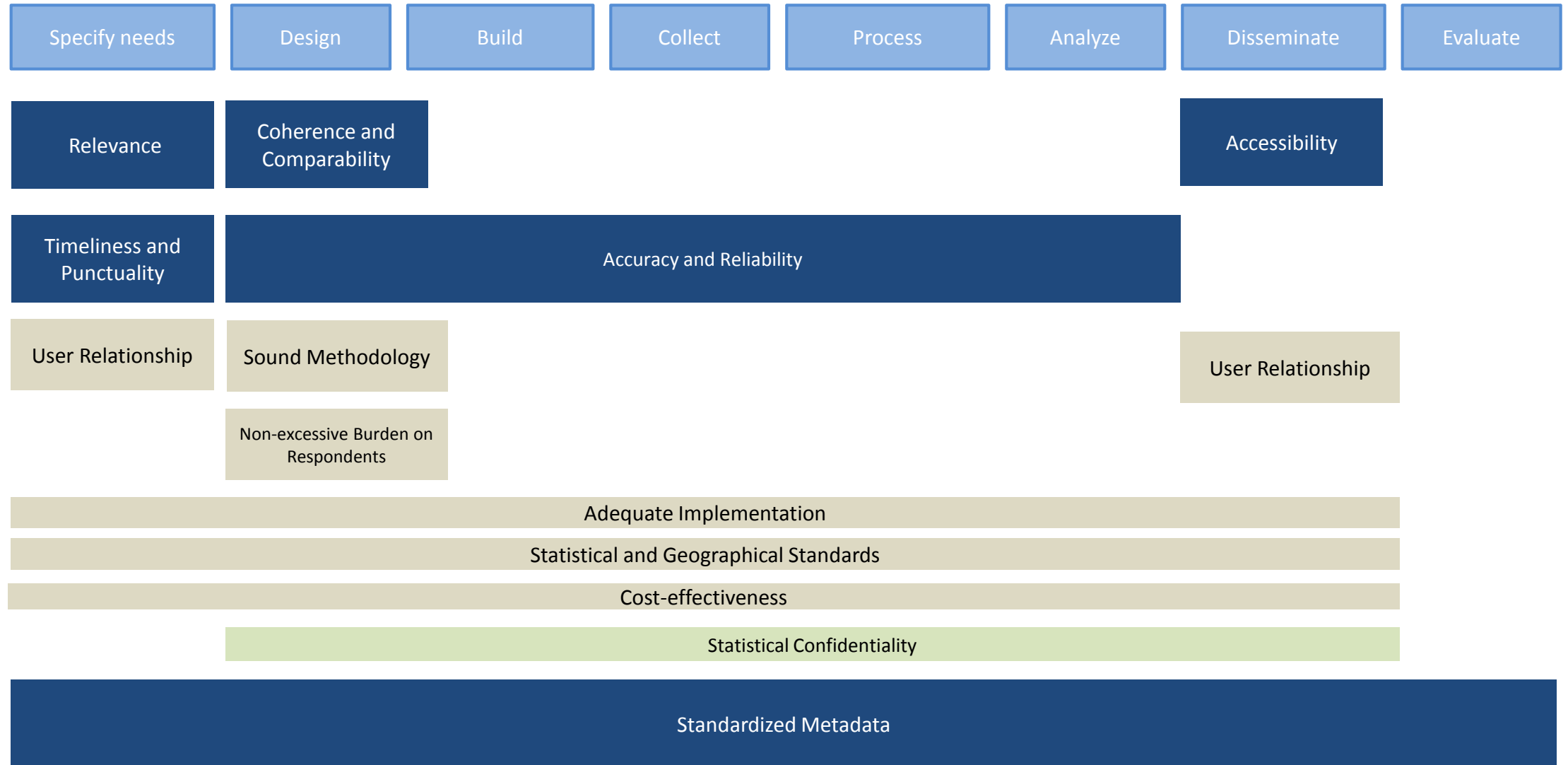© Open Group

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TOGAF Domains
