"Country case studies in Quality assurance of new and administrative data sources"
MANAGING ADMINISTRATIVE STATISTICS UNDER THE NATIONAL STRATEGY FOR THE DEVELOPMENT OF STATISTICS [NSDS]

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National Bureau of Statistics

Outline of presentation

- ❑ Introduction-About NSDS

- ❑ Vehicles for Data Production in Nigeria

- ❑ Key Players

- ❑ Data Quality Assurance

- ❑ Administrative Statistics in MDAs

- ❑ The Framework of Administrative Statistics in MDAs

- ❑ Model for Managing Administrative Statistics within the NSS/MDAs

- ❑ Methodology for Compiling Administrative Statistics

- ❑ Challenges

- ❑ Way Forward

- ❑ Conclusion

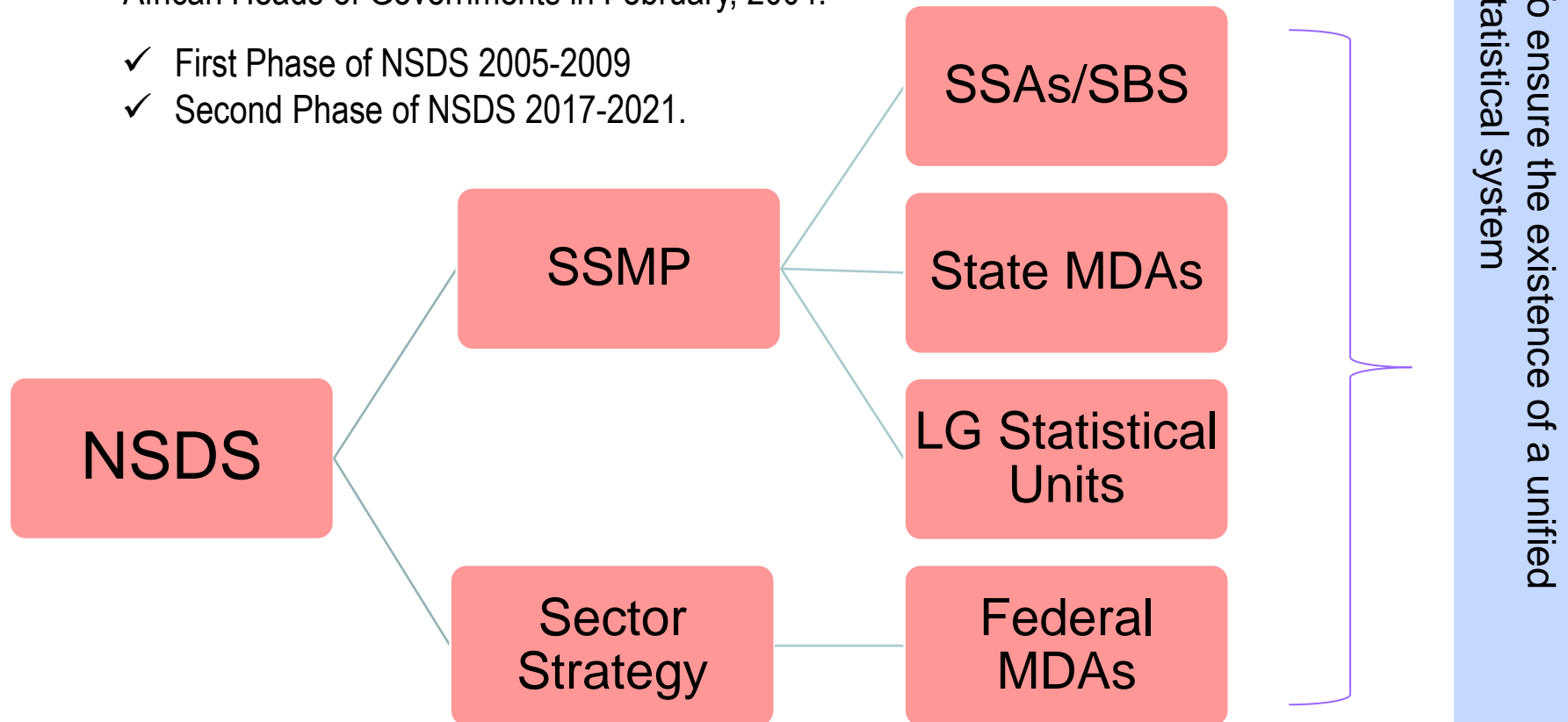National Bureau of Statistics

SECTION A

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About the NSDS

❑ About the National Strategy for the Development of Statistics (NSDS)

❖ National Strategy for the Development of Statistics (NSDS) – A Strategy for a holistic reform of the NSS in Nigeria
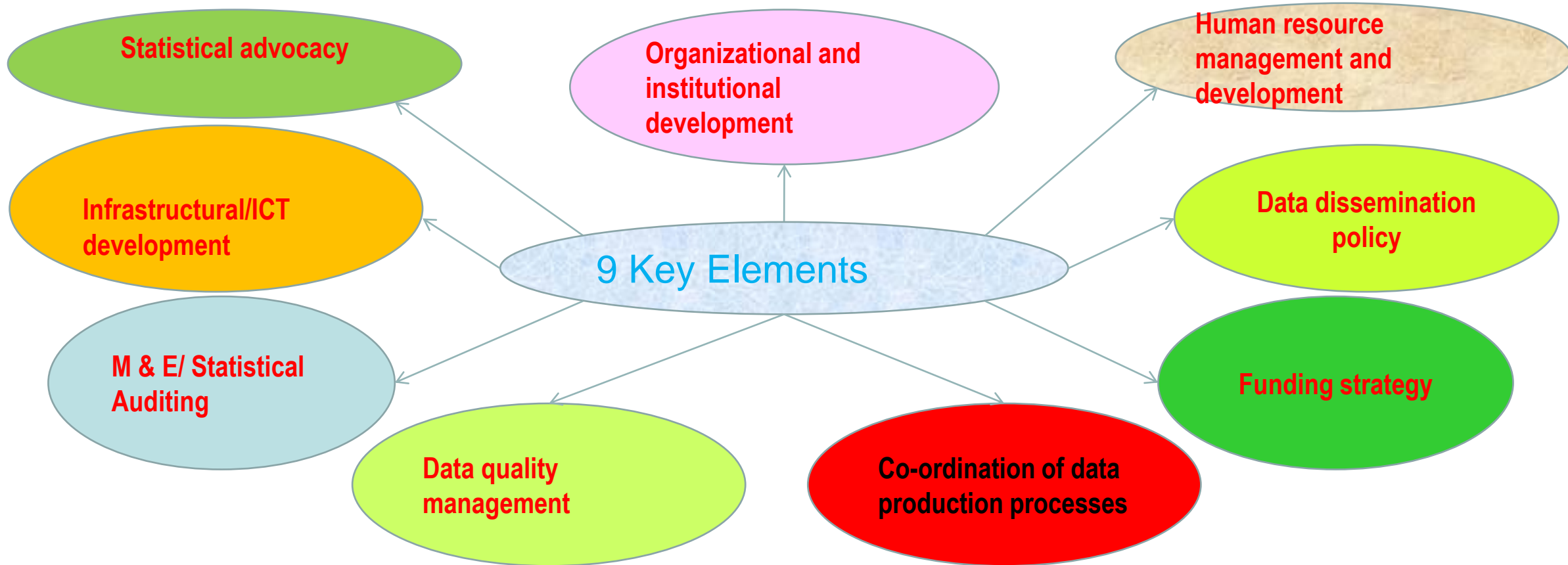
➢ Marrakech declaration for an Action plan for Statistics by African Heads of Governments in February, 2004.

✓ First Phase of NSDS 2005-2009
✓ Second Phase of NSDS 2017-2021.

