

Data
People
Connected

Exploring the intersection of Humans and Data

Developing a digital spine for national cyber infrastructure

SMART CITY SPECIALISTS | DIGITAL TWIN EXPERTS | TECH PLATFORM PIONEERS

Introduction to Open Standards

OPEN SOURCE | Our role within OCF



Brian Bishop

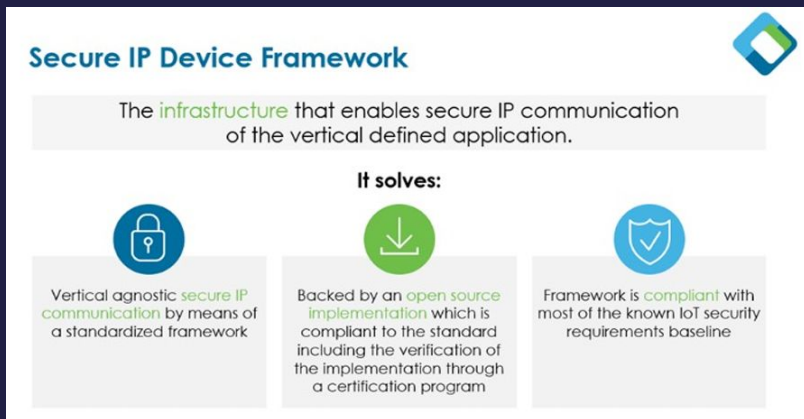
DPC CEO,

Open Connectivity Foundation President & Chair of the Strategy Work Group



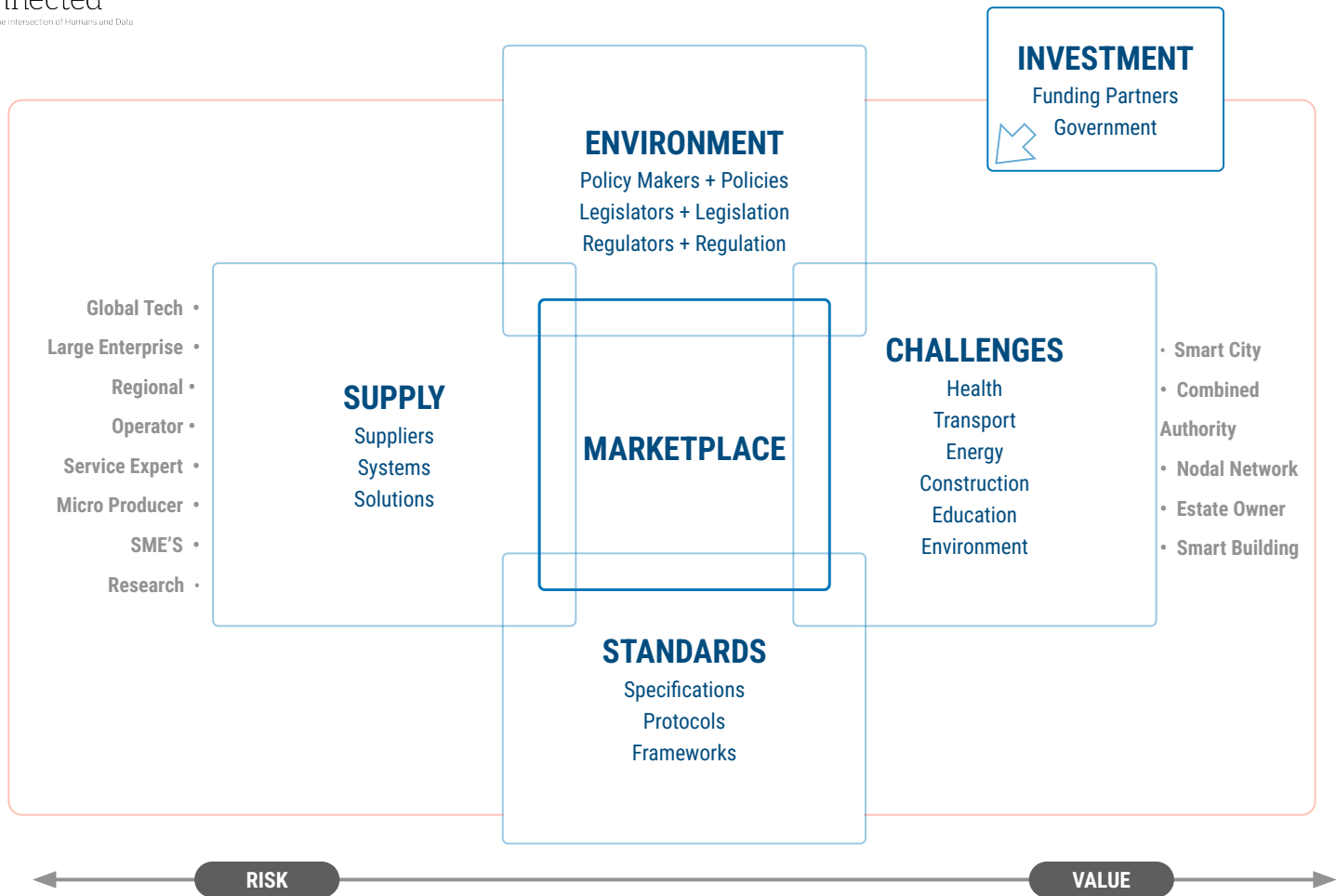
- Global, member-driven **technical standards** development organization.
- 500+ members working to enable **trust, interoperability, and secure communication** between IP-connected IoT devices and services.
- Working with hardware manufacturers to ensure that their technologies are '**secure by design**' to meet strict cyber security requirements, yet are **open source** through our work with **Open Connectivity Foundation**.
- Freely-available **ISO/IEC specifications**, open-source reference implementation, and an industry-recognized certification program.
- This enables innovative new **secure use cases** and user experiences, reduces development costs, integration complexity and time to market, and **simplifies regulatory compliance** to IoT security and privacy baselines.
- **Digital twin experts** and **smart city specialists, advising** both local and central governments on the development of intelligent and cognitive technologies for positive social impact.
- Building a **digital spine** that connects disparate data sources and creates validated, consistent **information management frameworks**; more commonly defined as an **Integration Architecture or Data Sharing Framework**.