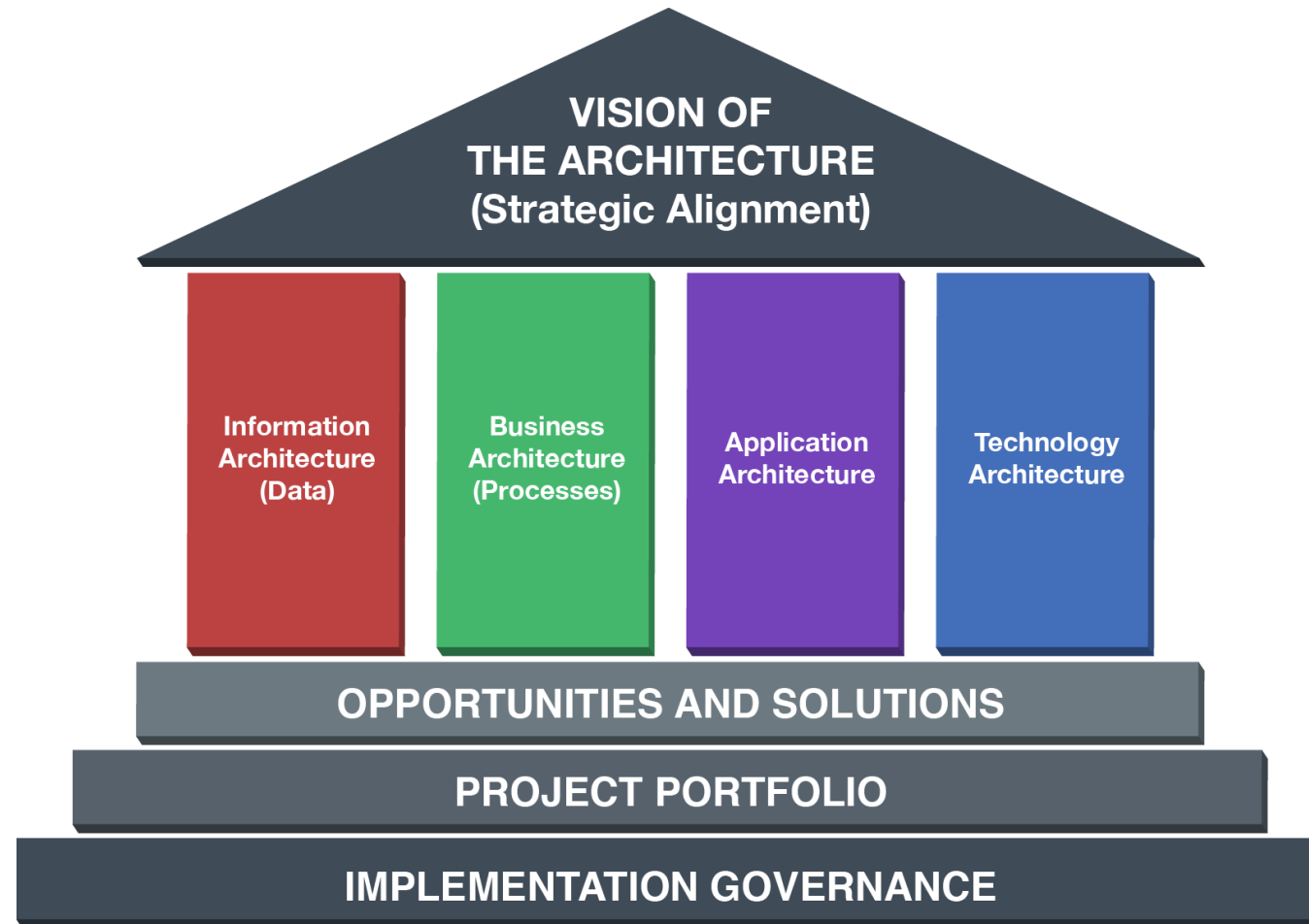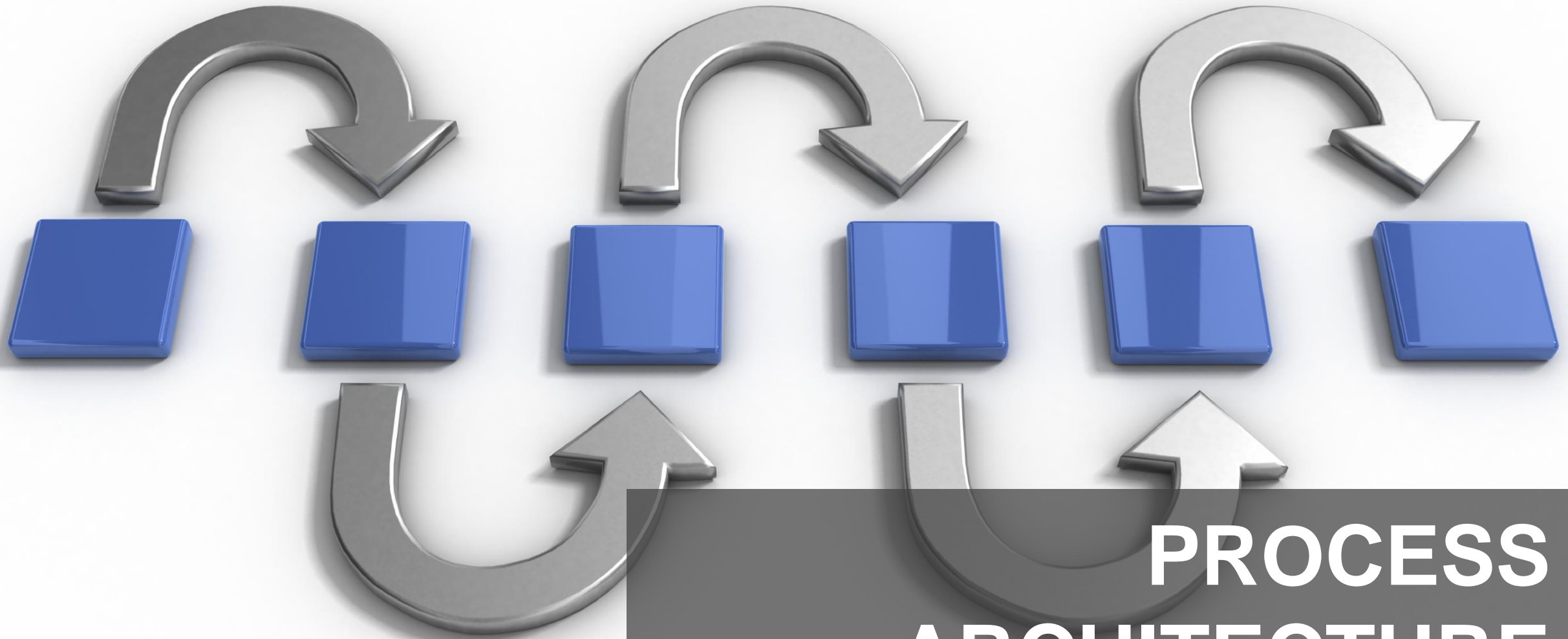
PROCESS ARCHITECTURE

