Why bother with information?

A Strategy for a National Digital Twin

Matthew West

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Matthew West

- 30 years with Shell
  - Originally a Chemical Engineer
  - 30+ years in information management
  - Information Quality/ Data Modelling/ Ontology/Master & Reference Data
  - Downstream One - $2+bn project to integrate Shell's Downstream Business
    - Downstream Data Model
    - Master and Reference Data standards and architecture
- Consultant with CPNI since 2017
  - Advising on Digital Built Britain
- 25+ years in standards development
  - ISO 15926, ISO 18876, ISO 8000, ISO-IEC 21838
  - ISO TC 184/SC4 Policy and Planning Committee, Founding Chair of EPISTLE
- Co-founder of Information Junction 2008
- Author of "Developing High Quality Data Models"

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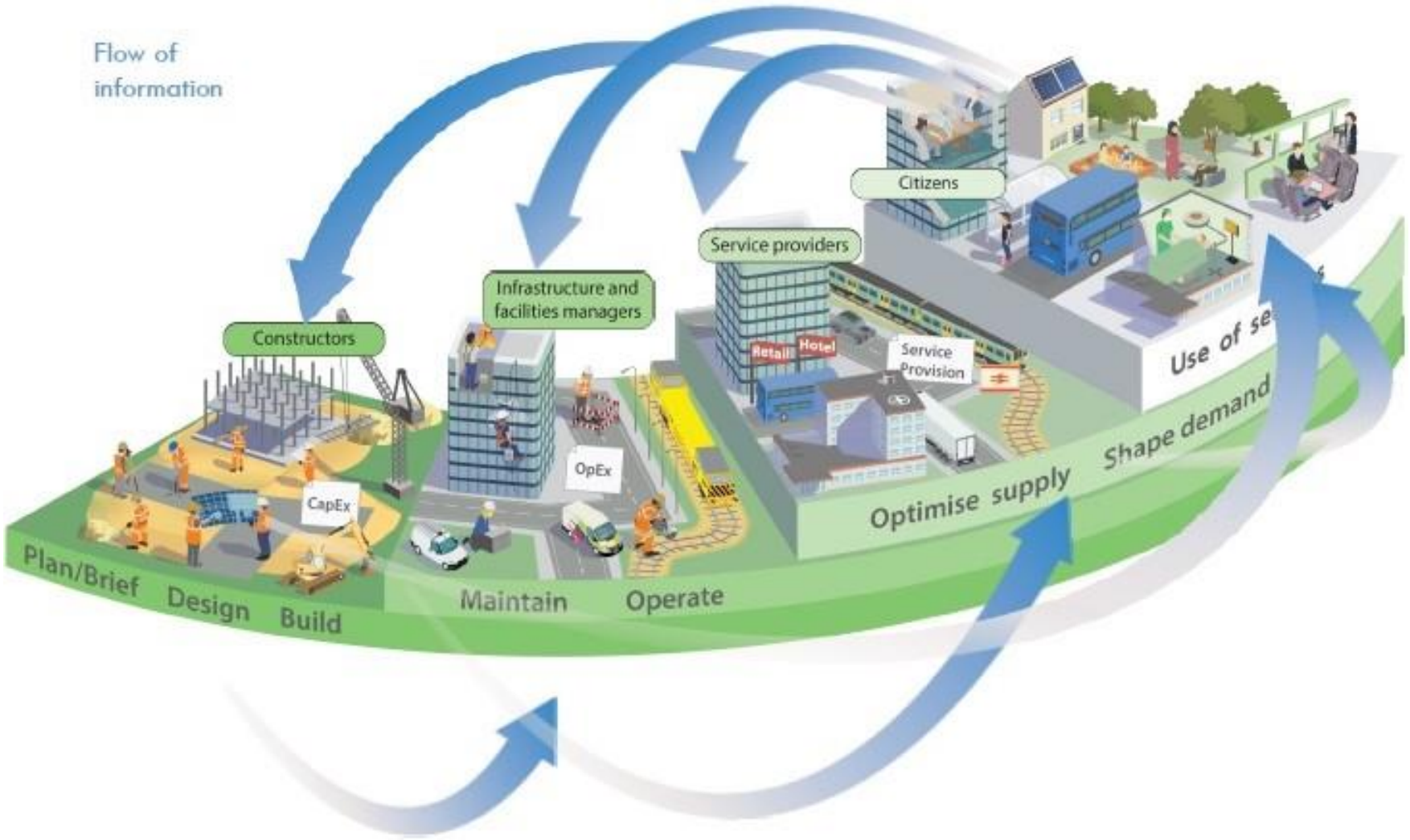
Vision for a National Digital Twin



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What is the sort of thing we are trying to achieve?

Grenfell Tower

- What would it take to support a query like "Which tower blocks have the same type of cladding as Grenfell Tower?" across multiple databases of local planning and building control data.
- What do local databases need to comply with to enable such a query?

