

**Regional Committee of United Nations Global Geospatial
Information Management for Africa**

Workshop on Integration of Geospatial and Statistical Information

Geocoding and the Global Statistical and Geospatial Framework for the Integration of Statistical (GSGF)



**United Nations
Economic Commission for Africa**

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UN-GGIM: AFRICA
UNITED NATIONS INITIATIVE ON
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT

Geocoding and GSGF

The five Principles of the Global Statistical Geospatial Framework

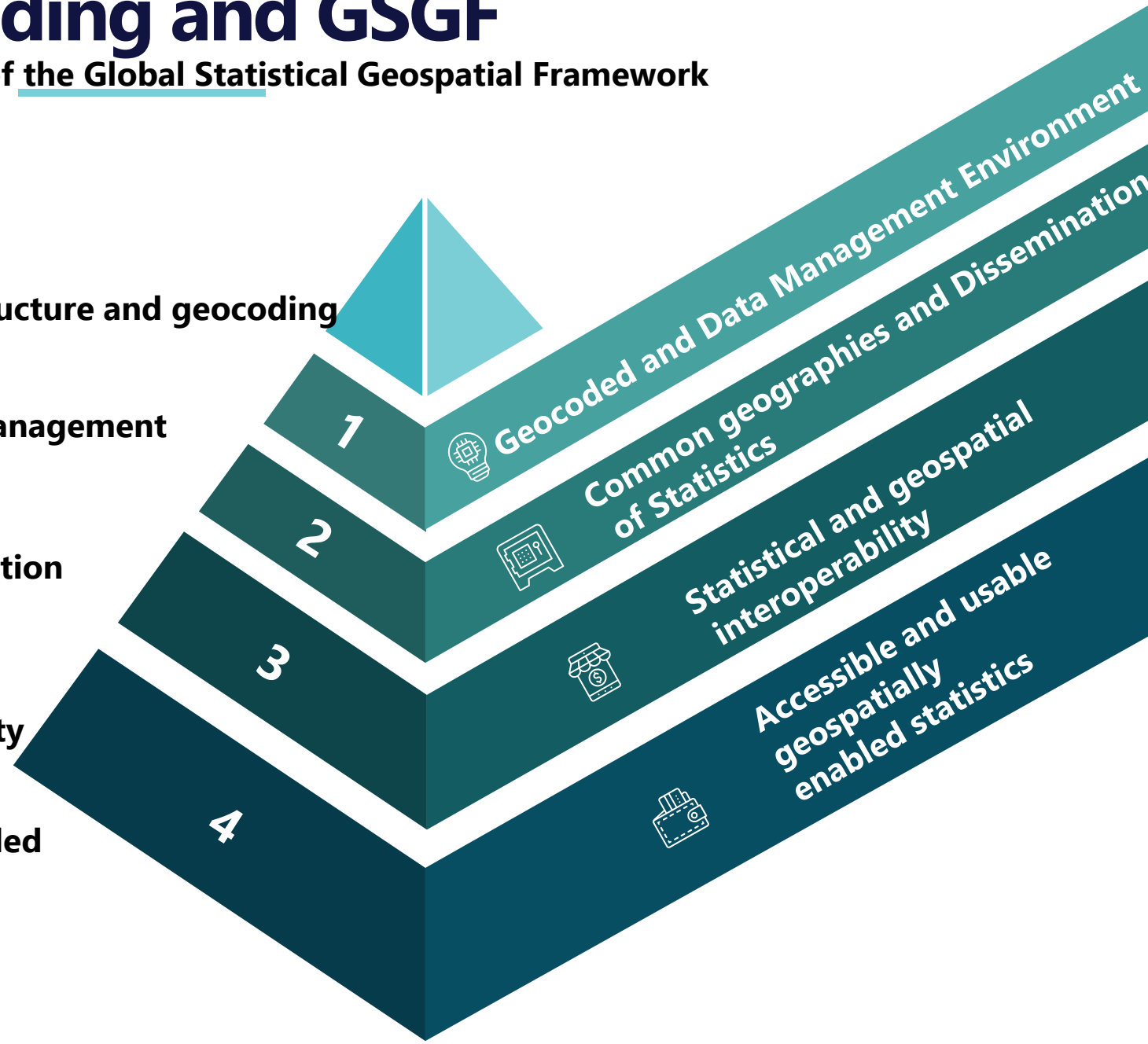
- Use of fundamental geospatial infrastructure and geocoding