Process Architecture

- The Generic Statistical Business Process Model (GSBPM) standardizes process description and decomposition.

Quality Principles can be mapped to the GSBPM

Specify needs	Design	Build	Collect	Process	Analyze	Disseminate	Evaluate

| Relevance | Coherence and Comparability | | | | | Accessibility | |

| Timeliness and Punctuality | Accuracy and Reliability | | | | | | |

| User Relationship | Sound Methodology | | | | | User Relationship | |

| | Non-excessive Burden on Respondents | | | | | | |

Adequate Implementation

Statistical and Geographical Standards

Cost-effectiveness

Statistical Confidentiality

Standardized Metadata

Process Architecture

- In addition to the chores, GSBPM proposes over-arching processes to manage:

1. Quality
2. Metadata
3. Data
4. Process data
5. Knowledge
6. Statistical framework
7. Statistical program
8. Providers
9. Customers

DATA ARCHITECTURE

Data Architecture

- *Data Management Capability Assessment Model* (DMCAM) provides the basis for*:*
  - Data Management.
  - Data Management Program.
  - Data Modeling.
  - Data Quality.
  - Data Control .

- *Generic Statistical Information Model* (GSIM) provides the specification and the taxonomy of the data domains. It is the link to GSBPM.

APPLICATION ARCHITECTURE

Application Architecture

- *Service Oriented Architecture* (SOA) provides the guide to software development (web services):

  – Representing a specific outcome.

  – Autonomous and reusable by different business processes.

- The *Common Statistical Production Architecture* (CSPA):

  – Covers the statistical production processes defined by the GSBPM.

  – Provides a link between GSBPM and GSIM.

TECHNOLOGY ARCHITECTURE

Technology Architecture

- Provides a framework to document hardware and system software.

- Facilitates standardization and evaluation of infrastructure risks.

- Implementing a common Technology Architecture creates opportunities for collaboration between institutions:

  – INEGI has a partnership established with Eurostat and ISTAT for the implementation of the SDMX standard.

WHAT'S NEXT?

Challenges of an EA approach

- Getting support from critical stakeholders.

- Communicating the concept of Quality Driven projects using EA to all levels of the organization.

- Gathering the human resources with the required skills.

- Developing and implementing a program that includes projects that show results in the short run.

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Challenges of an EA approach

- Materializing EA projects within the organization. For instance, implementing the GSBPM approach and recommendations in all production processes.