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Information quality basics

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Information Management Experts

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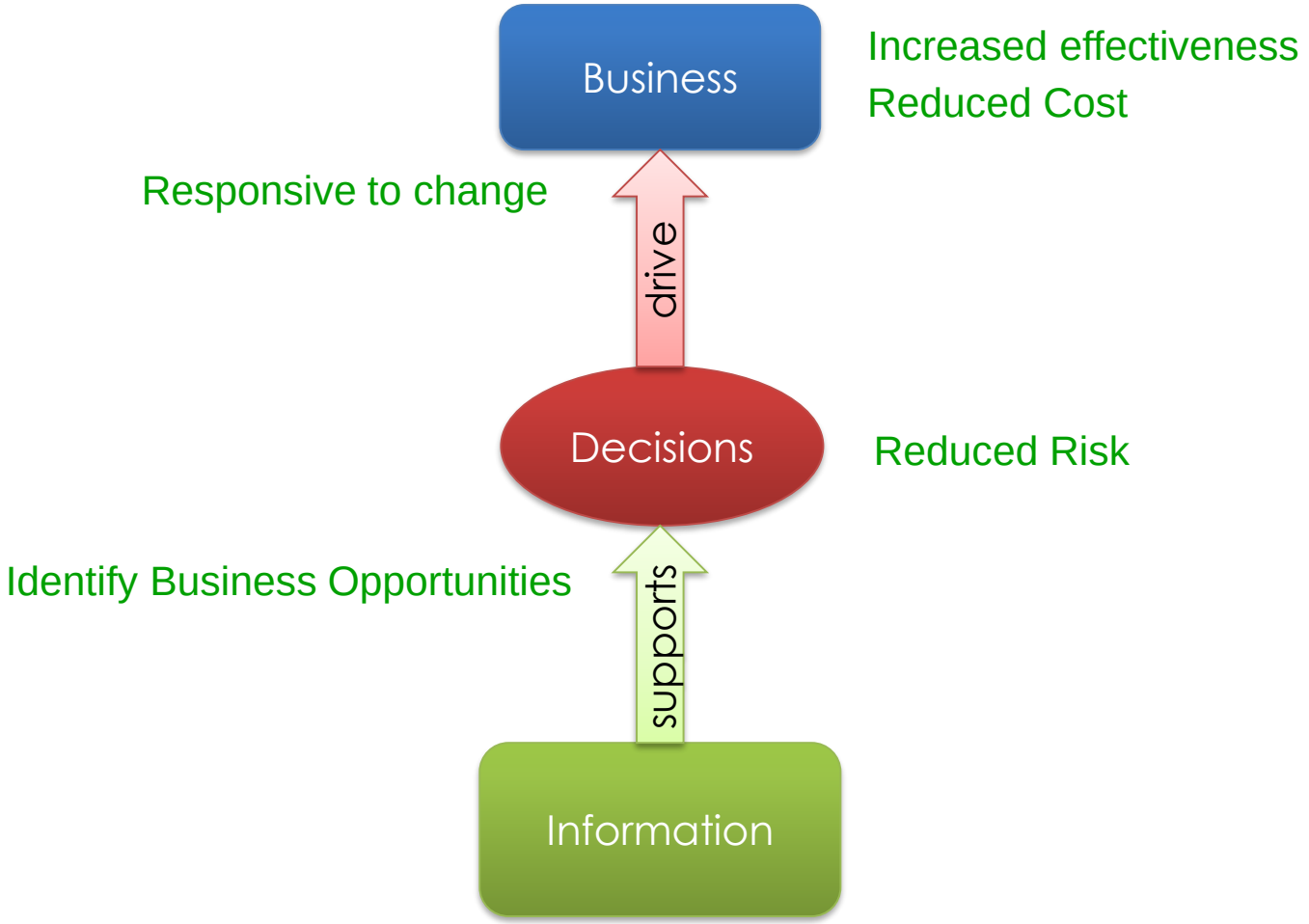