- Geocoded unit record data in a data management environment

- Common geographies for the dissemination of statistics

- Statistical and geospatial interoperability

- Accessible and usable geospatially enabled statistics



Implementation of GSGF

Principle 1: Use of fundamental geospatial infrastructure and geocoding

And

Principle 2: Geocoded unit record data in a data management environment

Aggregation of data for larger geographies is simplified through storage of a unique identifier or code for a small area geography or standard grid cell for each unit record

Address, property, building, and location information are accurate and consistent, meeting country-level agreed standards and good practices

Geocoding results are as accurate and consistent as possible using common approaches or systems

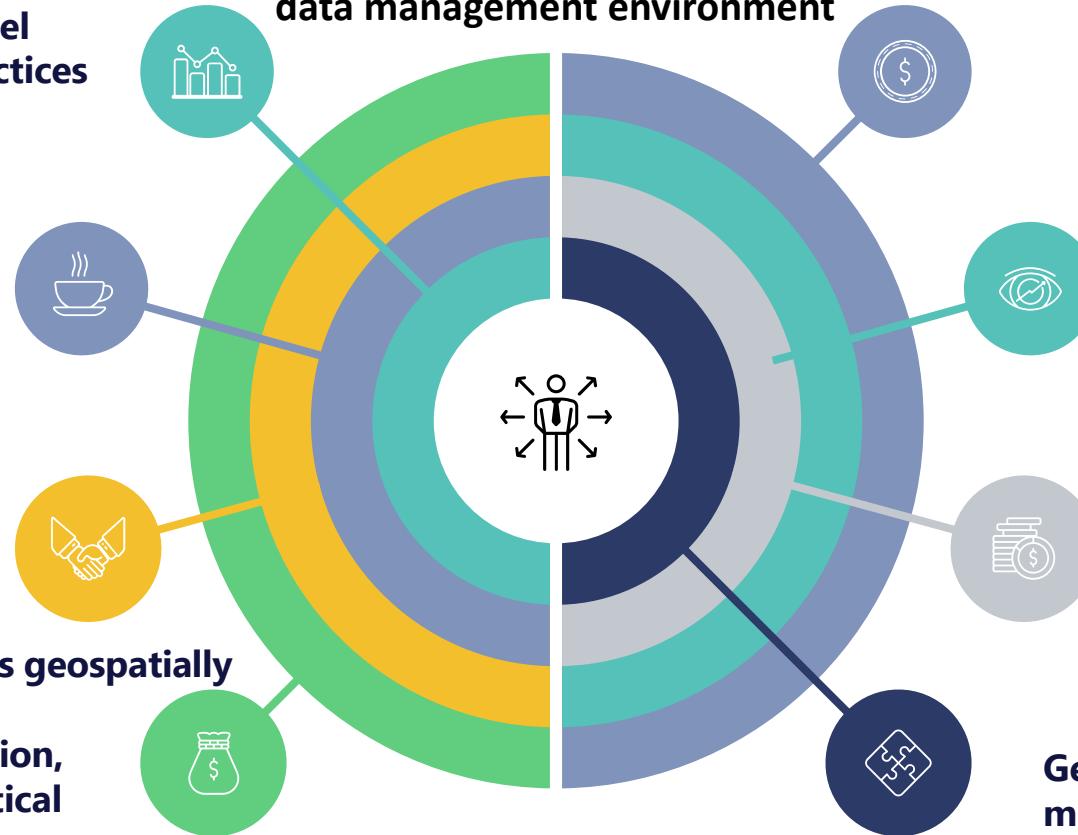
Any geocoding issues are consistently managed through application of standardized approaches