- Integrating statistical and geographical capabilities within the enterprise architecture framework.

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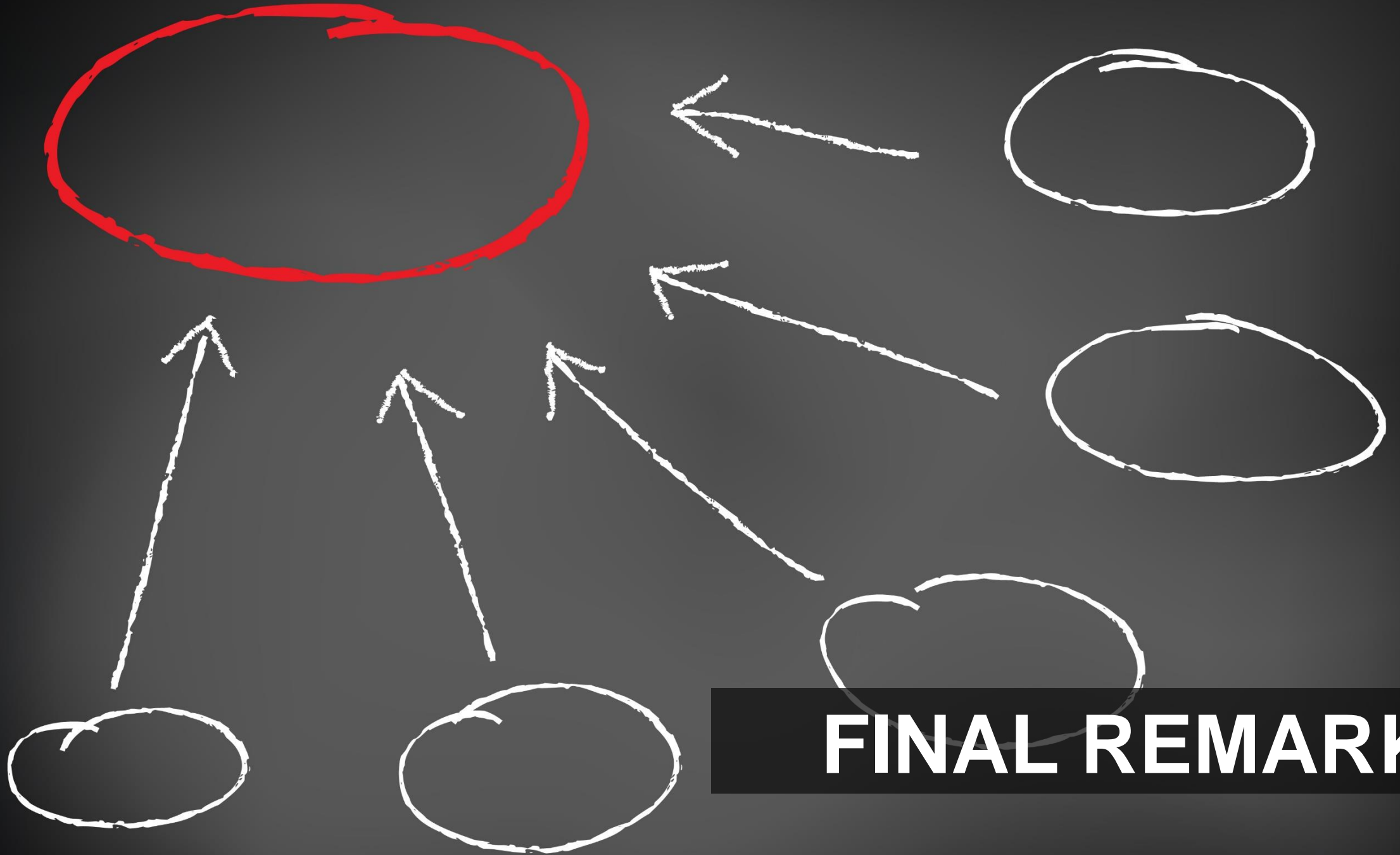
FINAL REMARKS

Final Remarks

- The National Statistical Offices need to redefine themselves in order to remain relevant.

- The establishment of an standardized framework streamlines the institutional actions for modernization.

- Frameworks developed by international organizations, such as UNECE GSBPM, promote standardization and a common language to implement and improve the production quality of institutions.

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Final Remarks

- International standardization facilitates partnerships with other institutions to develop new frameworks and tools.

- Enterprise Architecture can help integrate and harmonize conceptual frameworks.

- The approach is complex and requires specialized technical and human resources.

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