NSDS → SSMP → SSAs/SBS, State MDAs, LG Statistical Units

NSDS → Sector Strategy → Federal MDAs

To ensure the existence of a unified statistical system

❖ **Key Elements of NSDS**

Statistical advocacy

Organizational and institutional development

Human resource management and development

Infrastructural/ICT development

9 Key Elements

Data dissemination policy

M & E/ Statistical Auditing

Funding strategy

Data quality management

Co-ordination of data production processes

❖ The key elements are deliberate efforts put in place to ensure reliable and timely production of administrative statistics

SECTION B

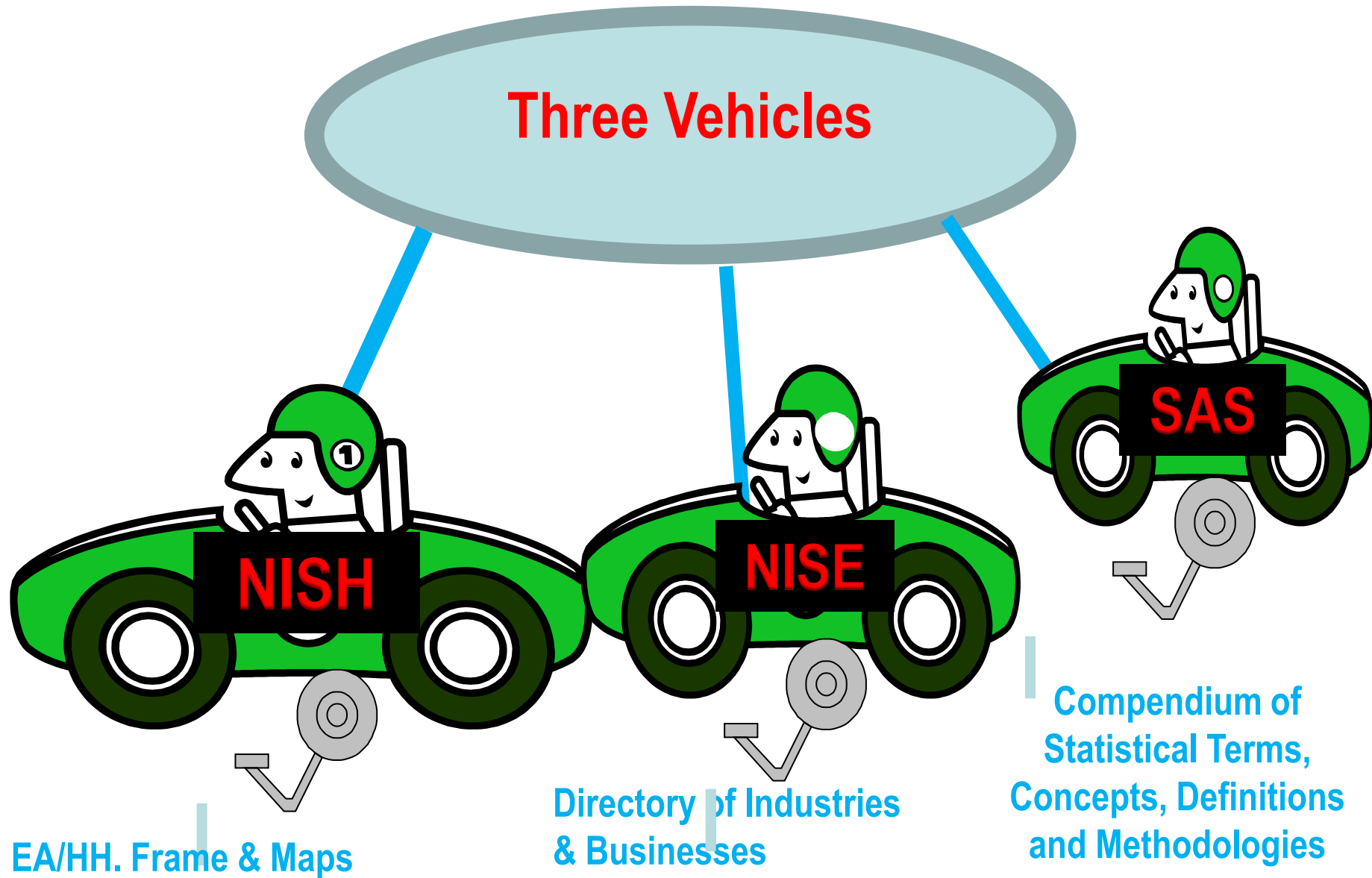**Vehicles for Data Production in Nigeria**

Three Vehicles

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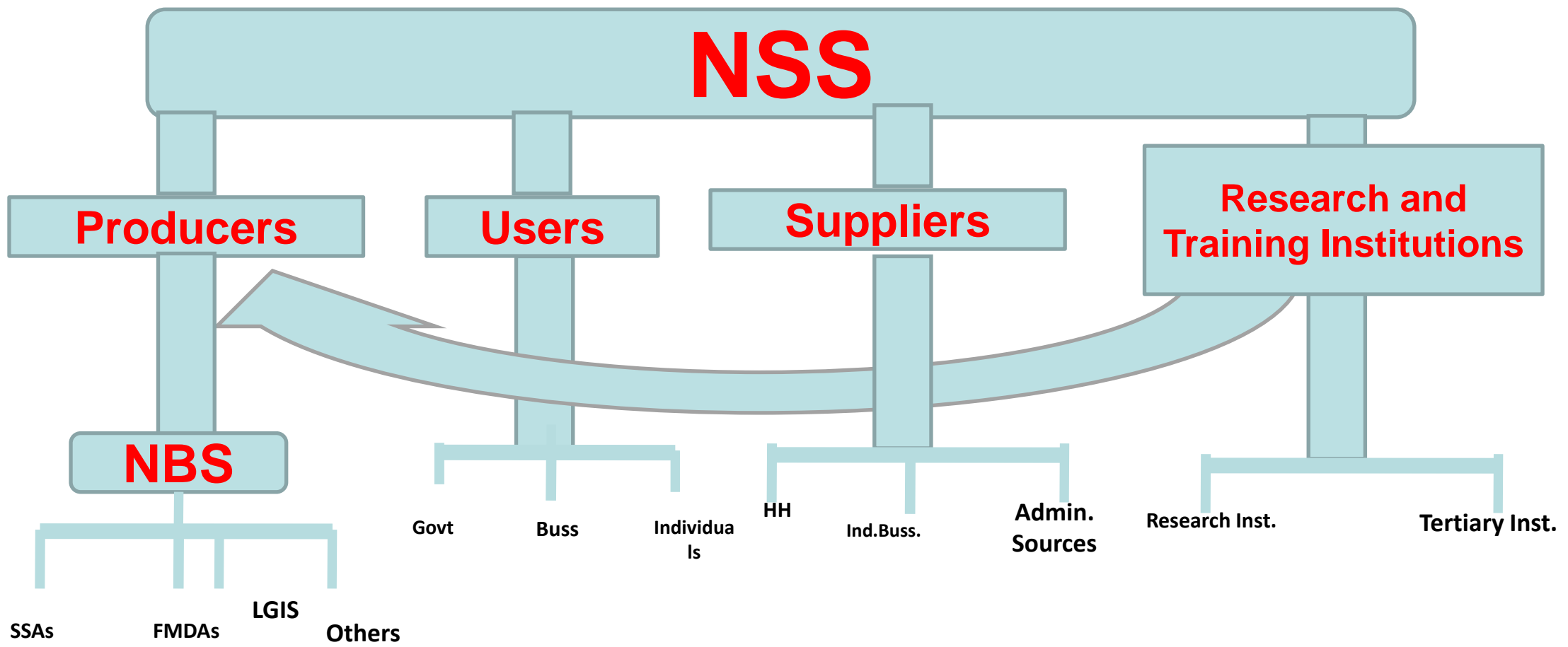
NISE

SAS

EA/HH. Frame & Maps

Directory of Industries & Businesses

Compendium of Statistical Terms, Concepts, Definitions and Methodologies

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SECTION C

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Key Players

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❑Key Players

By the 2007 Statistics Act, key Players in the NSS include

NSS

Producers
NBS
- SSAs
- FMDAs
- LGIS
- Others

Users
- Govt
- Buss
- Individuals

Suppliers
- HH
- Ind.Buss.
- Admin. Sources

Research and Training Institutions
- Research Inst.
- Tertiary Inst.

❖The Users: The User Community

Policy Makers

Private Organizations

The Academia and Researchers

International Organizations

The Media

General Public

SECTION D

Data Quality Assurance

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❑ What is Data Quality Assurance?

Data quality assurance is the process of identifying and eliminating anomalies by means of data profiling and cleansing. Data quality control is performed both before and after quality assurance and entails the means by which data usage for an application is controlled. Quality control restricts inputs before quality assurance is performed; then, after quality assurance is performed, information gathered from quality assurance guides the quality control process.

The quality control process is important for detecting duplicates, outliers, errors, and missing information. Some real-life data quality examples include:

- **Healthcare:** accurate, complete, and unique patient data is essential for facilitating risk management and fast and accurate billing.

- **Public Sector:** accurate, complete, and consistent data is essential to track the progress of current projects and proposed initiatives.

- **Financial Services:** Sensitive financial data must be identified and protected, reporting processes must be automated, and regulatory compliances must be remediated.