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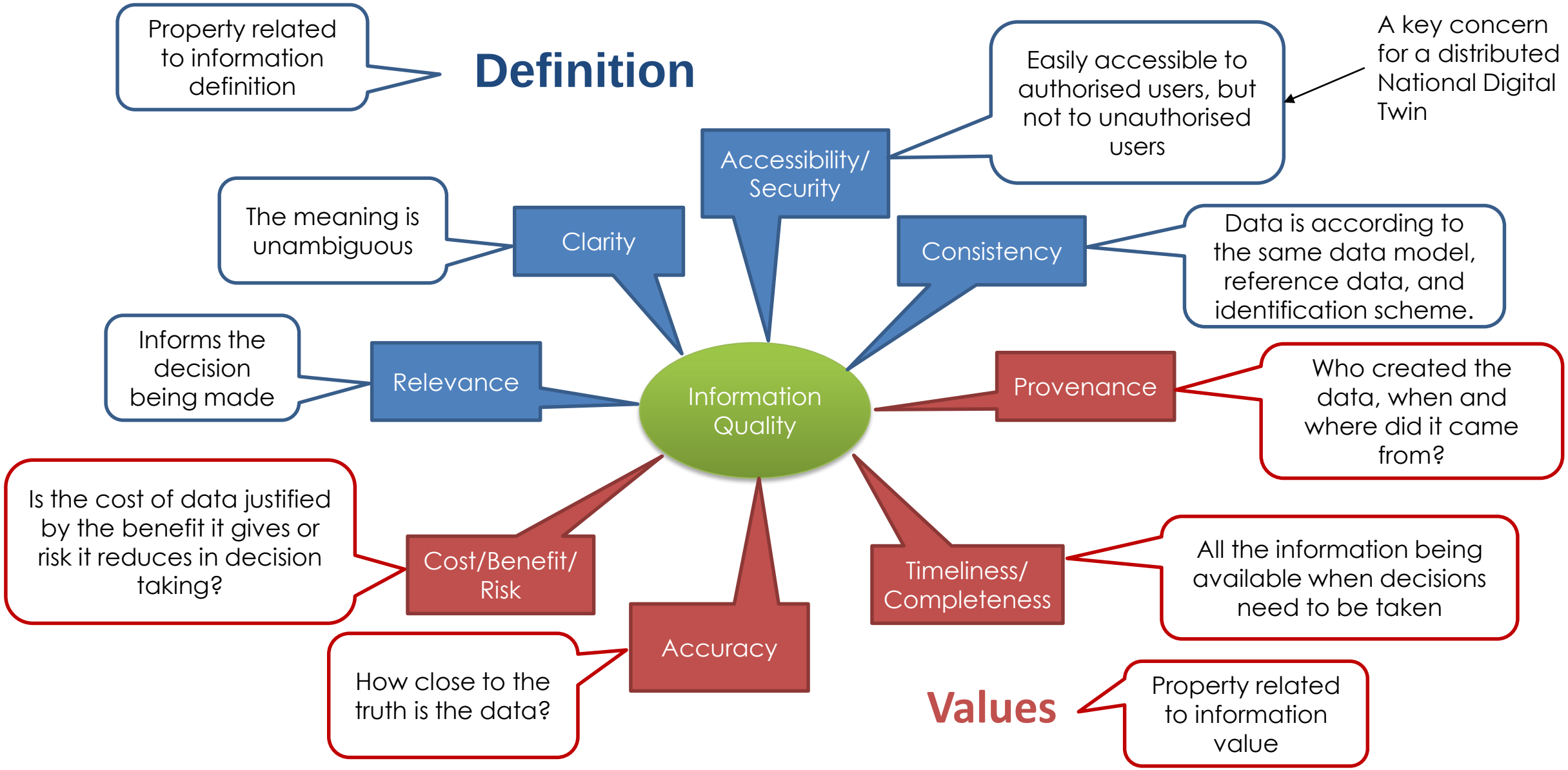

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The ambition is that any user will be able to see …

- Publicly available data everyone is authorized to see
- Data the user is authorised to access as a virtual database
- The register of data that is available that the user is authorized to know exists
- The user will not be able to see data on the register that he is not authorised to know exists

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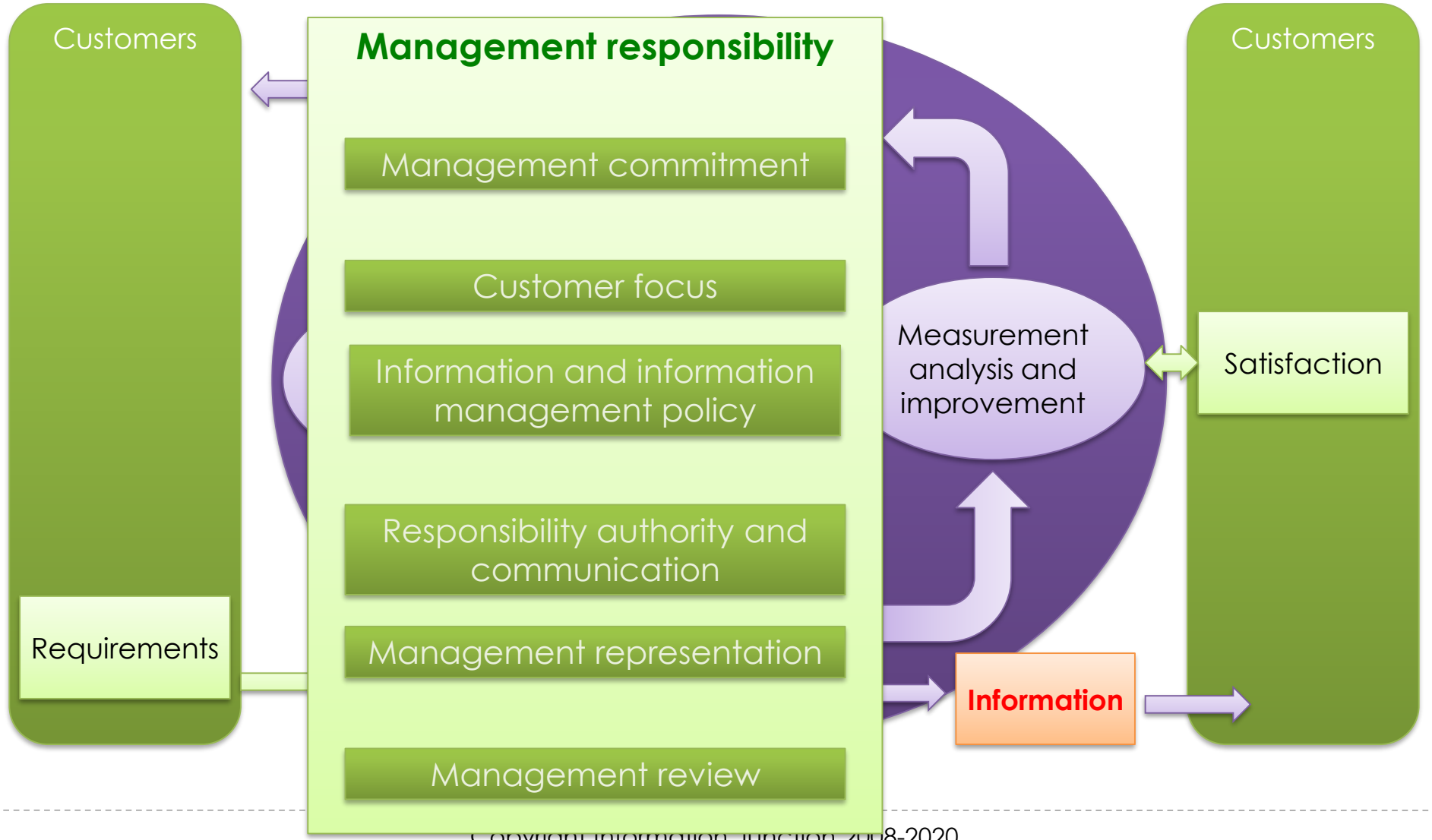
Information Quality Management System (ISO 9001)



