

# TII's Asset Management Approach for National Roads

Dr. Kieran Feighan

# Asset Management Organisations



Road Network

€31.0bn



TRANSPORT  
SCOTLAND  
CÒMHDHAIL ALBA

Road Network

£25.3bn



€12bn



€11bn

# Snapshot of our Road Network Assets

The road network represents a very substantial level of investment by the people of Ireland



**Carriageway & Earthworks**  
assets worth  
€ 14.1 billion

5314 km roads  
1200 km is high quality  
motorway and dual  
carraigeway



**Drainage & Ducting**  
assets worth  
€2.5 billion

600 km urban positive drainage  
1200+ km designed drainage  
(filter, carrier, kerb and gully)



**Bridges, Walls and Structures**  
assets worth  
€ 4.2 billion

3400 structures,  
700 gantries



**Land**  
assets worth  
€ 5.2 billion

14000 hectares



**Tunnels & Major Structures**  
assets worth  
€ 1.9 billion

3 x tunnels  
(1 x bored  
2 x cut and cover)



**Traffic Systems, Signs and Markings**  
assets worth  
€ 0.4 billion

600 traffic signals  
130,000 road signs



**Street Lighting**  
assets worth  
€ 0.2 billion

42,000 streetlights



**Footpaths and Cycleways**  
assets worth  
€ 0.1+ billion

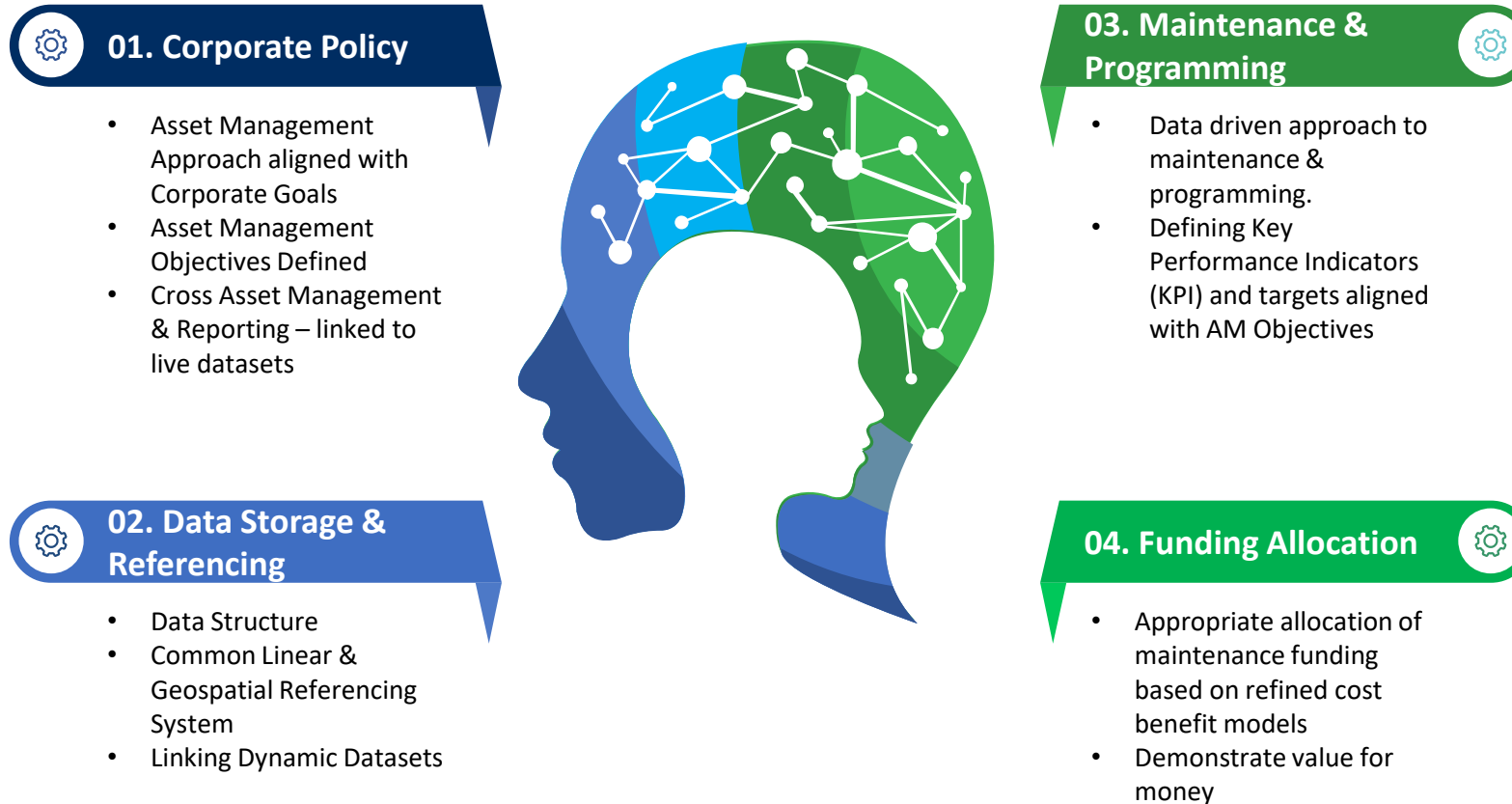
1000+km of footpaths,  
200+ km cycleways

**Gross Replacement Cost of TII Road Network**

**€31 billion**  
GRC

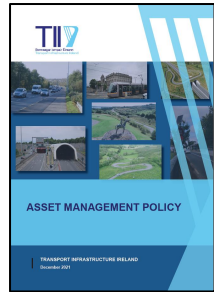
\*Other Ancillary Assets not shown such as buildings, depots, ITS, safety barriers, other street furniture, utilities and accommodation works total c. € 2.4bn