- **Manufacturing:** Accurate customer and vendor data must be maintained in order to track spending, reduce operational costs, and create alerts for quality assurance issues and maintenance needs.

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❏ How to Improve Data Quality

Data quality measures can be accomplished with data quality tools, which typically provide data quality management capabilities such as:

- **Data profiling** - The first step in the data quality improvement process is understanding your data. Data profiling is the initial assessment of the current state of the data sets.

- **Data Standardization** - Disparate data sets are conformed to a common data format.

- **Geocoding** - The description of a location is transformed into coordinates that conform to U.S. and worldwide geographic standards

- **Matching or Linking** - Data matching identifies and merges matching pieces of information in big data sets.

- **Data Quality Monitoring** - Frequent data quality checks are essential. Data quality software in combination with machine learning can automatically detect, report, and correct data variations based on predefined business rules and parameters.

- **Batch and Real time** - Once the data is initially cleansed, an effective data quality framework should be able to deploy the same rules and processes across all applications and data types at scale.

A good data quality service should provide a data quality dashboard that delivers a flexible user experience and can be tailored to the specific needs of the data quality stewards and data scientists running data quality oversight. These tools and solutions can provide data quality testing but cannot fix completely broken and incomplete data. A solid data management framework should be in place to develop, execute, and manage the policies, strategies, and programs that govern, secure, and enhance the value of data collected by an organization.

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❑ Data Quality Dimensions

By which metrics do we measure data quality? There are six main dimensions of data quality: accuracy, completeness, consistency, validity, uniqueness, and timeliness.

- ❖ **Accuracy:** The data should reflect actual, real-world scenarios; the measure of accuracy can be confirmed with a verifiable source.

- ❖ **Completeness:** Completeness is a measure of the data's ability to effectively deliver all the required values that are available.

- ❖ **Consistency:** Data consistency refers to the uniformity of data as it moves across networks and applications. The same data values stored in difference locations should not conflict with one another.

- ❖ **Validity:** Data should be collected according to defined business rules and parameters and should conform to the right format and fall within the right range.

- ❖ **Uniqueness:** Uniqueness ensures there are no duplications or overlapping of values across all data sets. Data cleansing and deduplication can help remedy a low uniqueness score.

- ❖ **Timeliness:** Timely data is data that is available when it is required. Data may be updated in real time to ensure that it is readily available and accessible.

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❑ Data Quality Oversight

Data quality oversight is just one component of data integrity. Data integrity refers to the process of making data useful to the organization. The four main components of data integrity include:

• <u>Data Integration</u>: data from disparate sources must be seamlessly integrated.

• <u>Data Quality:</u> Data must be complete, unique, valid, timely, consistent, and accurate.

• <u>Location Intelligence</u>: Location insights adds a layer of richness to data and makes it more actionable.

• <u>Data Enrichment:</u> Data enrichment adds a more complete, contextualized view of data by adding data from external sources, such as customer data, business data, location data, etc.

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SECTION E

Administrative Statistics in MDAs

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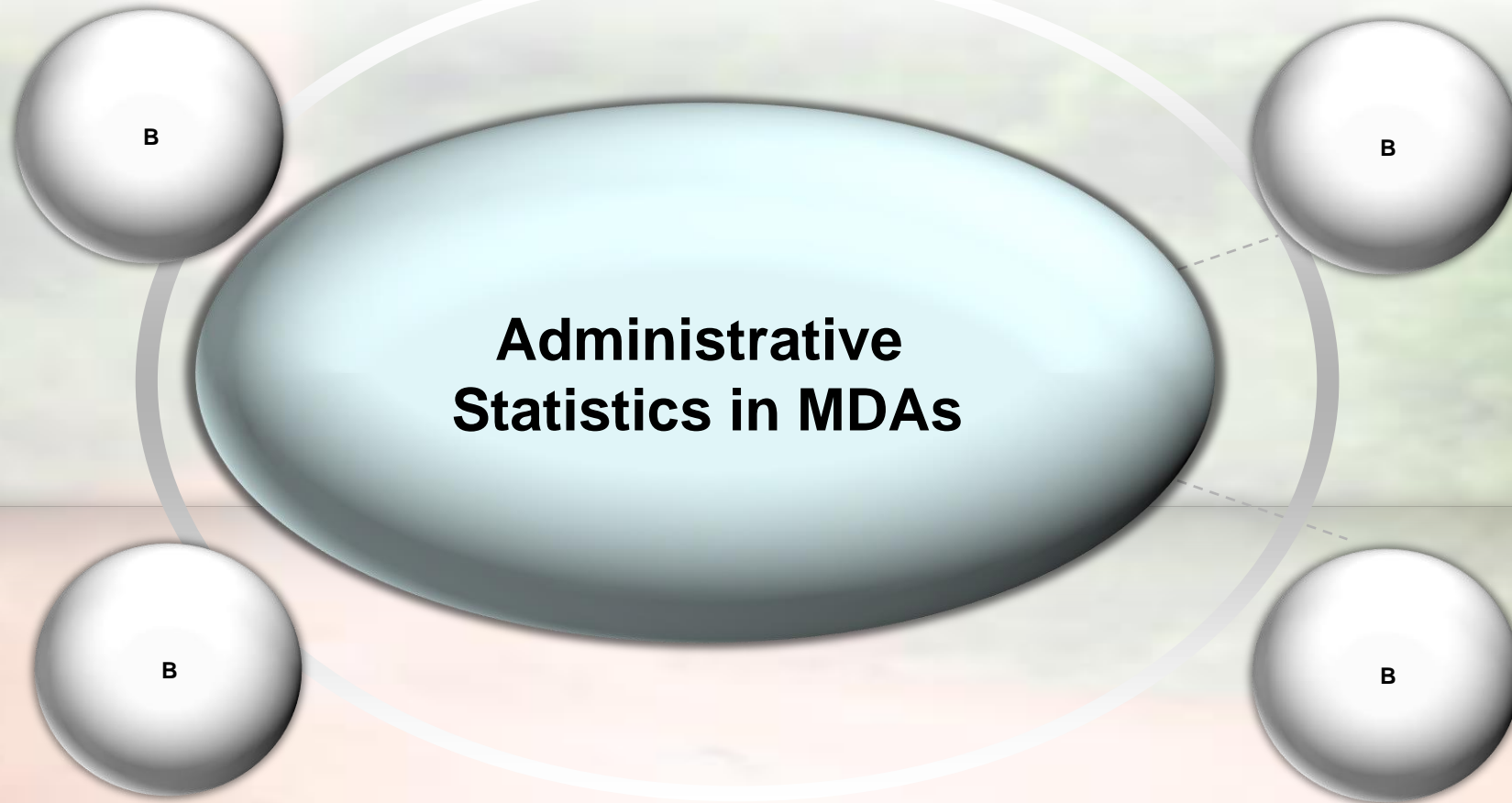
❖ Administrative data development and management for MDA would be considered adequately by providing unambiguous understanding of the;

  ➢ Definition of Administrative Statistics and Support Authorities

  ➢ Framework of Administrative Statistics

  ➢ Model of Administrative Statistics Information System

❑ Administrative Statistics…

❖ Definition:

➢ Administrative Statistics are statistics generated consciously or and unconsciously in the process of work.

➢ It is characterized by a seamless flow of records from all components in the organogram of an administrative entity.

➢ Every day, weeks or months work is done in MDAs with massive records being generated

➢ It is believed that these mass of data, if properly harnessed would provide over 90% of data required by data users involved in policy design, programme development and project monitoring and evaluation, academia and research.

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❑ Administrative Statistics…

Definition…

➢ Underdeveloped Systems of Administrative Statistics (SAS) in less developed countries is responsible for heavy emphasis on sample surveys and censuses.

➢ This is the direct opposite of what obtains in the more advanced Systems of Administrative Statistics of Europe and America where emphasis is less on surveys.

➢ A well-developed administrative statistics information system would guarantee orderliness in data flow with respect to collection, compilation analysis and dissemination in line with international best practice

❑ Administrative Statistics…

❖ Support authorities to administrative statistics compilation

➤ **STATISTICS ACT 2007**

- ✓ In the development of Administrative Statistics in MDAs, the Statistics Act 2007 plays an imperative role.

- ✓ The Act empowers Agencies to compile Administrative Statistics.

- ✓ Part vi, Sections 22-28 outlines the power of the Agencies to Obtain Information, sets out guidance on the Confidentially and Disclosure of the information obtained, Offences and Penalties of such persons who refuse to provide information.