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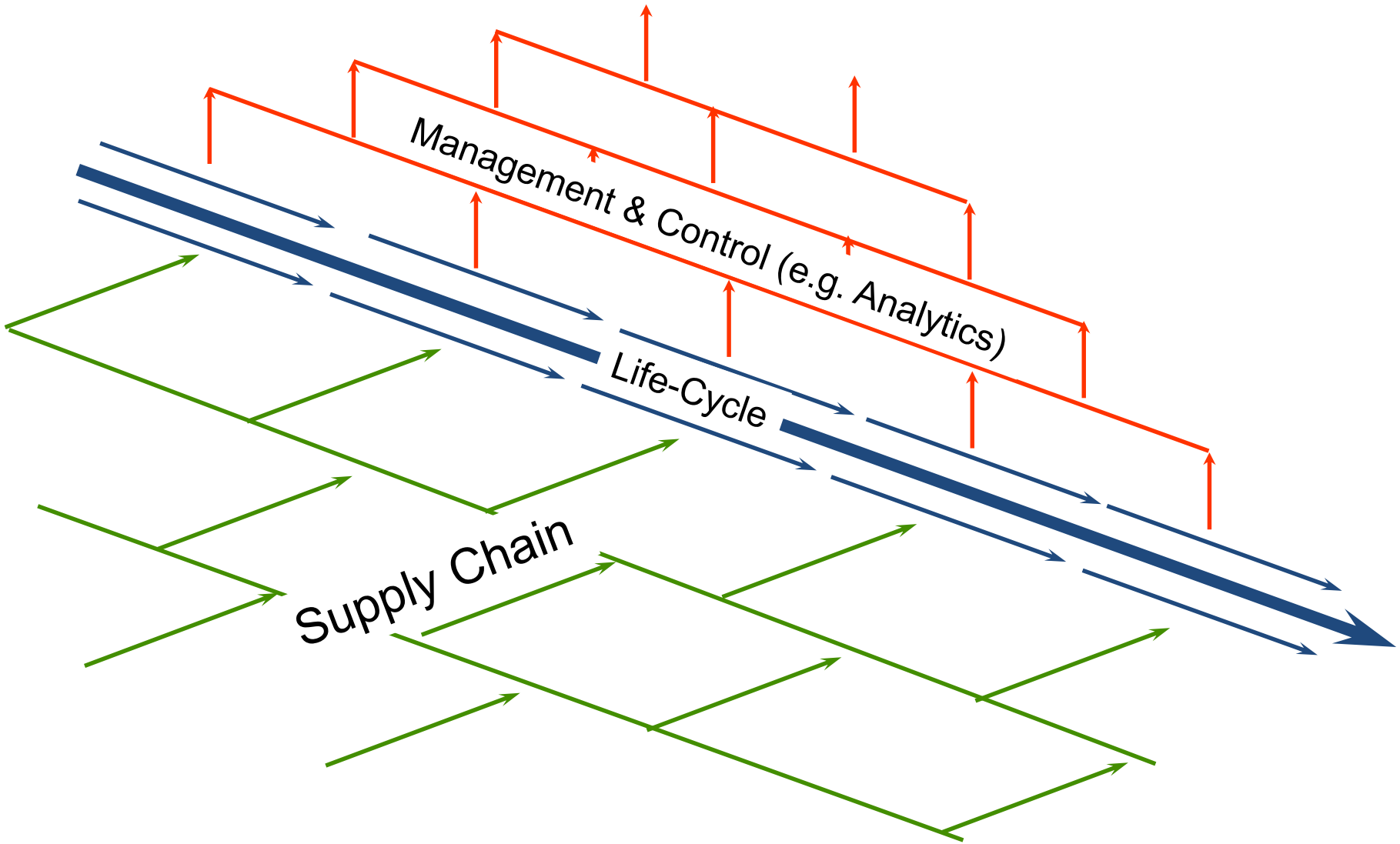
Enterprise and Industry Integration