All statistical microdata is geospatially enabled for flexible use in analysis, visualization, dissemination and statistical data integration processes

Adaptation to changes to existing geographies or to allow compilation of data for new geographies is enabled

**Data can be effectively managed, including the protection of privacy and confidentiality
Clear data maintenance and custodianship roles are defined**

Geocoded information and metadata are consistent, interpretable and systematically maintained



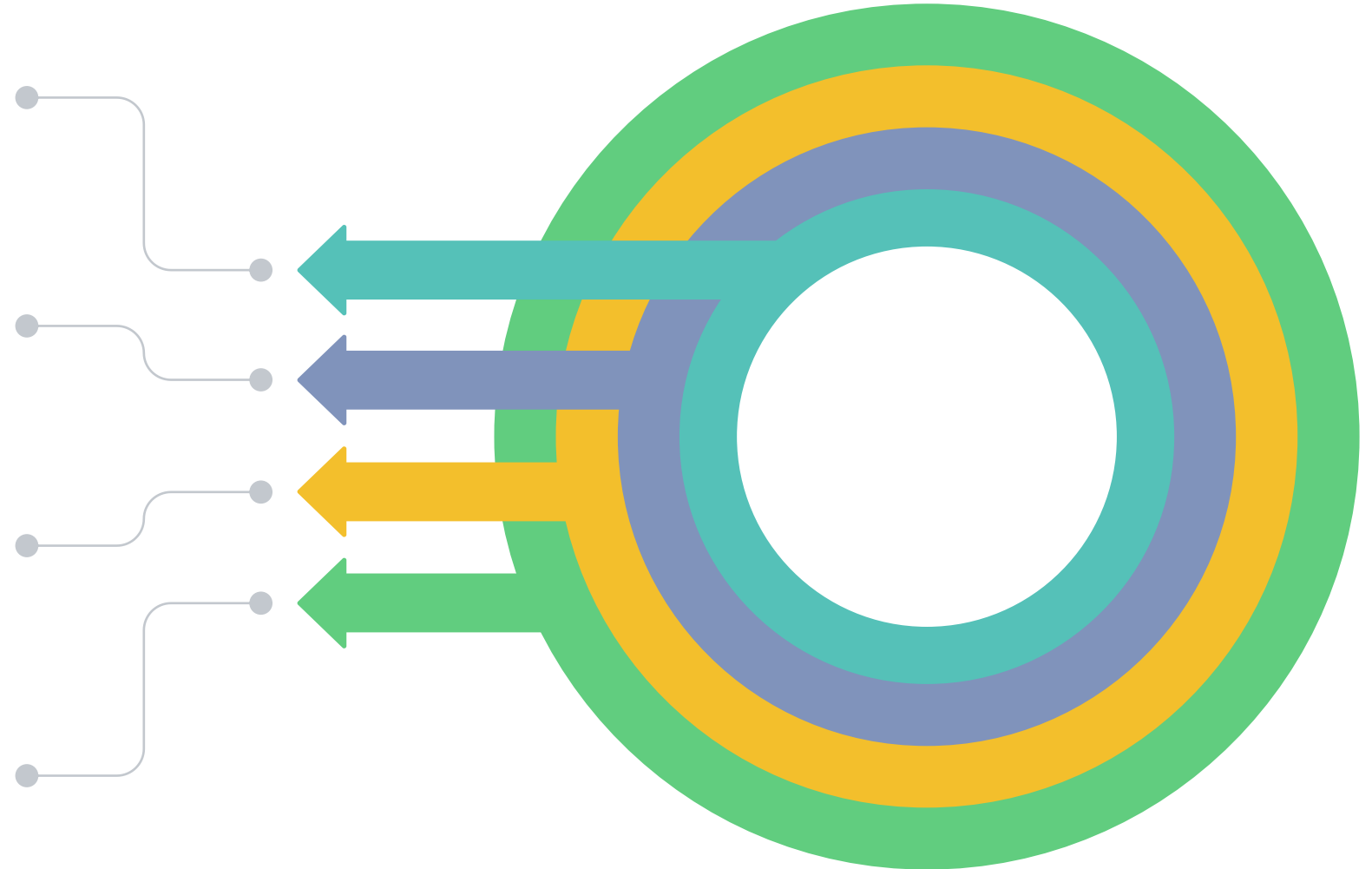
Geocoding: Principle 1: Use of Fundamental Geospatial Infrastructure and Geocoding