# TII Asset Management – Integrated Approach



# ISO 55000: Asset Management Hierarchy in TII

A Structured approach to protecting infrastructure investment



## Asset Management Policy

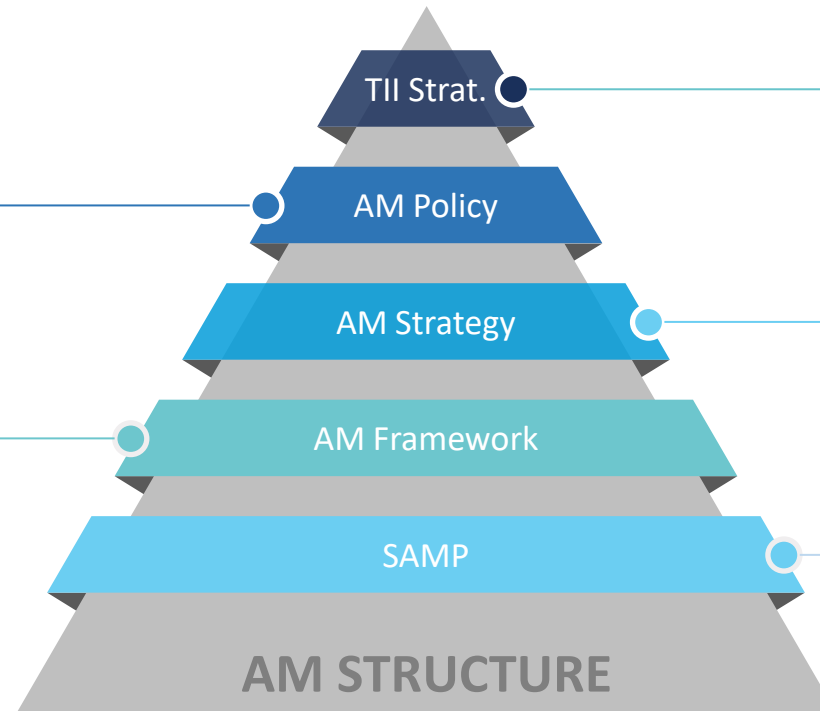
Purpose, Vision, Guiding Principles



WE ARE  
HERE

## Asset Management Framework

Outlining TII Asset Management Objectives, Performance Measures, Data Systems, Governance



## TII Strategy

Purpose, Vision, Values, Goals & Objectives



## Asset Management Strategy

AM Concepts & Alignment with TII & Government Policies & Strategies



## Strategic Asset Management Plans

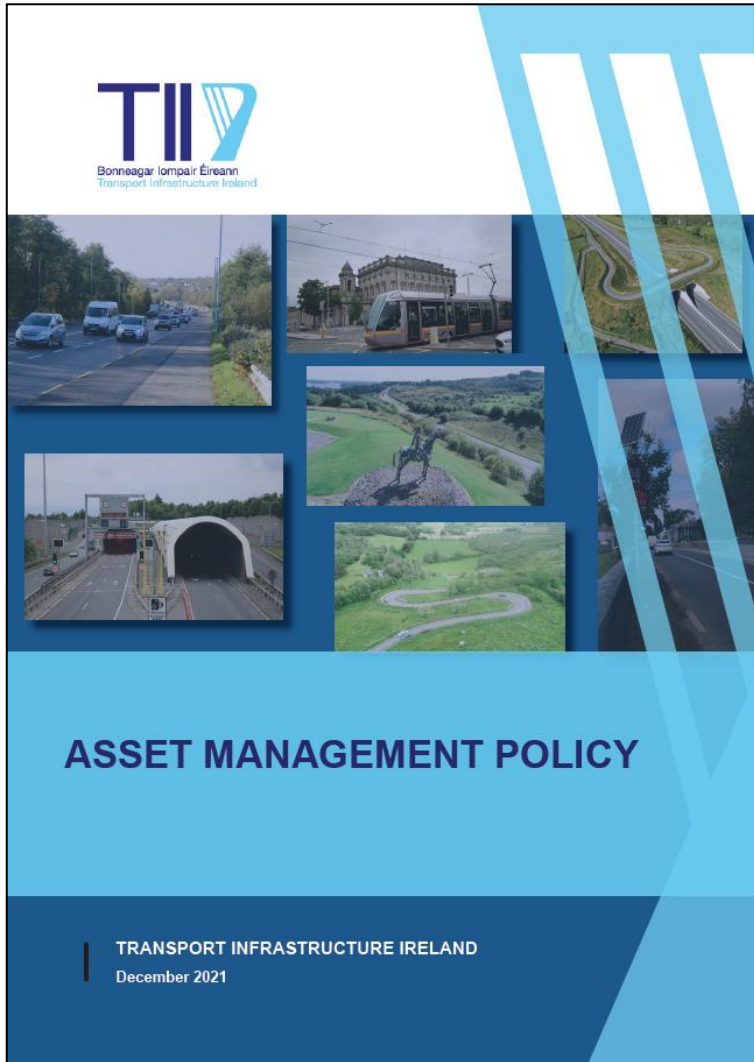
Detailed plans to achieve AM Objectives & Outcomes for

- Light Rail
- Local Authority Roads
- TII Managed & Concession Roads

WHERE  
WE ARE  
GOING



# Asset Management Policy & Strategy



# Asset Management Policy

## PURPOSE

### 1 | ASSET MANAGEMENT PURPOSE

We are committed to managing our assets in a sustainable manner through the development, implementation and maintenance of an asset management approach that is risk based and data driven, enabling us to make informed decisions throughout the life of our assets.



SUSTAINABLE



RISK BASED



DATA DRIVEN

## VISION

### 2 | ASSET MANAGEMENT VISION

TII will use asset management principles to manage our transportation assets safely, sustainably, efficiently and effectively over their useful life in alignment with our strategic priorities.