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❏ Administrative Statistics…

❖ **Support authorities to administrative statistics compilation**

➤ **United Nations Fundamental Principles of Official Statistics**

  ✓ In addition to the statistics Act 2007, we must be guided by the dictates of the United Nations fundamental principles of official statistics in our efforts at administrative statistics compilation in MDAs.

  ✓ The UN Fundamental principles of official statistics include the following ten (10) broad outlines;

  i   Relevance, impartiality and equal access
  ii.   Professionalism
  iii. Accountability
  iv. Prevention and Miss use
  v.   Cost effectiveness
  vi. Confidentiality
  vii. Legislation

  viii.   National Coordination
  ix.   International coordination
  x.   International statistical cooperation
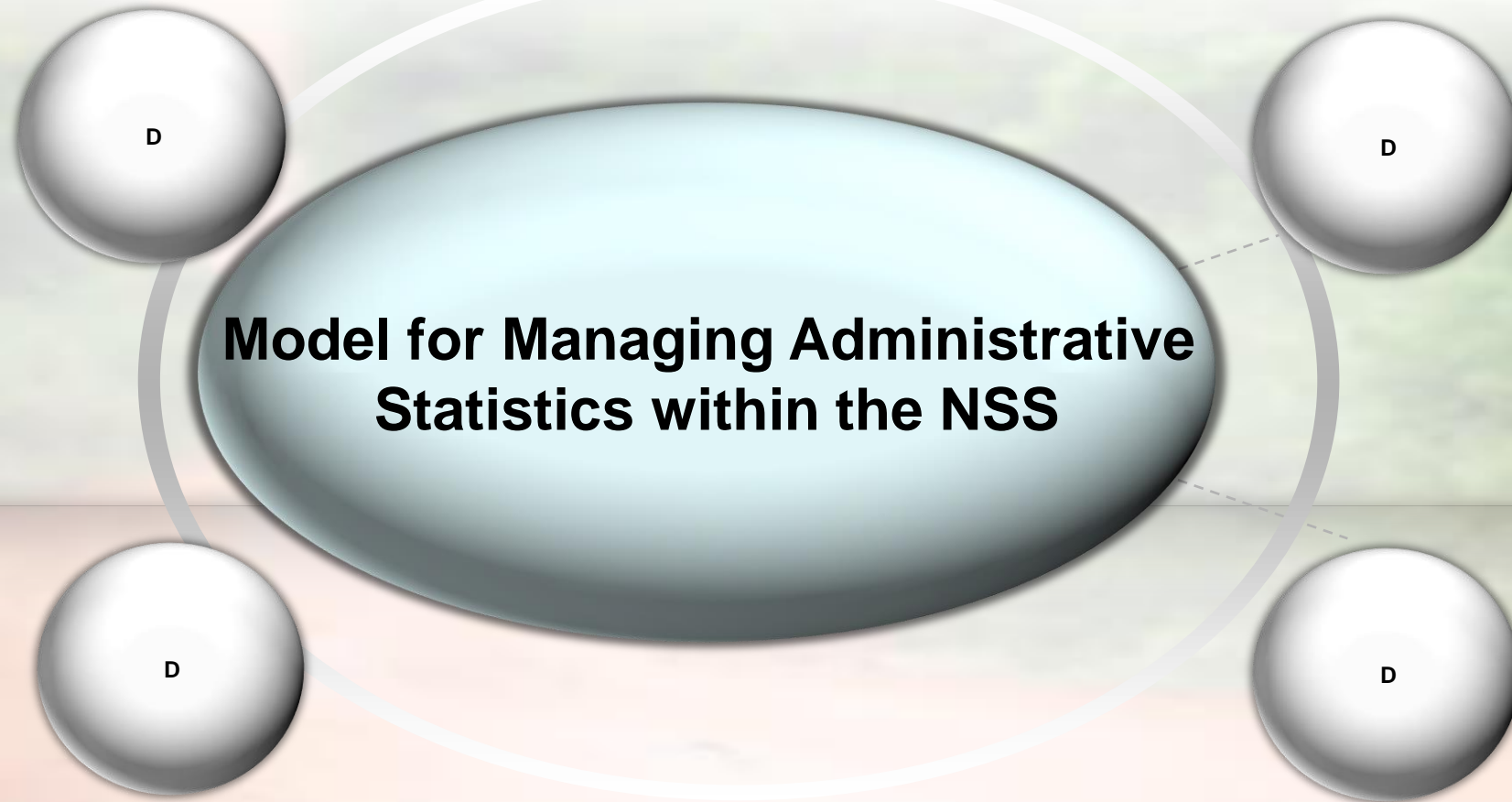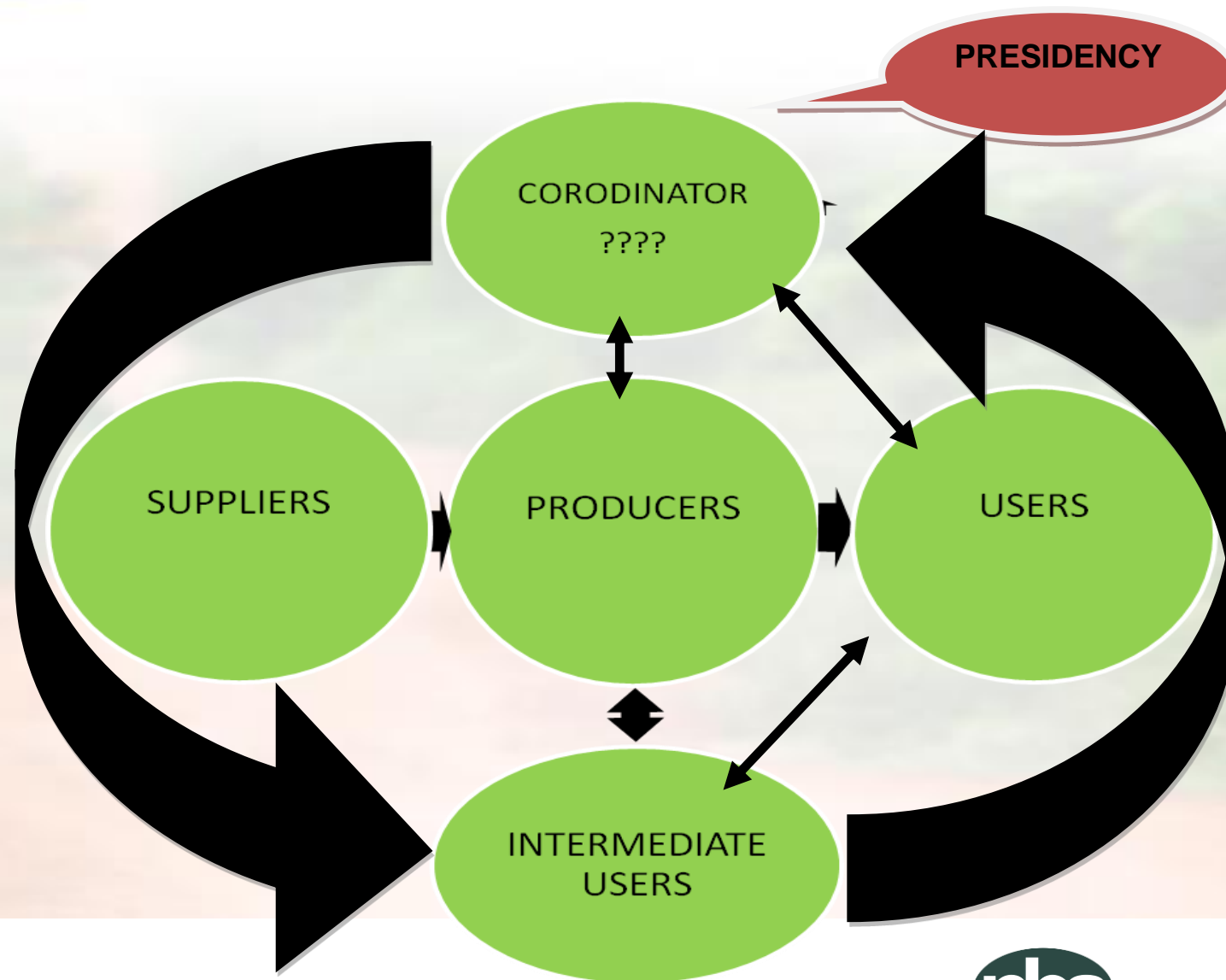
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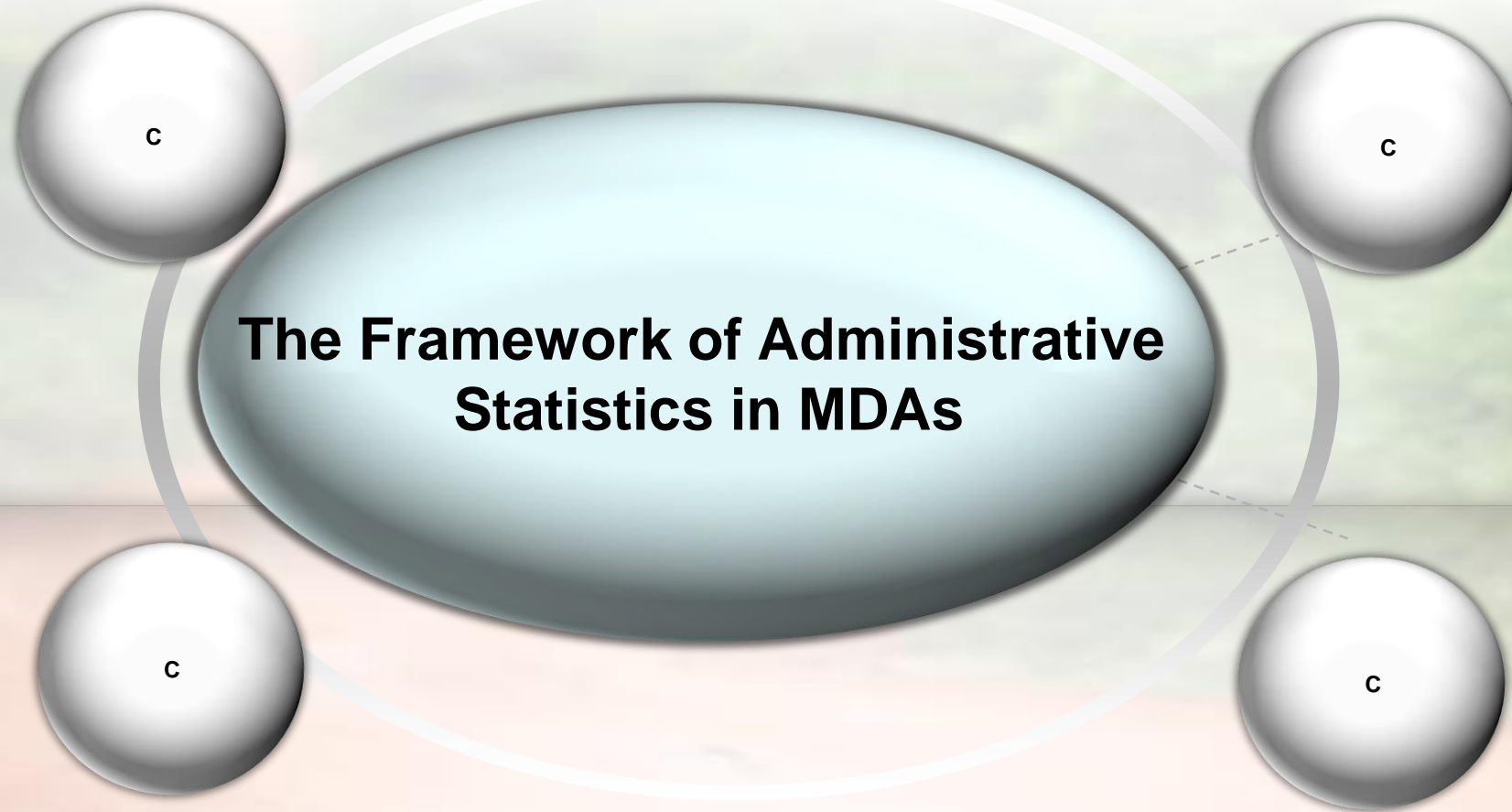
SECTION F