Creating a basic geospatial infrastructure is using standards, data models and the harmonization of data content.

Provides strong support for a point-based foundation for statistics in Africa, based on fundamental data from National Spatial Data Infrastructures (NSDIs)

The concept of Fundamental data is important in addressing data needs

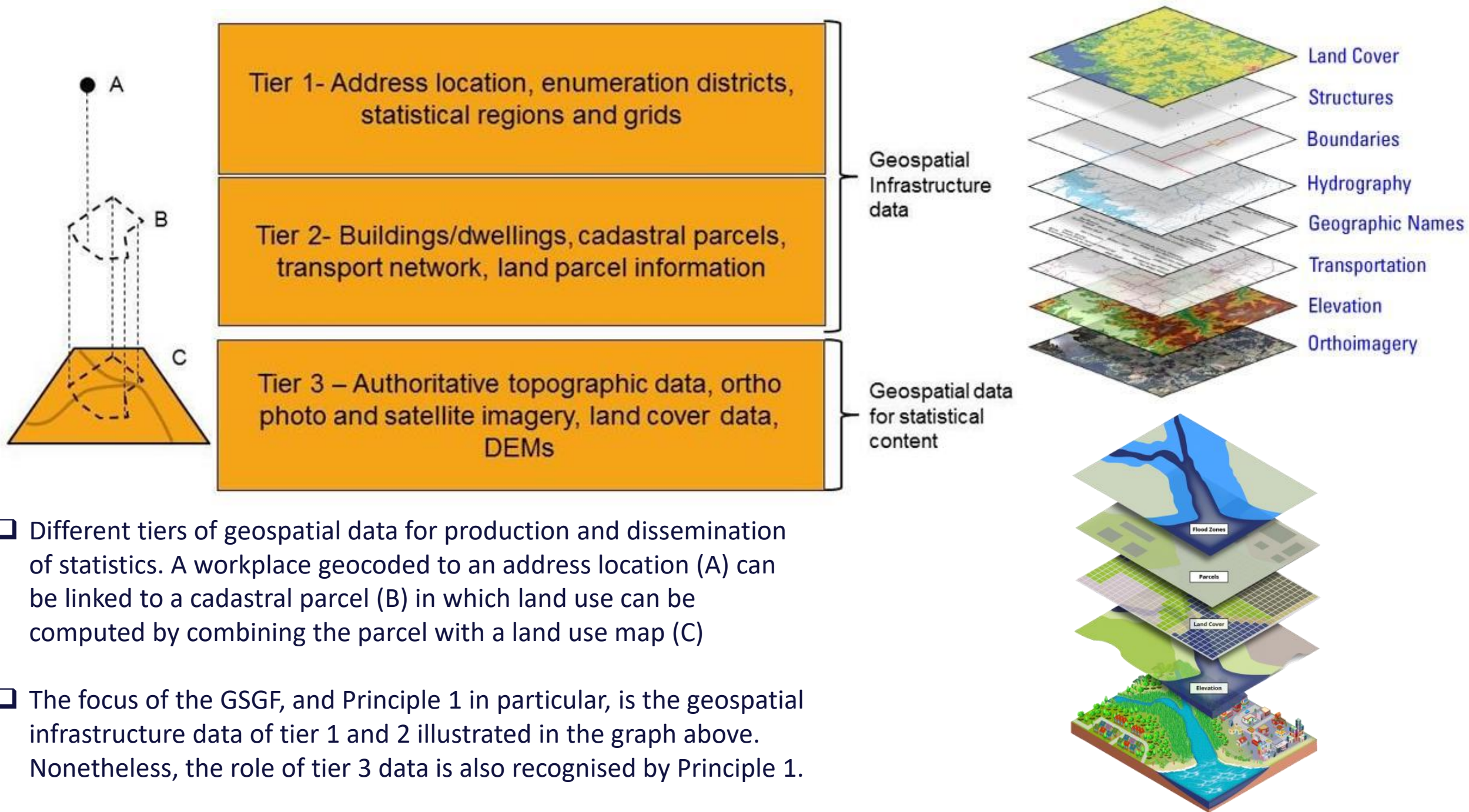
The basic geospatial infrastructure required by the GSGF in an African setting mainly represents efforts undertaken to execute the UN: GGIM-Africa directives. The primary aim is to make the national geospatial data sets held by the public sector fully accessible and shared.