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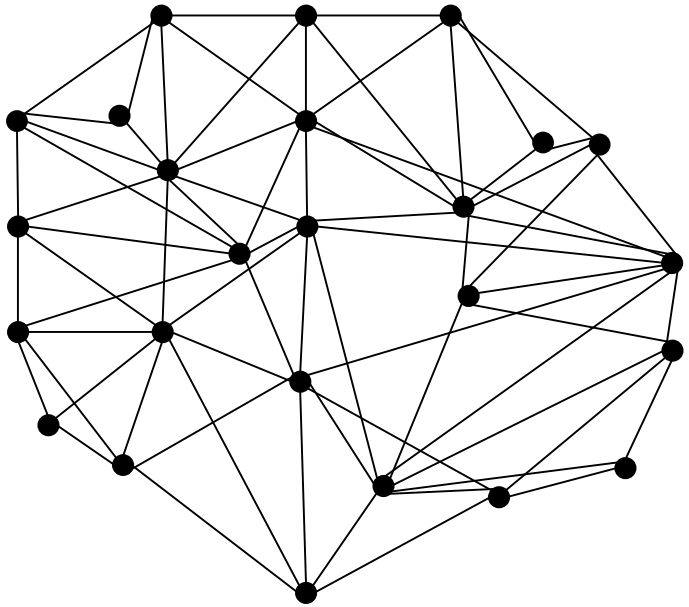
Some Digital Twin Integration Architecture Options

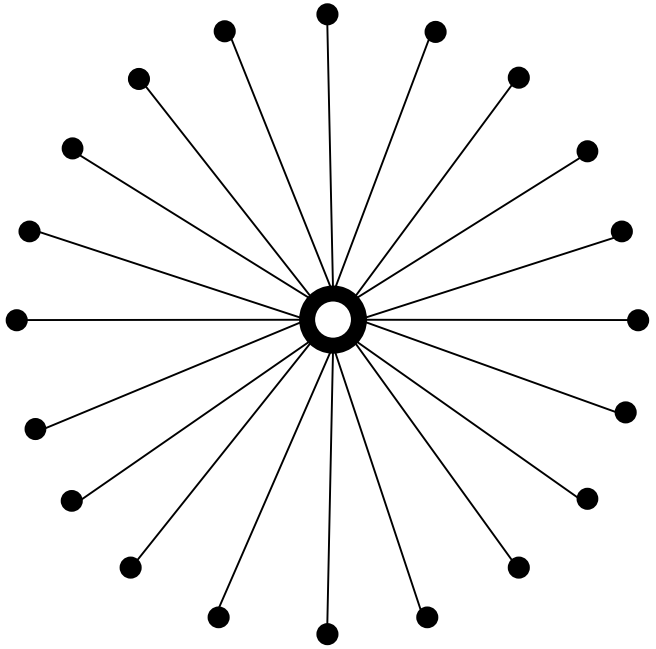
Point to Point

Each interface specific so difficult to maintain



25 nodes 72 connections (Max 300)

Hub and Spoke



The hub can be virtual

25 nodes (plus hub) 25 connections – needs an integration data model

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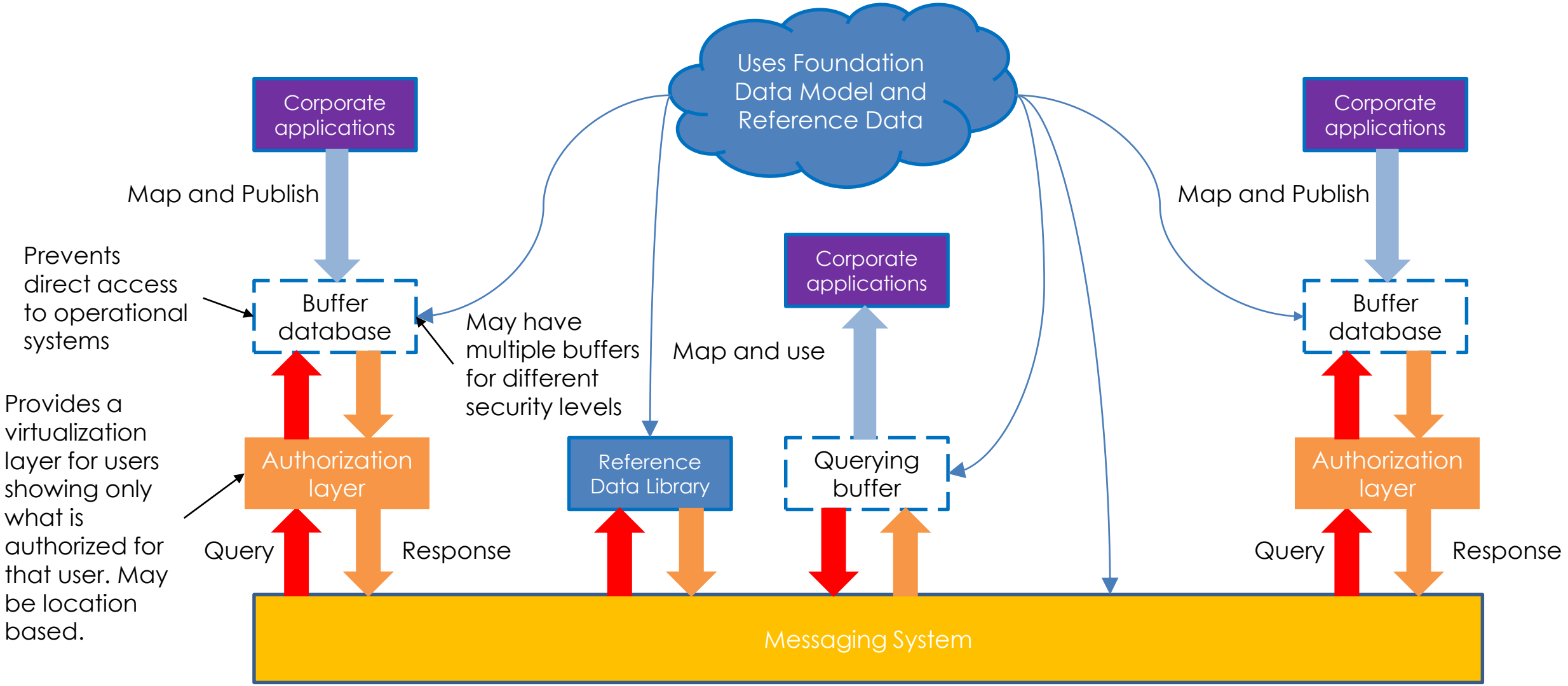
A distributed Integration Architecture