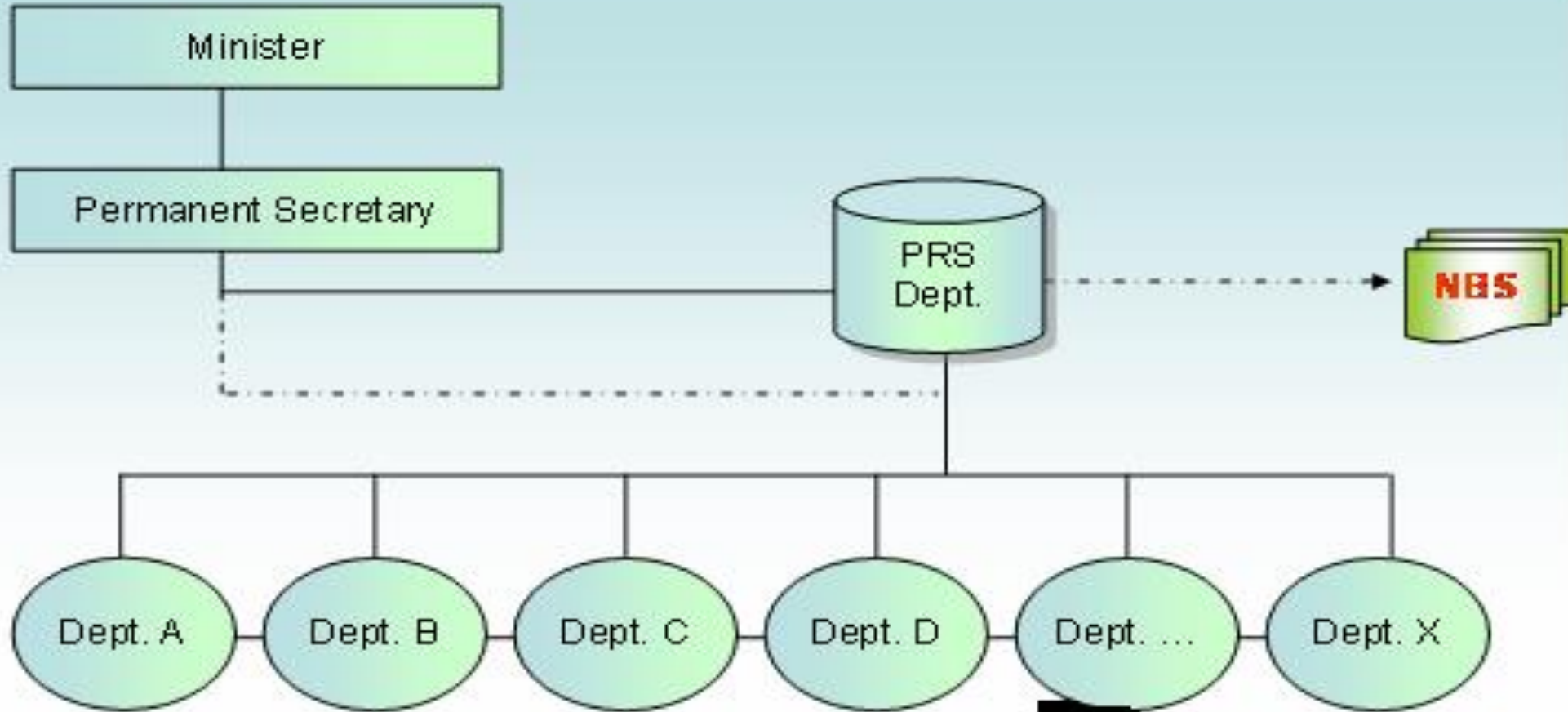The Framework of Administrative Statistics in MDAs
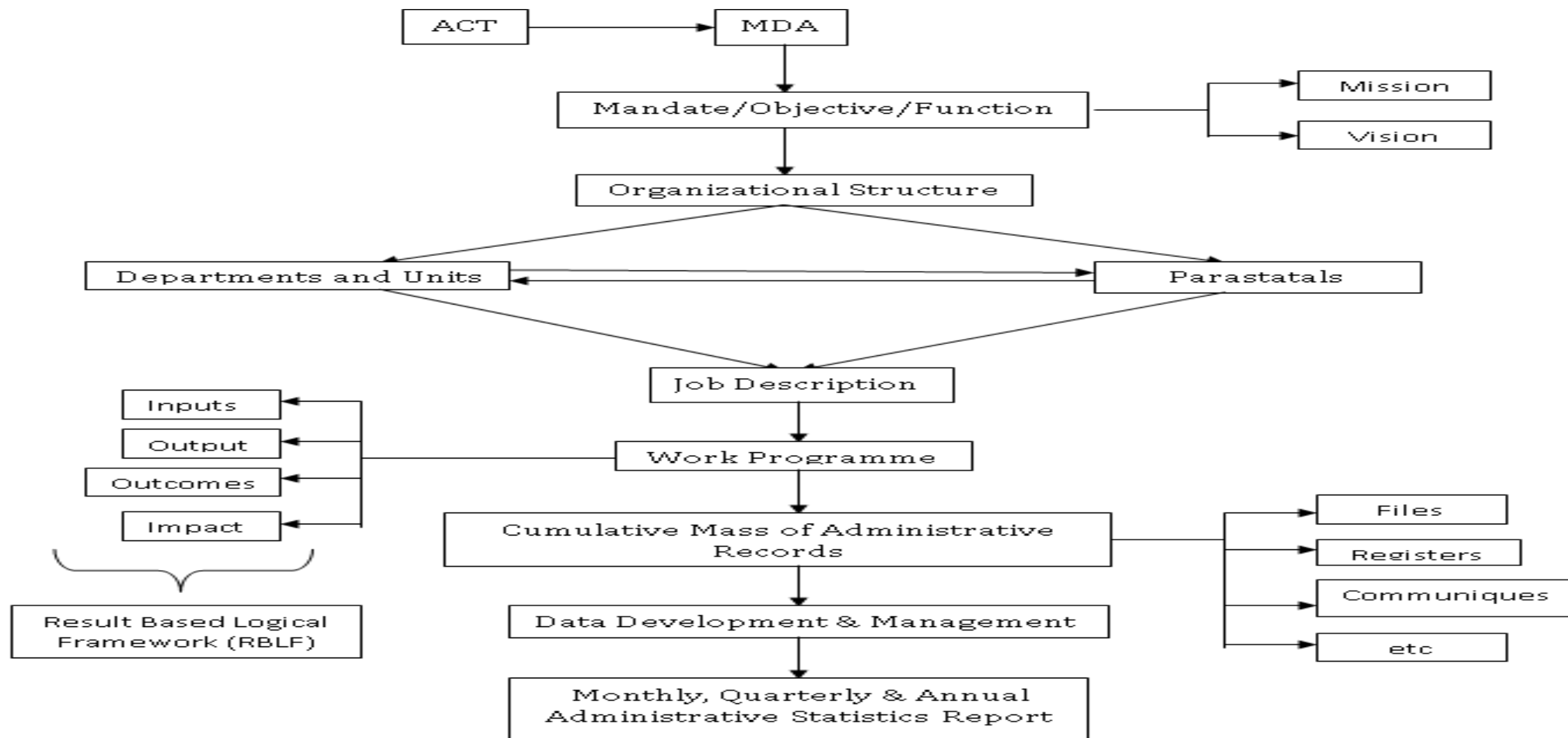
SECTION G