In following these principles, we will demonstrate transparency and accountability, plan systematically, assess trade-offs across organisational goals, satisfy applicable requirements, foster collaboration, and reflect community values.

## PRINCIPLES

### 3 | ASSET MANAGEMENT GUIDING PRINCIPLES

Our approach to asset management includes the following principles



#### POLICY-DRIVEN

Resource allocation is based on a well-defined set of organisational goals and objectives that inform all of our asset management decisions



#### RELIANT ON ANALYSIS OF OPTIONS AND TRADE-OFFS

Decisions on how to allocate resources within and across various asset types are based on an analysis of how different options best align with relevant policies, risk mitigation strategies, and performance objectives over the life of the assets.



#### PERFORMANCE-BASED

Asset management objectives are translated into system performance measures that are used for both operational and strategic management.



#### PROVIDING ACCOUNTABILITY AND FEEDBACK

Performance results are monitored and evaluated for both efficiency and effectiveness.



#### FOUNDED ON QUALITY INFORMATION

Informed decision making and management over the full lifetime of the assets is based on relevant, accurate and reliable data.



#### CONTINUAL IMPROVEMENT

Performance feedback allows for continual assessment of results and improvement on past performance.

# TII Asset Management - External Alignment

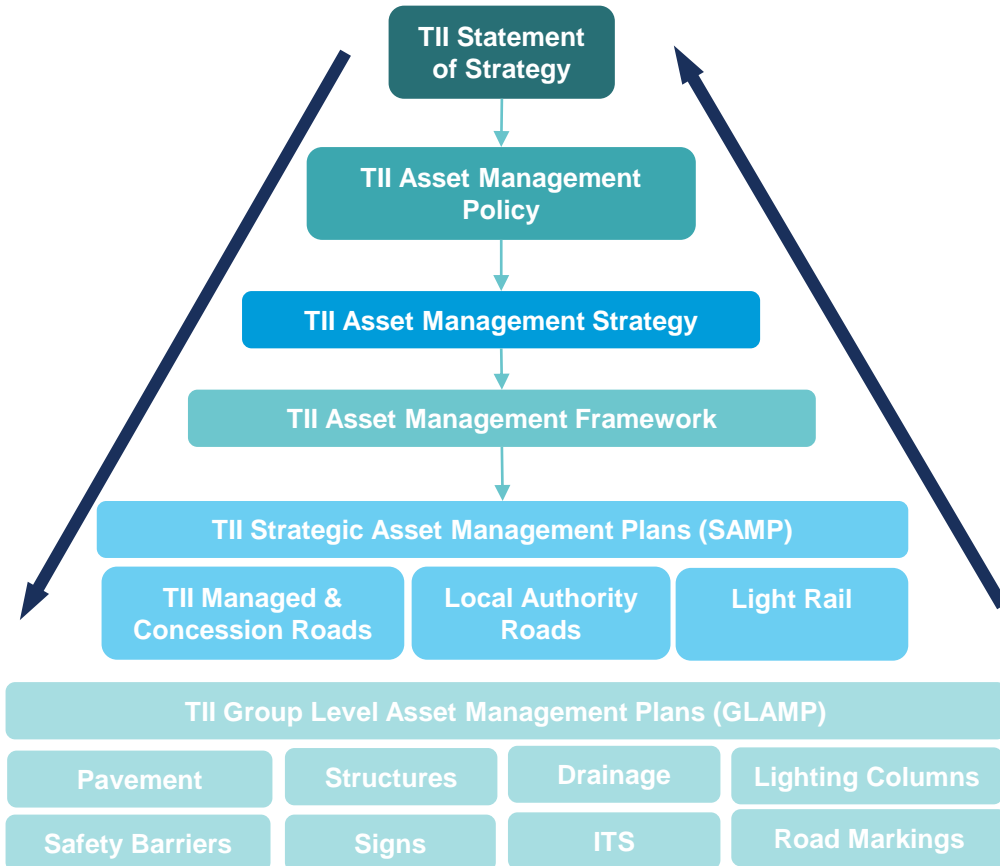
The Asset Management (AM) Strategy describes how we manage our complex transport network in the public's interest. The AM Strategy is aligned with other TII, Department of Transport and Government initiatives





# TII Asset Management - Line of Sight

*Line of Sight translates our organisational objectives into asset management policy, strategy and framework, which cascade down into more detailed asset management plans and activities.*