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The Digital Framework

Information held as data

Digital Twin

Digital Twin Quality Management Process

Digital Framework

Digital Twin Architecture

Foundation Data Model

Reference Data

Integration Architecture

Digital Twin Methodologies and Standards

Development Methodology

Architecture Standards

Data Quality Standards

Managing information is a quality management process

Data accessible through operational interfaces

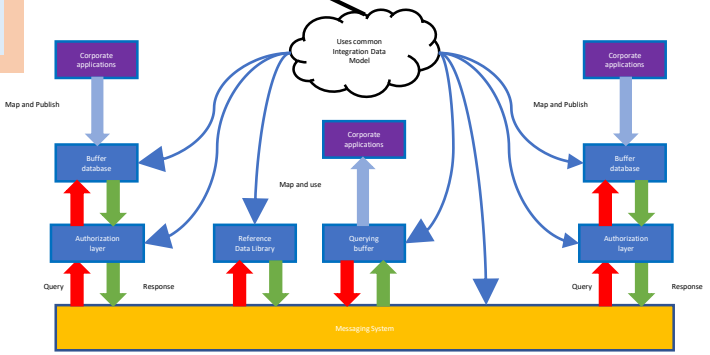
You must be able to query the data through the same data model across NDT

Same classification scheme used

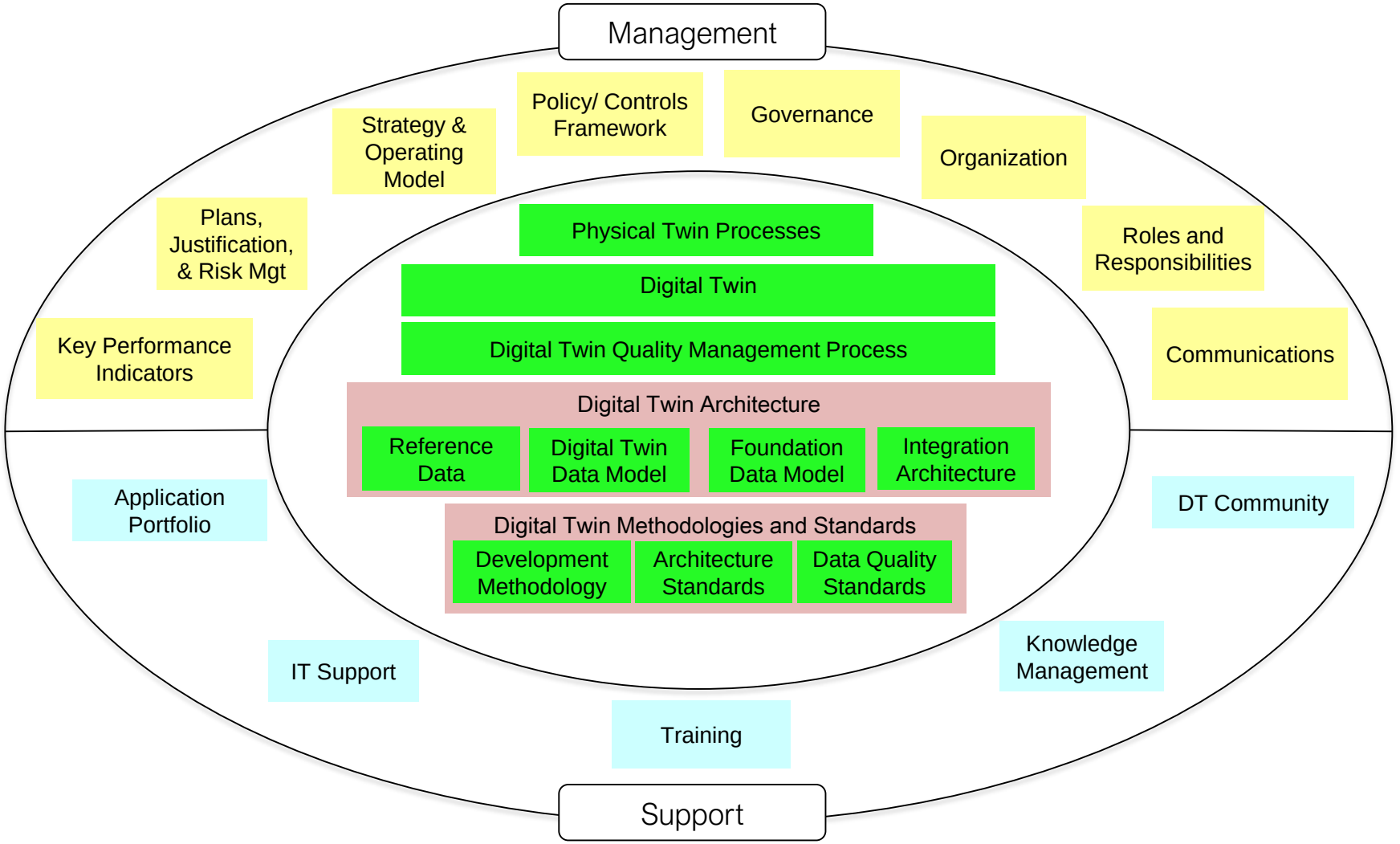
the methodologies approved for developing elements of Digital Built Britain that ensure the quality and consistency of the deliverables