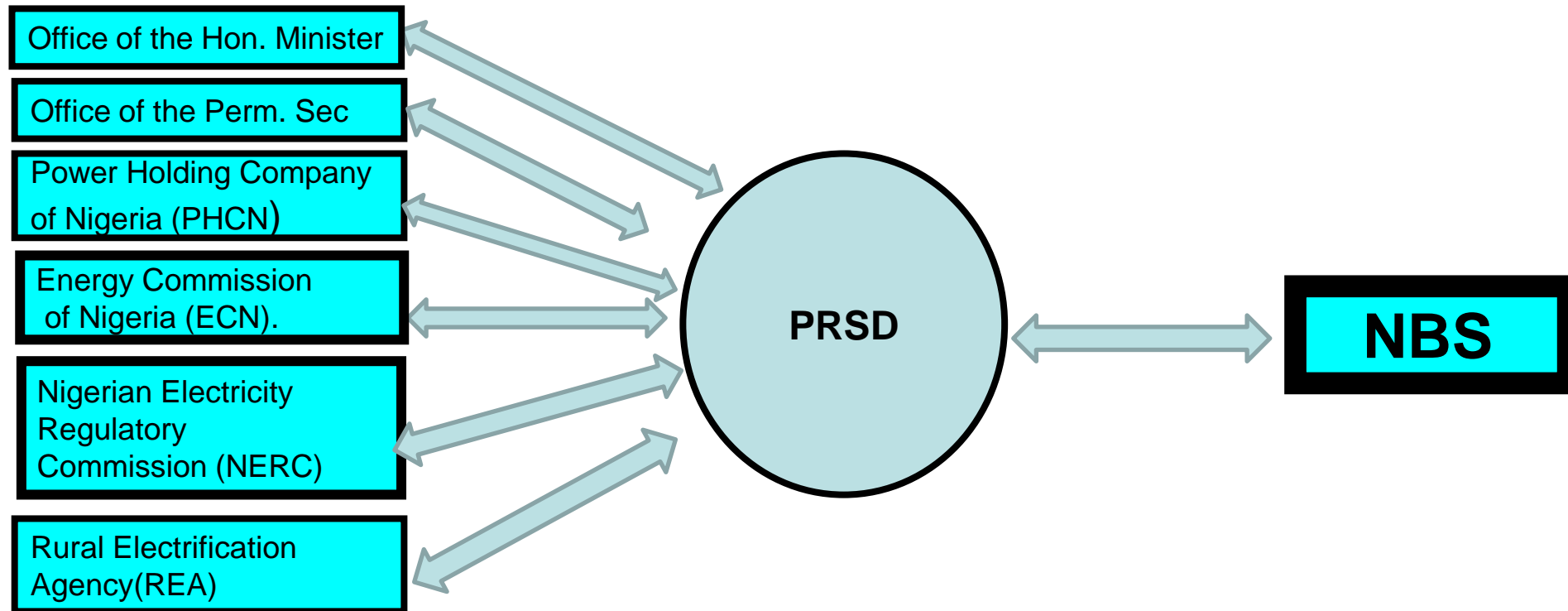**Model for Managing Administrative Statistics within the NSS**
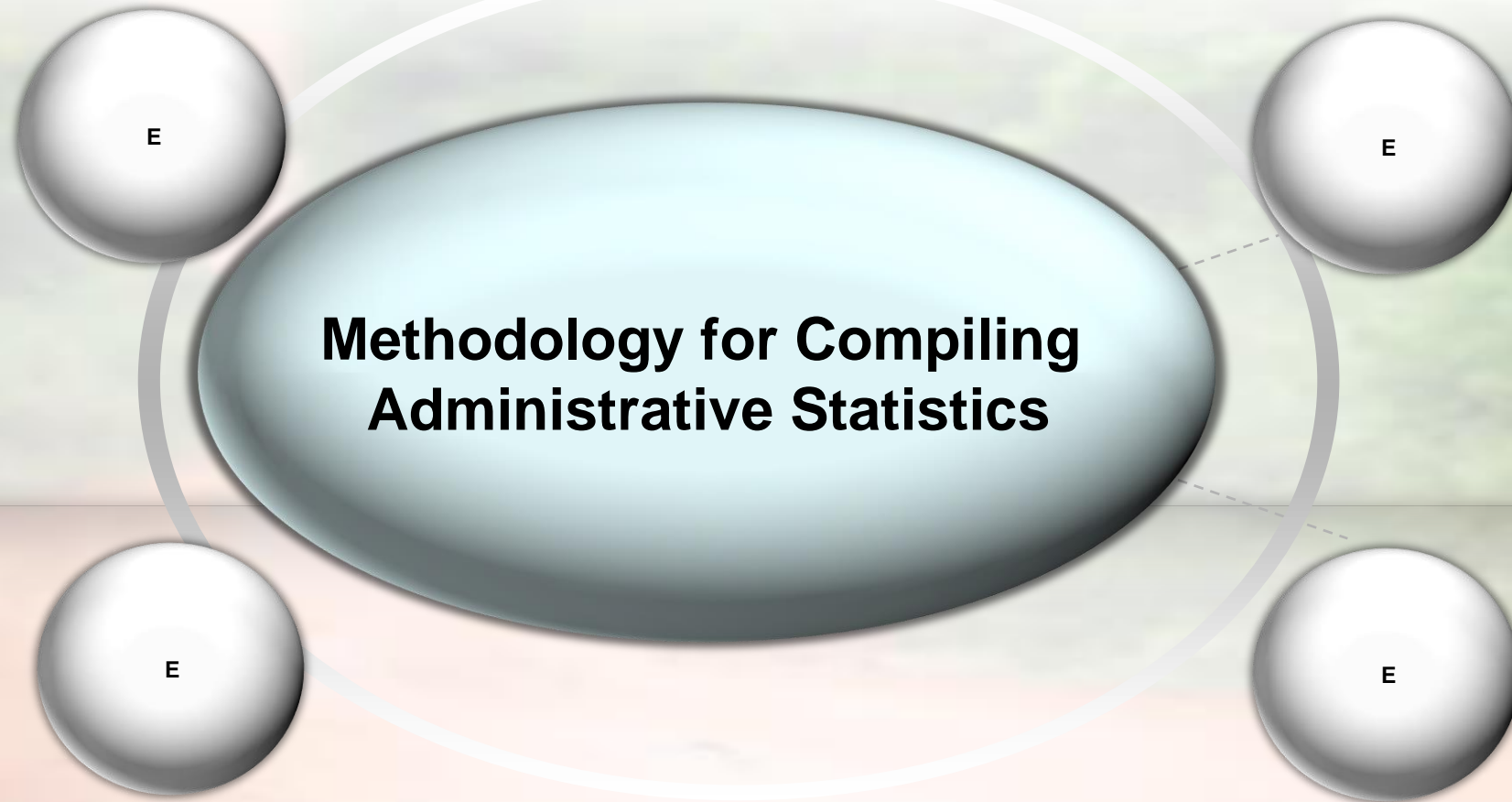
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Model for Managing Administrative Statistics within the MDA