UN-GGIM Fundamental data	UN-GGIM: África Fundamental Data	UN-GGIM: Africa Thematic Data
Geographical names	Geographical names	-
Addresses	Addresses	Addresses
Functional areas	Administrative Units, Statistical Units + Area management	-
Buildings and settlements	Buildings	Buildings
Land parcels	Cadastral parcels	Cadastral parcels
Transport networks	Transport networks	-
Elevation/Depths	Elevation	-
Population distribution	-	-
Land cover/land use	Land cover/land use	-
Geology and soils	-	-
Physical infrastructure	Basic services, utility and governmental services	-
Water	Hydrography	-
Orth imagery	Orth imagery	-



Global Fundamental data, fundamental and thematic data and reference data for a point-based foundation of statistics



- ❑ Different tiers of geospatial data for production and dissemination of statistics. A workplace geocoded to an address location (A) can be linked to a cadastral parcel (B) in which land use can be computed by combining the parcel with a land use map (C)
- ❑ The focus of the GSGF, and Principle 1 in particular, is the geospatial infrastructure data of tier 1 and 2 illustrated in the graph above. Nonetheless, the role of tier 3 data is also recognised by Principle 1.

Point-based

Unit record data

Id	Pop
A	1
B	1
C	1
C	1

Location data

Id	X	Y
A	1	3
B	2	2
C	3	1



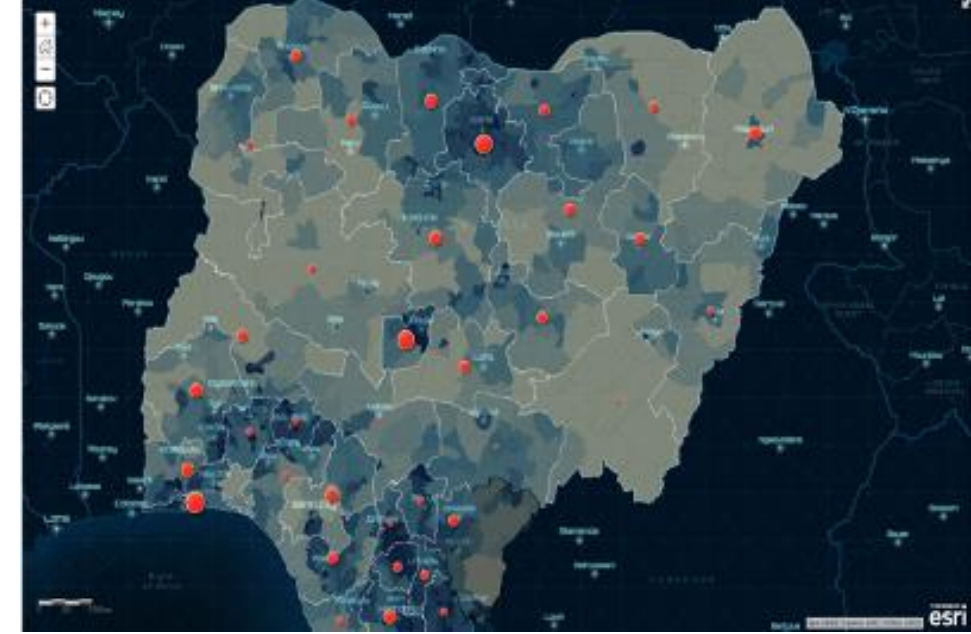
Area-based

Unit record data

Id	Pop
A	1
A	1
A	1
A	1

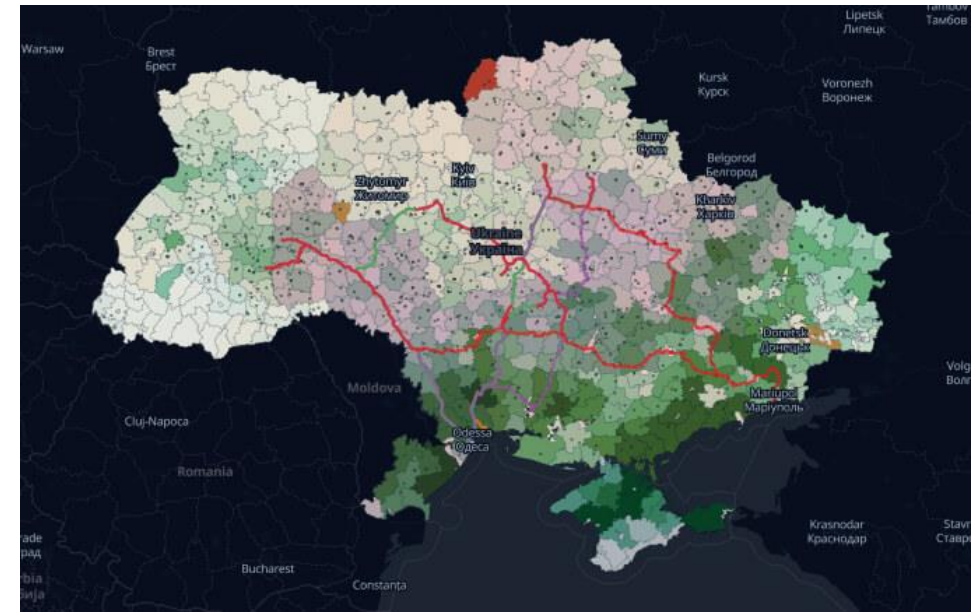
Location data

Id	Region
A	Region A



The conceptual difference between point-based and area-based geocoding infrastructures

- ❑ A point-based infrastructure (point locations) should be implemented as the primary and preferred method of geocoding.
- ❑ When point-based geocoding fails due to partly missing data, usage of more generic place descriptions and/or wider geographies (such as enumeration and administrative regions or other statistical geographies)