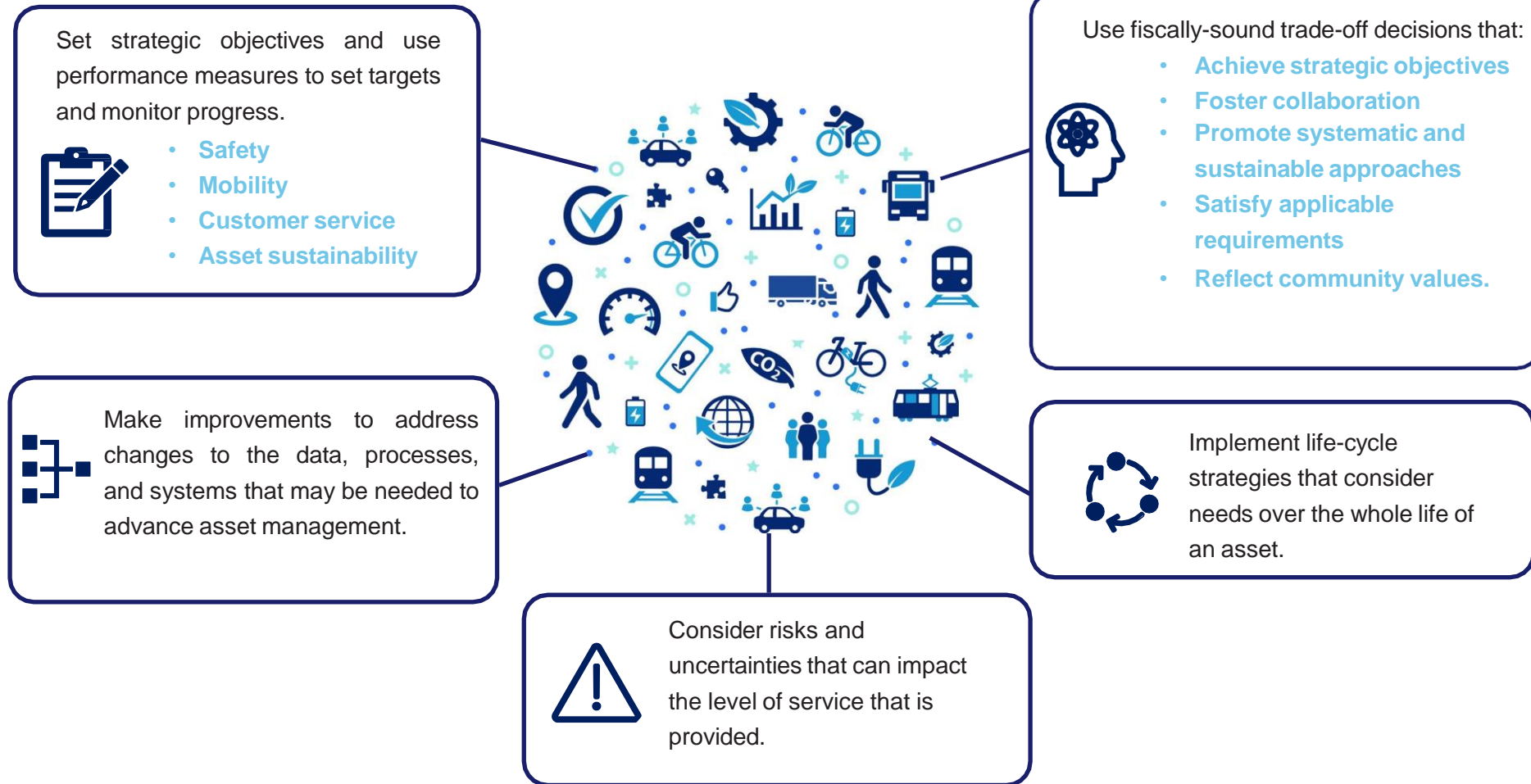


# TII Asset Management - Internal Alignment

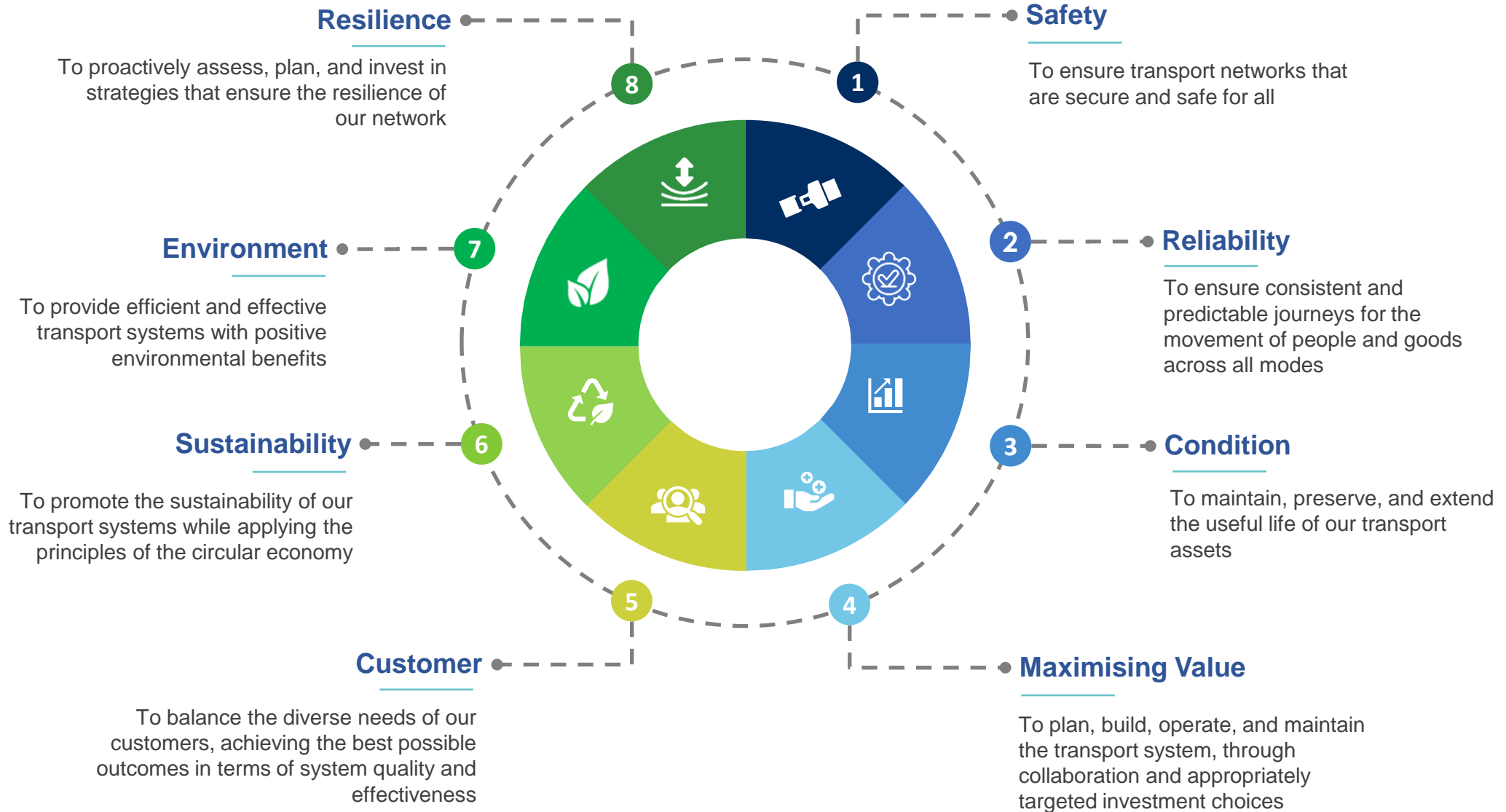