✓ Management and Coordination of *Sectoral Statistics* within the Power Sector should take the form as illustrated below:

| Office of the Hon. Minister |

| Office of the Perm. Sec |

| Power Holding Company of Nigeria (PHCN) |

| Energy Commission of Nigeria (ECN). |

| Nigerian Electricity Regulatory Commission (NERC) |

| Rural Electrification Agency(REA) |

PRSD

NBS

SECTION H

Methodology for Compiling Administrative Statistics

❑ Methodology for Compiling Administrative Statistics

❖ The methodology for the compilation of Administrative Statistics in MDAs is not similar to conducting survey and censuses of Households or industries and Businesses.

❖ Effective production of administrative data from MDAs would have far reaching implications for:
  ➢ Planning Data Collection
    ✓ Advocacy
    ✓ Institutional Arrangements
    ✓ Technical Meetings
  ➢ Development of Instruments & Data collection
    ✓ Statistical Template Development in Electronic Format for Data Collection
    ✓ Deployment of Templates in the Respective Departments and Parastatals

- Data Processing and Analysis
  - Development of Data Entry Format for Data Capture
  - Production of Tabulation Formats
- Training of Officers
  - Focal Point Officers in every Department and Parastatals
- Development of Appropriate Database for Storage and Retrieval of Data Electronically
- ICT Infrastructure and Applications for Collection, Compilation, Processing, Analysis and Transmission
  - Hardware
  - Software
  - Communication/Transmission

❖ Expected Indicators from the Ministry

Matrix of key indicators by sources & units of measurement

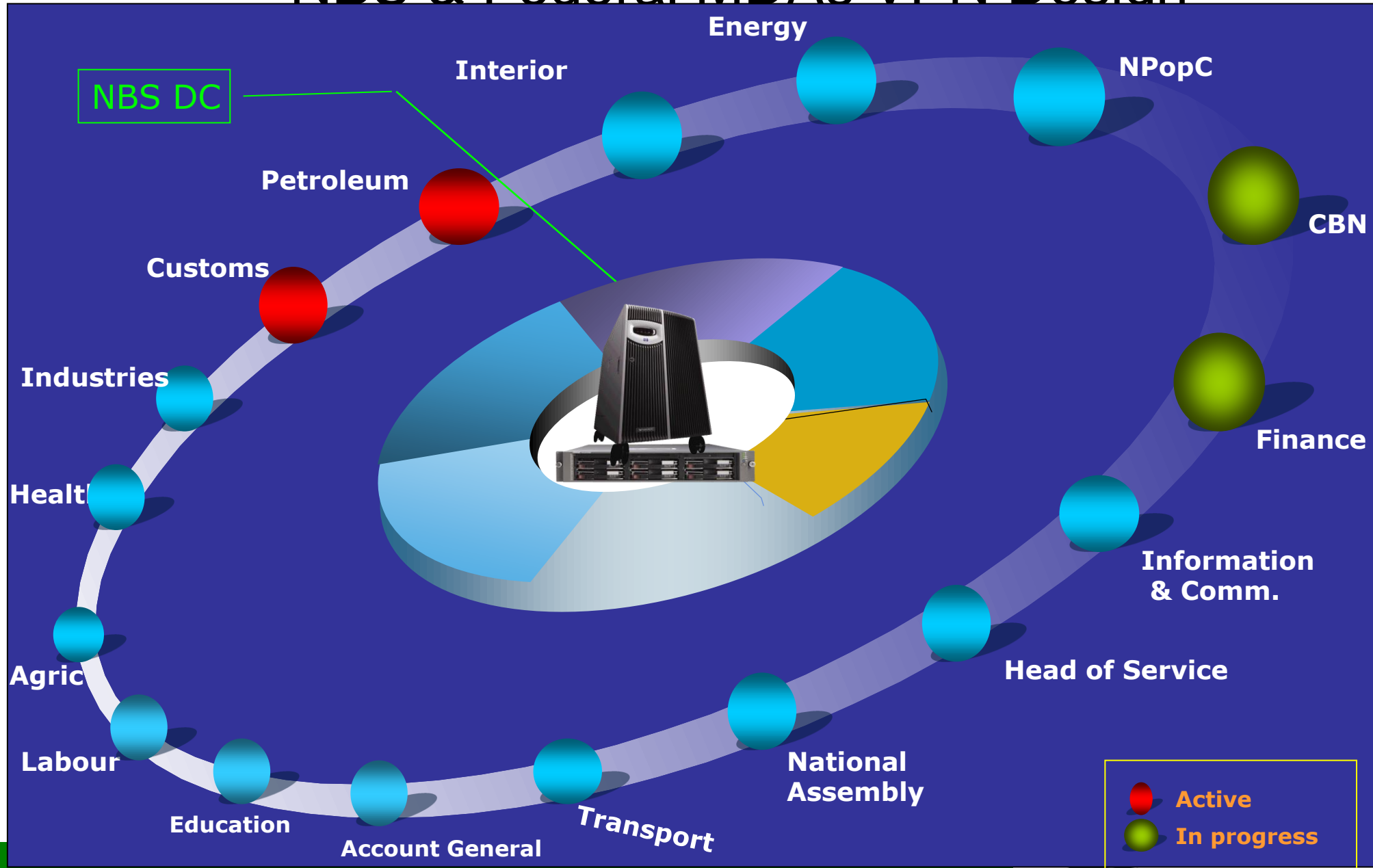| Sources of Data (Department)	Unit of Measurement	Data Sets	Selected key Indicators
Human Resource Development	Number	1) Staff Position by Department/ Unit & Parastatals	i. Sex (Male/Female) ii. Age Distribution iii. Marital Status iv. State of Origin/LGA v. Current Location by Posting vi. Highest Academic Attainment vii. Course of Study viii. Currently on Annual Leave ix. Currently on Study Leave x. Currently on Maternity Leave xi. Currently on Casual Leave xii. Retired xiii. Resigned/Left Service xiv. Dead

❖ Expected Indicators from the Ministry

Indicators using the International Standard Industrial Classification (ISIC) Code

➢ Recurrent expenditure of the Power Sector for the year

➢ Electricity, gas, steam and air conditioning supply

➢ Electric power generation, transmission and distribution

➢ Manufacture of gas; distribution of gaseous fuels through mains

➢ Steam and air conditioning supply

➢ Capital expenditure of the Power Sector for the year

➢ Total revenue generated

➢ Etc.