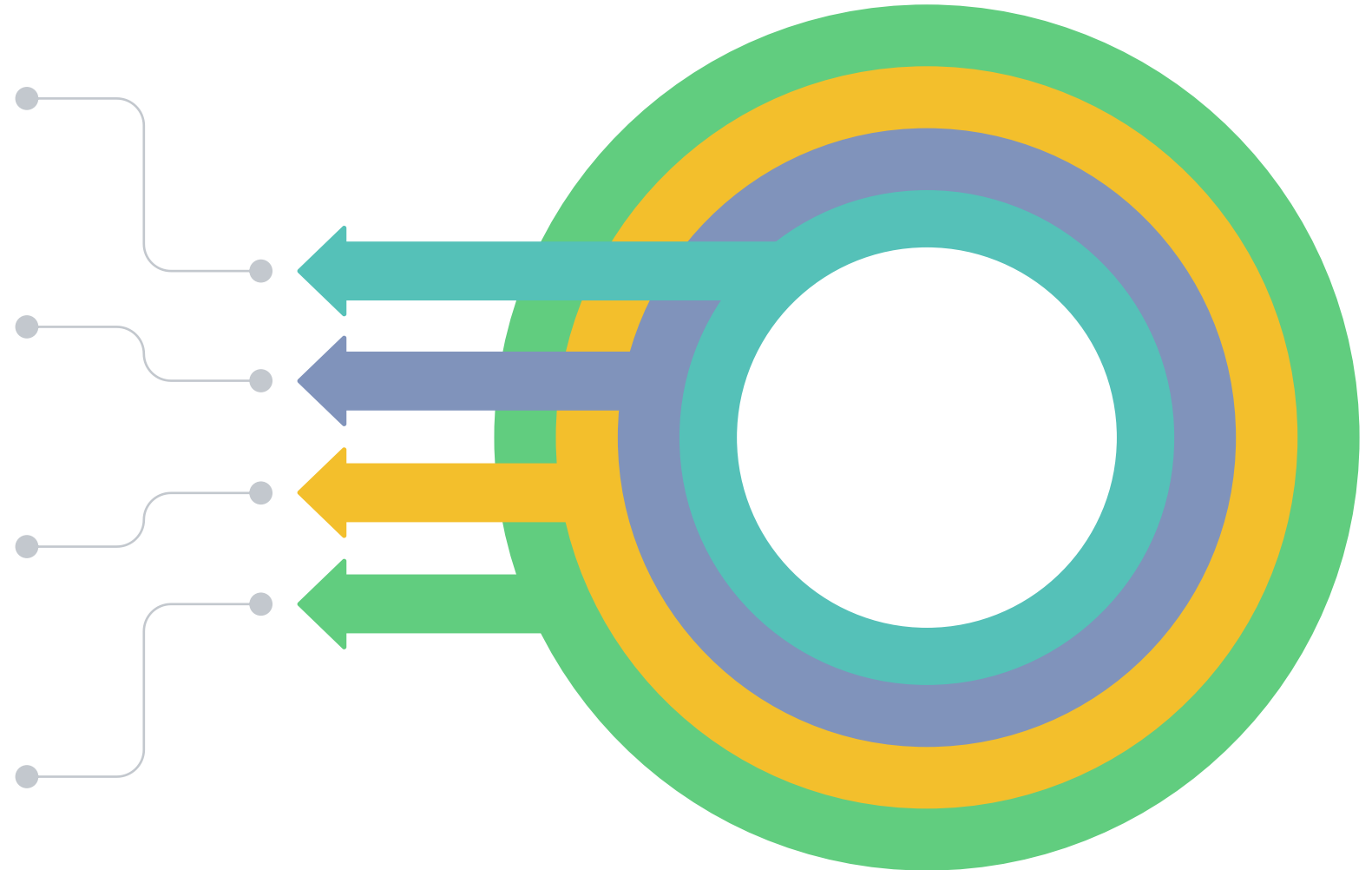
Geocoding: Principle 2: Geocoded unit record data in a data management environment

Use of the infrastructure as well as the actual geo-coding procedure for the unit recording and the environment to enable this process