# Protecting and Renewing Our Assets

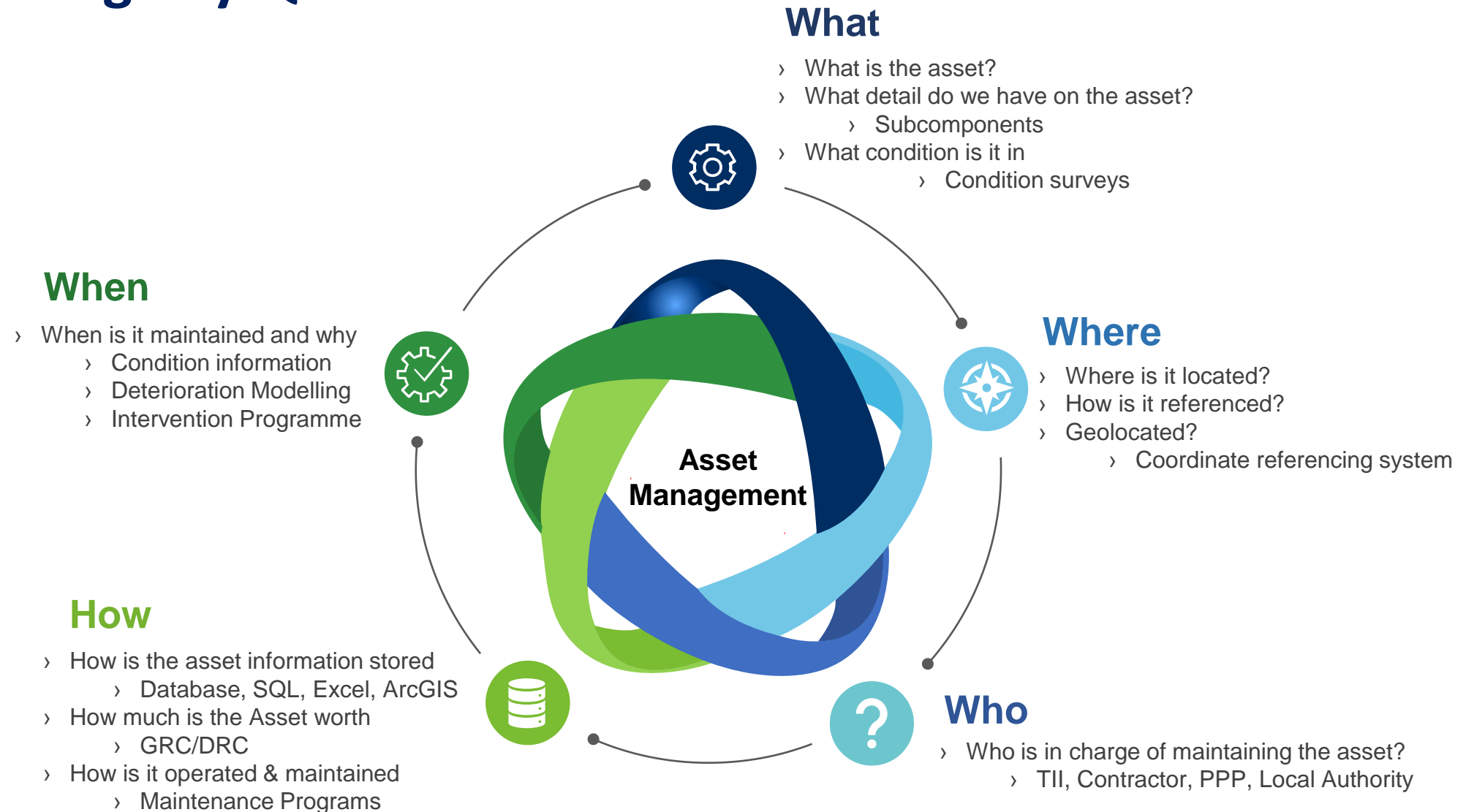
As Asset Management is continually evolving, TII will...