the standards that deliverables shall meet in order to be considered part of the National Digital Twin

the standards that data shall meet



Digital Twin Landscape



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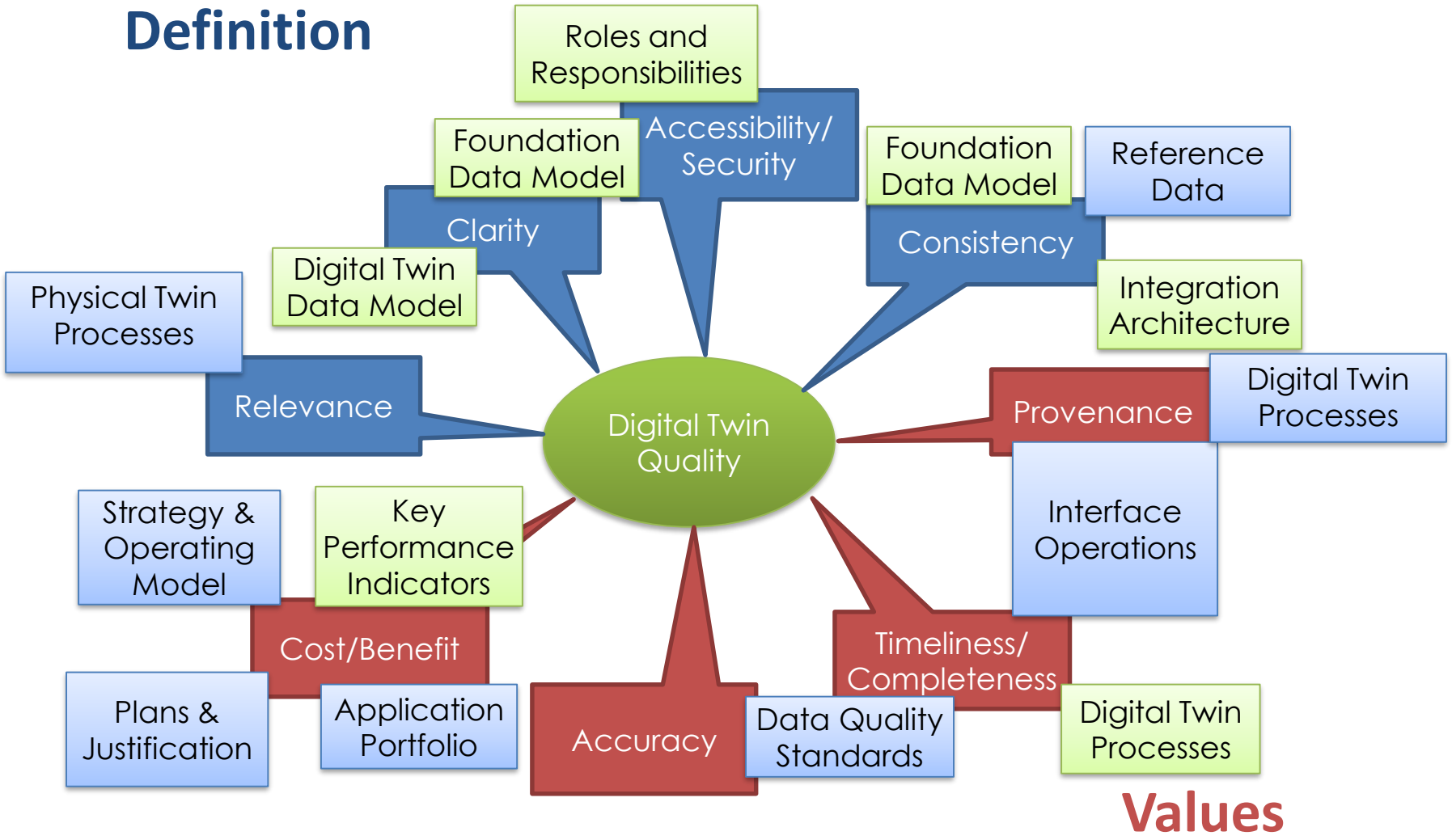
Relevance of DTL elements to Digital Twin Quality