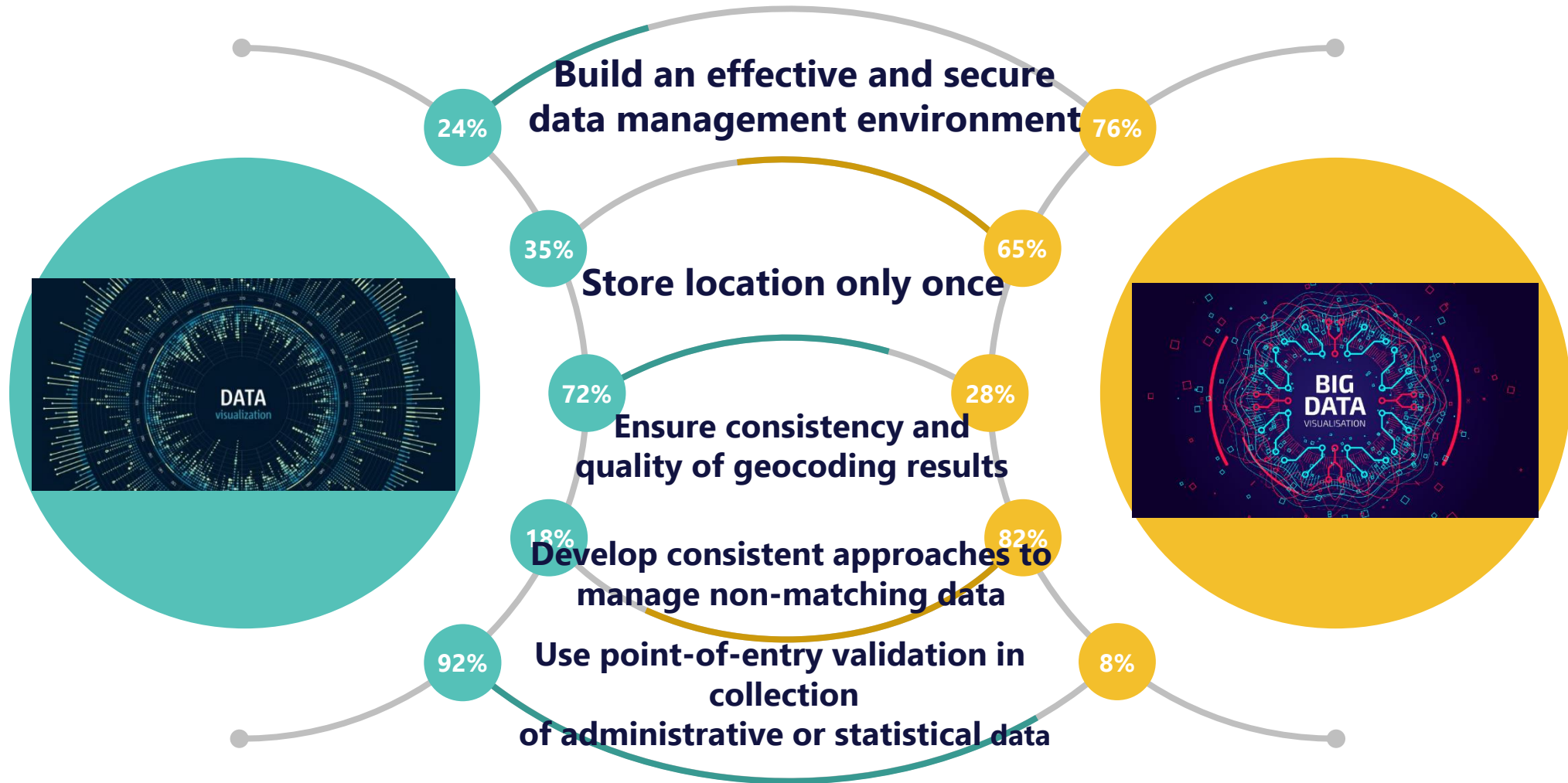
Most of the Recommendations relating to this principle are supposed to be carried out by NSOs or other bodies responsible for geocoding statistic or administrative data

Application of Principles 1 and 2, enabling statistics to be made available in flexible statistical geographies

The primary and preferable method for Member States is for them to be persistent recording a highly precise geocode for every statistical Unit record in the statistical and administrative datasets (e.g. individual, home, company etc.). A very accurate geocode requires the location of an address, building/resident, or a cadastral lot



Requirements for Geocoded unit record data in a data management environment





ECA



COVID-19
RESPONSE



THANKS