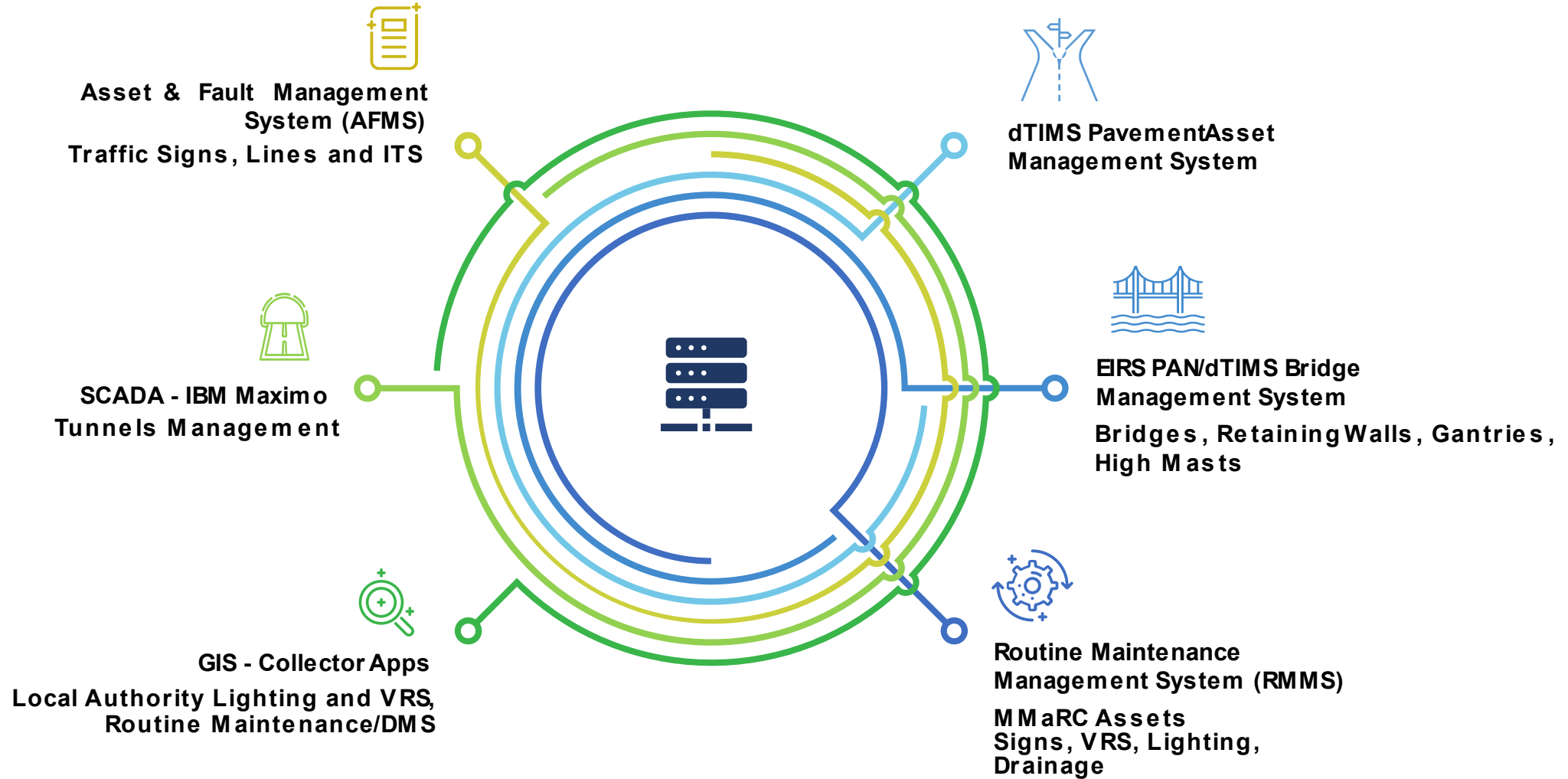
# TII Asset Management Objectives



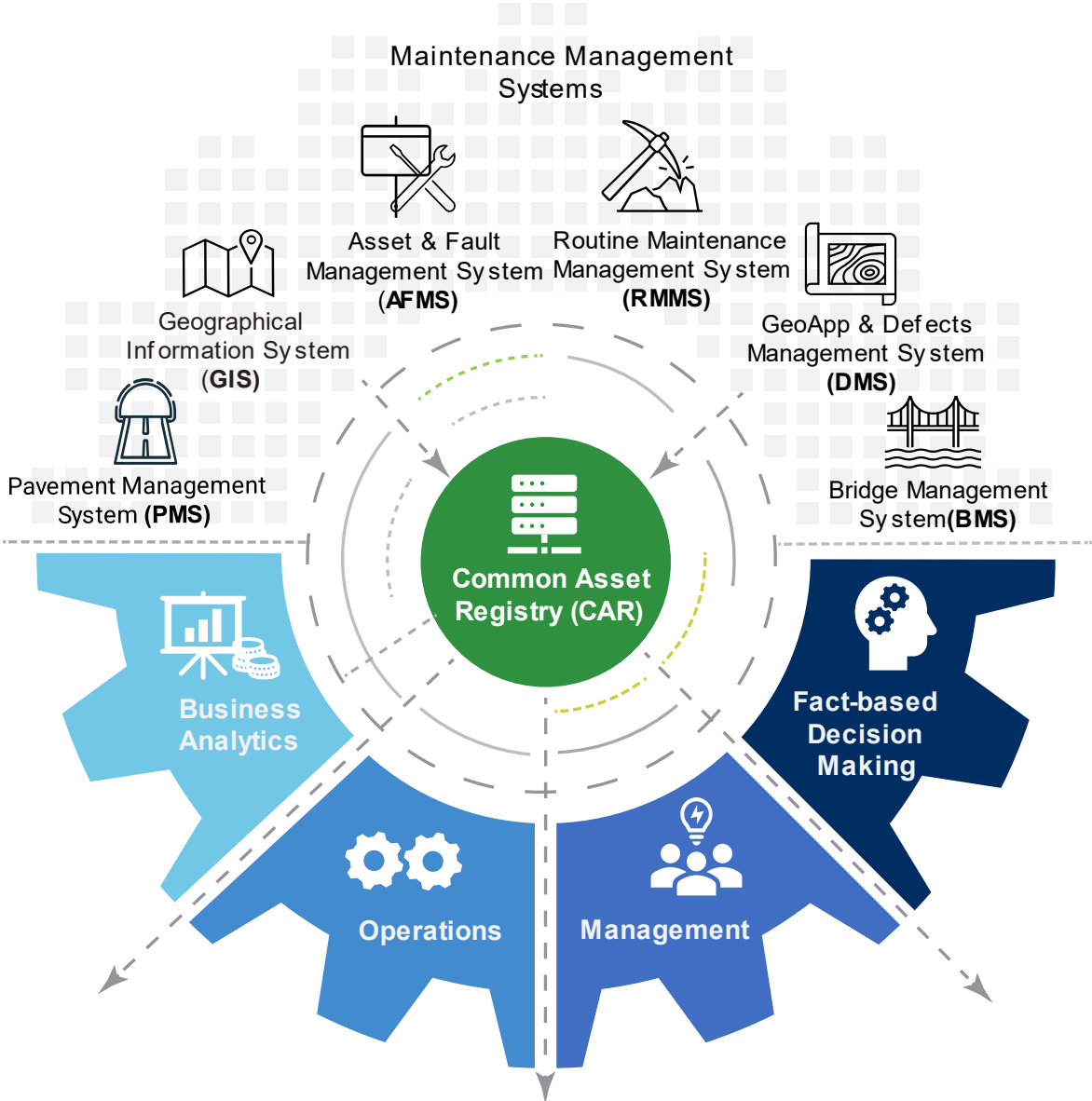
# Asset Management – Answering Key Questions