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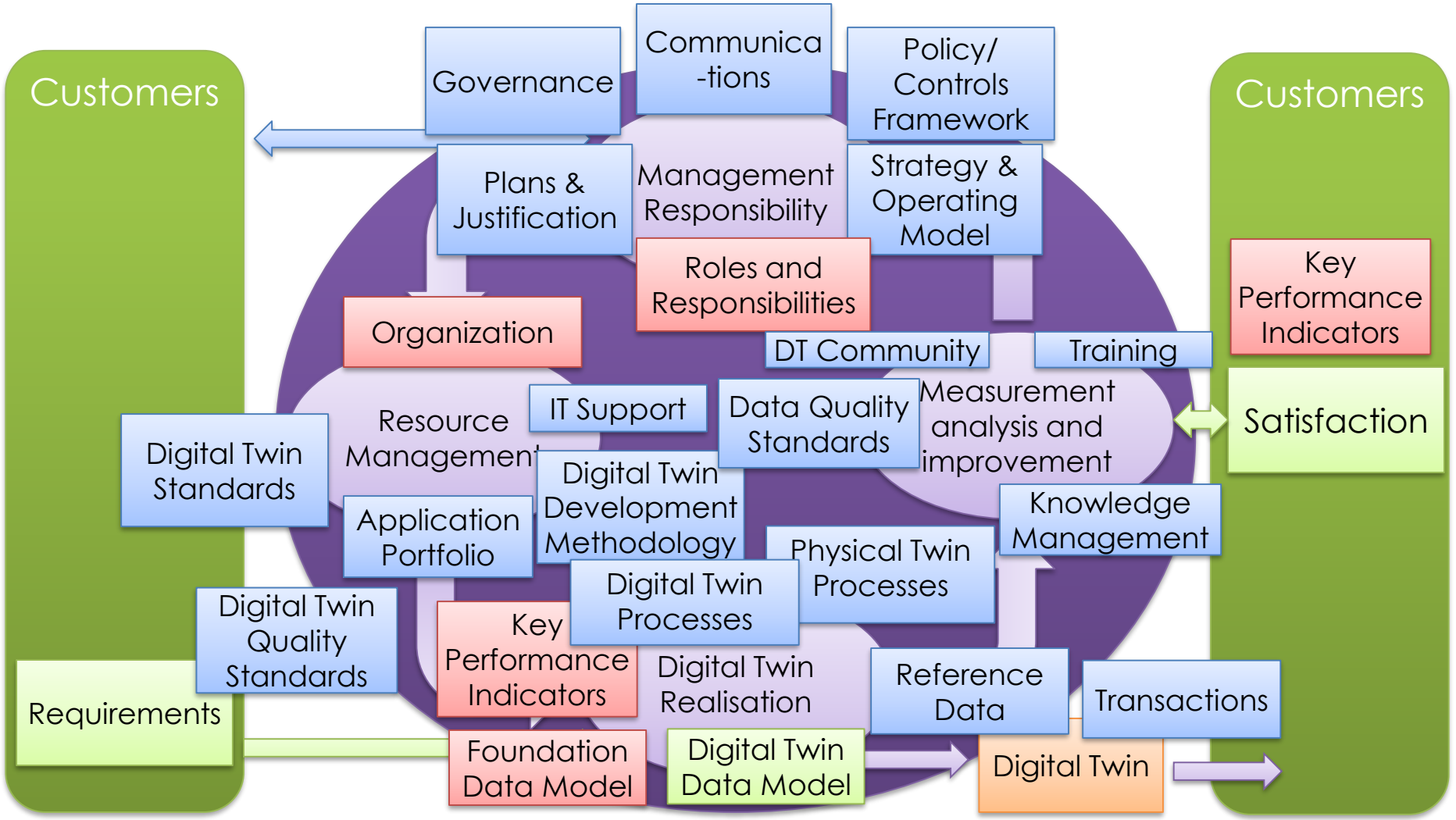
Relevance of DTL to the Quality Management System for Digital Twins



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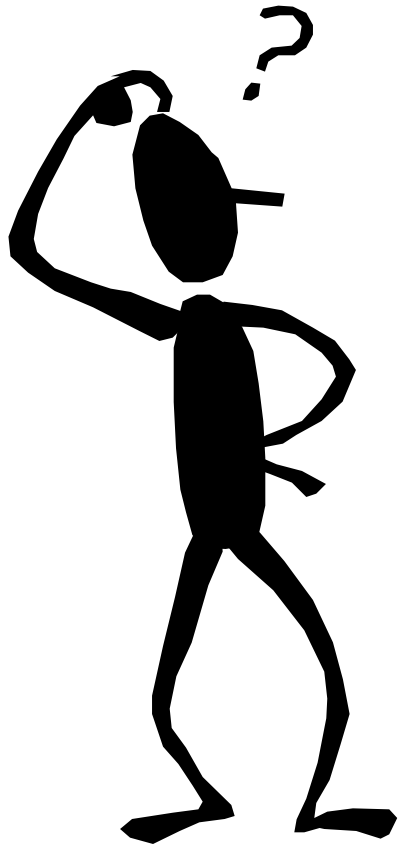
Questions?



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