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NBS & Federal MDAs VPN Design

NBS DC

Energy
Interior
NPopC
Petroleum
CBN
Customs
Industries
Finance
Health
Information & Comm.
Agric
Head of Service
Labour
National Assembly
Education
Account General
Transport

Active
In progress

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National Data Centre domiciled in NBS

❖ Enhance quality data

❖ Enhance access to data

Communication Room

MDAs Server, UPS & Stabilizer Room

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❑Expectation from MDAs

❖ **MDAs**

➢ Executive Commitment to statistical development

➢ Development of strategic plan for the MDA (Sector Statistics Strategy)

➢ Well established Statistics Unit/Branch/Division

➢ Adequate statistical personnel

➢ Use of modern ICT Facilities

➢ Development of a system of Memorandum of Understanding (MOU) for effective collaboration

➢ Sector Consultative Committee on Statistics
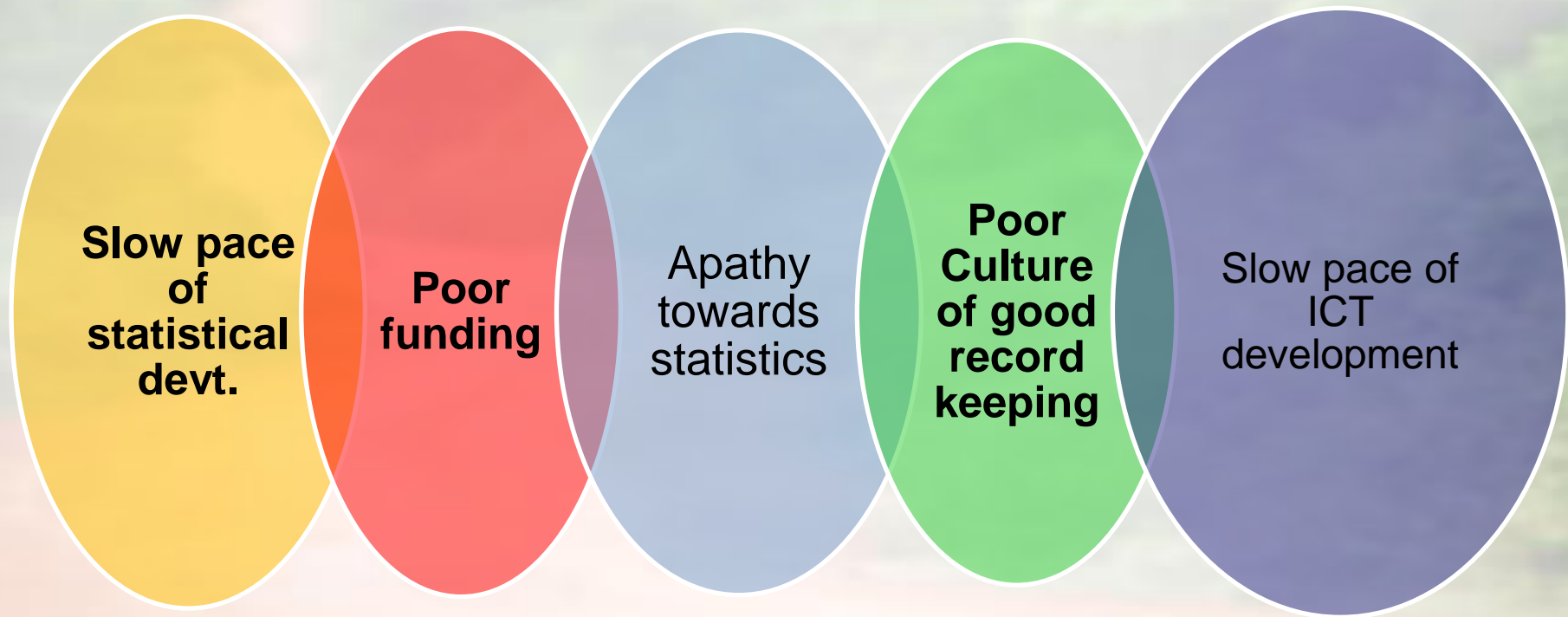
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❑Expectation from MDAs

❖ Arrangement for a Coordinated statistical production within an MDA

➢ PRSDs saddled with the responsibility of collecting both internal and sectoral Statistics within the Ministry

➢ MDA Coordinating Committee called **Intra-Ministerial Coordinating Committee on Statistics**

➢ Membership includes

✓ Director PRS in the Ministry,

✓ Representatives of Departments in the Ministry,

✓ Director PRSD of Parastatals and Extra- Ministerial Departments affiliated to the Ministry

SECTION I

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Challenges

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Slow pace of statistical devt.

Poor funding

Apathy towards statistics

Poor Culture of good record keeping

Slow pace of ICT development

SECTION J

Way Forward

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High political will to support statistical development

Provision of Adequate funding

Increase in statistical awareness
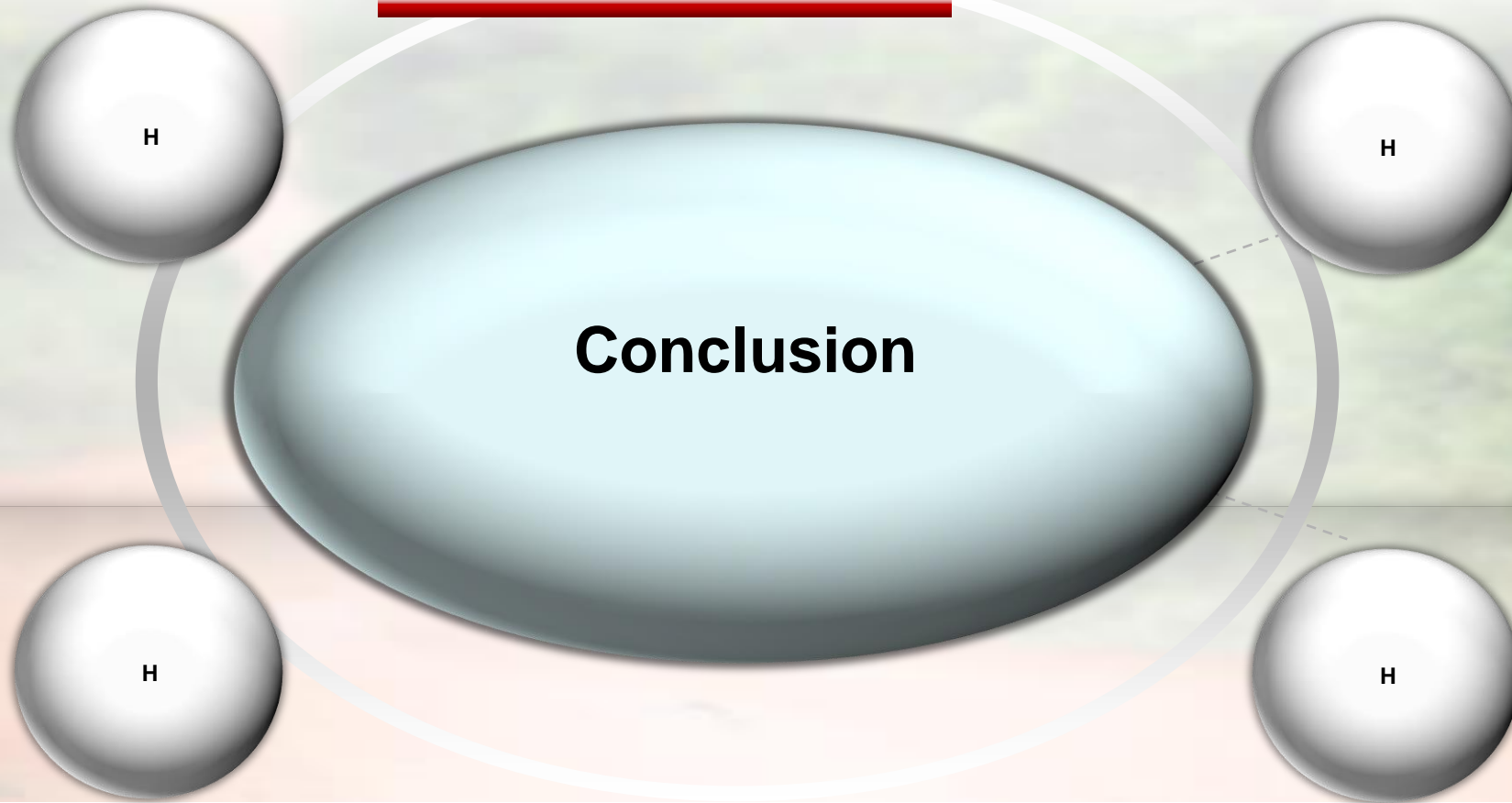
Embracing the culture of good records keeping

Establishment of Sector Statistics Strategy

Adequate training & capacity building

Use of modern ICT devices such CAPI

SECTION K

Conclusion

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❑Conclusion

❖ Administrative Statistics critical to statistical development in Nigeria

❖ Production of Administrative Statistics by MDAs must conform with the provision of the Compendium of Statistical Terms

❖ NSDS now in place as a veritable framework for the production of Administrative Statistics

❖ There is need for effective coordination of data production process in order to ensure the availability of robust and reliable statistical information

❖ More emphasis on SAS is critical in meeting the data requirement for any meaningful development and the monitoring of progress in achieving the SDGs in Nigeria

❖ All relevant stakeholders should be on board in the efforts towards placing Nigeria on the World Data Map

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THANK YOU