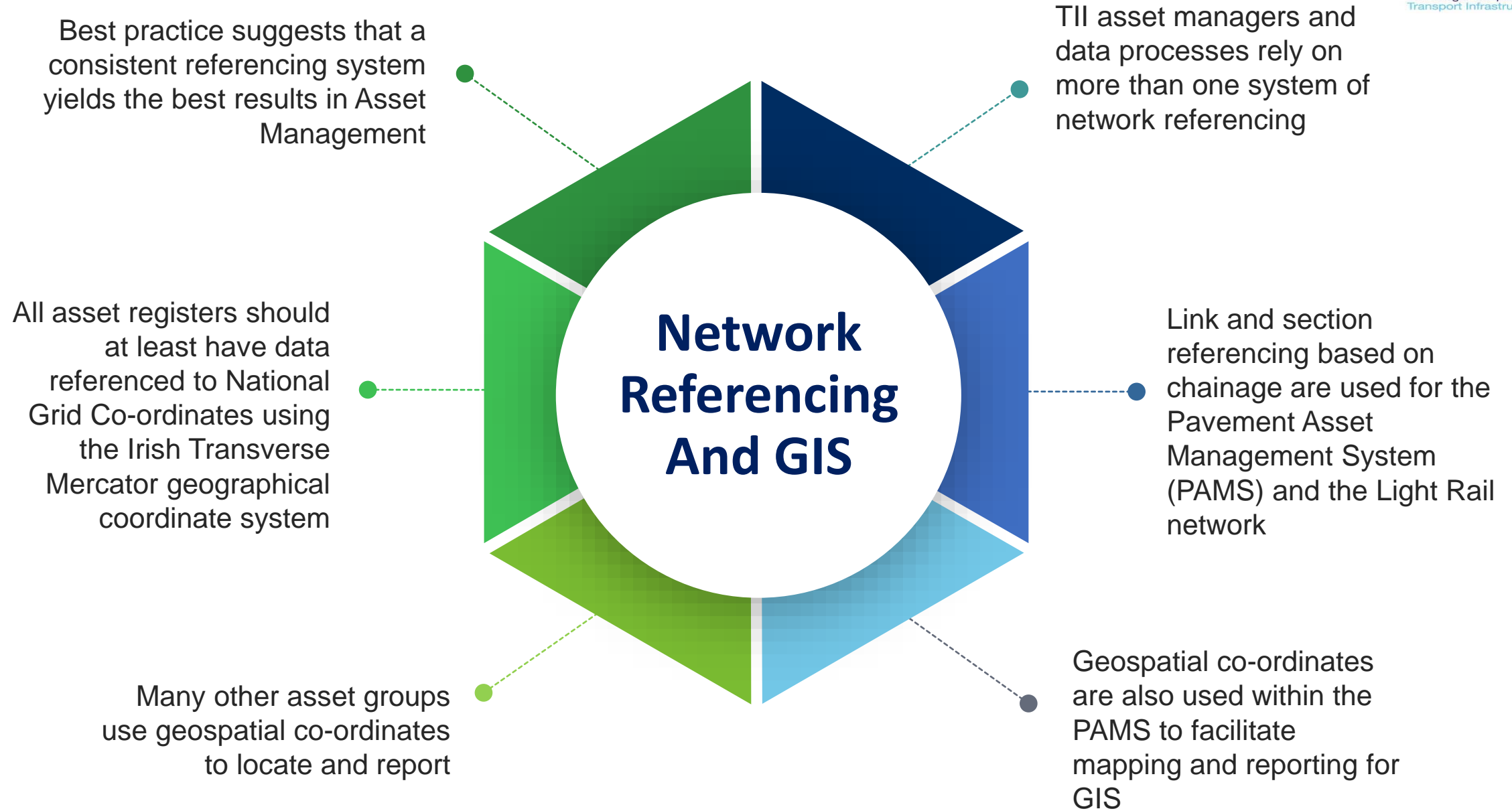


# TII Data and Systems



# Common Asset Registry (CAR)





# Integration of ESRI Roads & Highways

## Key Functions

- Interoperability
- Authoritative LRS

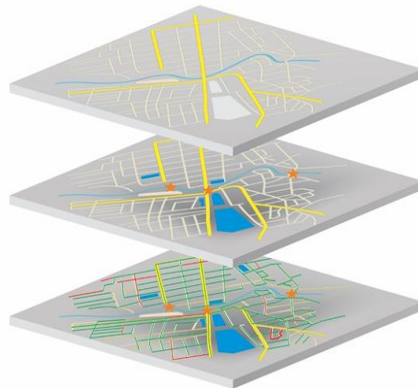
dTIMS® Data Source

LRS		
Name	To	Desc
From	Length	Type

ASSET Data	
Location	Class
Condition	History

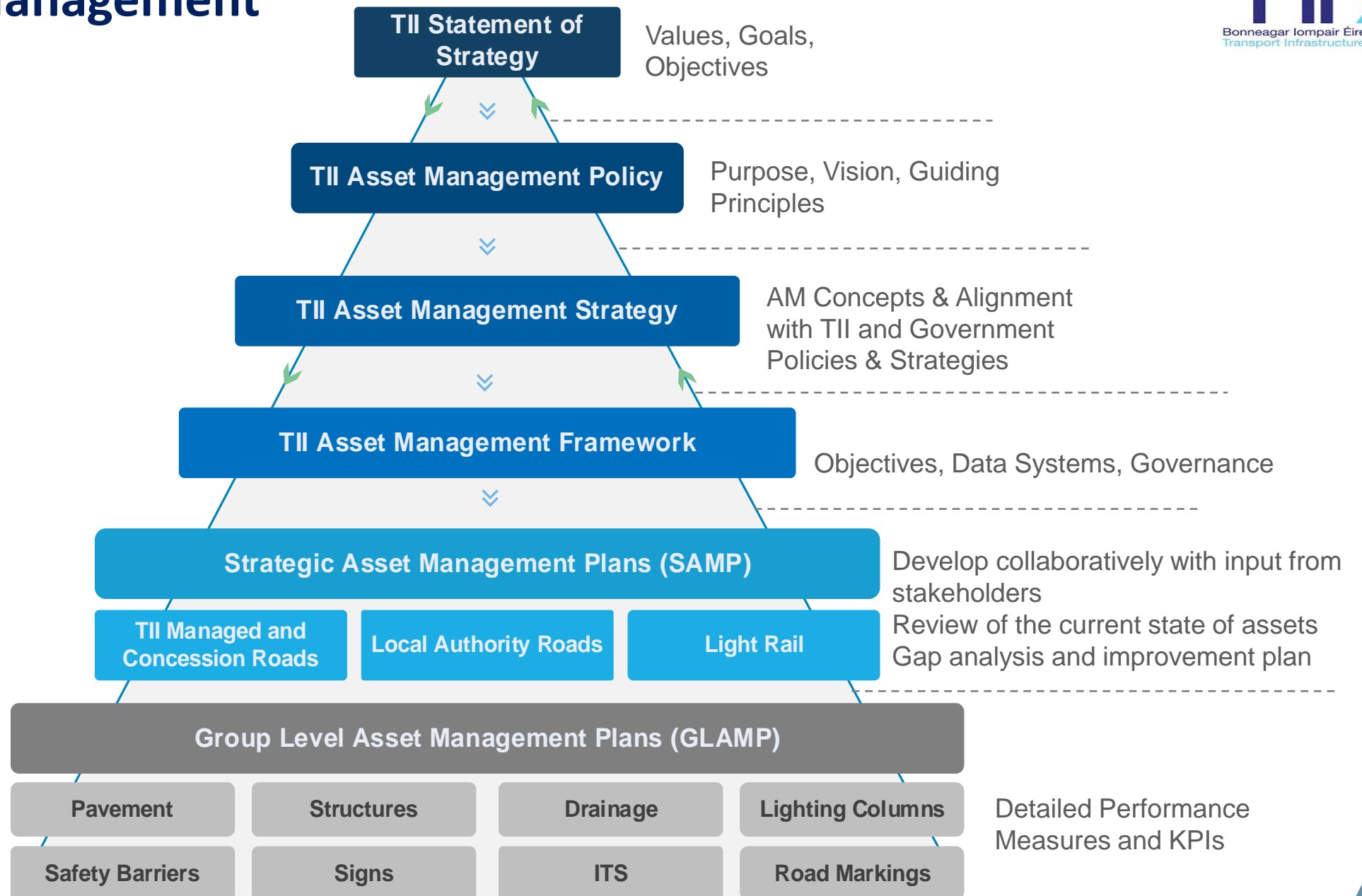
ANALYSIS	
Surface	Condition
Func Cl	Risk Score

GIS Data Layers





# TII's Asset Management Hierarchy



# Proposed SAMP and GLAMP Content

## Section I

For each asset group:

- Description of Asset Types
- Inventory and Asset Value
- Delivery Mechanism for Asset M&R
- Annual Programme – Description, Volume of Assets Repaired, Scale (Cost of Programme)
- Supporting Processes, Data Capture, Data Storage, Data Systems, Management Systems

## Section II

For each asset group:

- Development of KPIs to monitor progress against each of the eight AM objectives defined in the AM Framework. Some of these will be derived from data already captured through supporting processes, others may need new data to be captured, stored etc.
- (There will be a separate requirement to modify and/or develop systems for this data capture, data transfer, data storage, data reporting to facilitate internal- and external-facing dashboards etc.)

# Proposed SAMP Content

## Section III

- ☑ Raising the planning horizon from 1-3 year cycle to encompass lifecycle planning
- ☑ 5-10 year financial requirements based on lifecycle analysis
- ☑ Focus on cyclical trends with longer but finite term life cycles – e.g. waterproofing in bridge deck systems, Large-scale Directional signs, ITS, cameras, key components in Dublin Tunnel etc.
- ☑ Incorporate consideration of energy, carbon, circular economy principles into multi-criteria lifecycle analysis
- ☑ Gaps between current and desired will be identified at each stage and set out as actions to be undertaken
- ☑ Drainage is an area that may have a relatively large gap to fill
- ☑ The evolution of SAMPs will proceed over time, with consistent improvement and building on successful initiatives
- ☑ Management of PPP road network assets in transition to change of ownership will have its own challenges and solutions

# Managing our transportation assets for the future