- Working with hardware manufacturers to ensure that their technologies are '**secure by design**' to meet strict cyber security requirements, yet are **open source** through our work with **Open Connectivity Foundation**.

OCF Secure IP Device Framework for digital twins

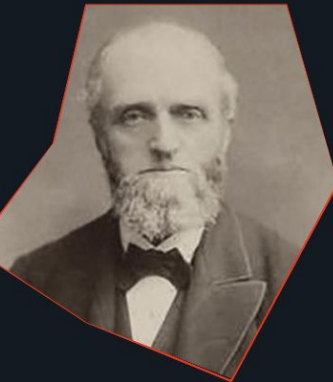


Fits seamlessly into a digital twin strategy, allowing for a holistic approach to the management and optimization of urban infrastructure, such as multi-building energy management, traffic flow optimization, air quality control and occupancy tracking.

- Enables device discovery, onboarding and application layer security, for Device-to-Device and Device-to-Cloud IoT device connectivity.
- Industry standard data models deliver interoperability and prevent vendor lock-in.
- Validation from hardware to software, securing data as it flows from a device to a node.
- Compliant with most of the known IoT security requirement baselines
- Helps ensure smart city architecture continues to operate seamlessly and securely as it evolves in line with changing industrial communications standards and data access governance.



140 years in the making...



"Information is a source of learning. But unless it is organized, processed, and available to the right people in a format for decision making, it is a burden, not a benefit."

William Pollard, 1884
(Pre- industrial revolution)



"Just as we built roads, highways, and airports in the 20th century, we must now build a digital infrastructure that is open, accessible, and empowers everyone."

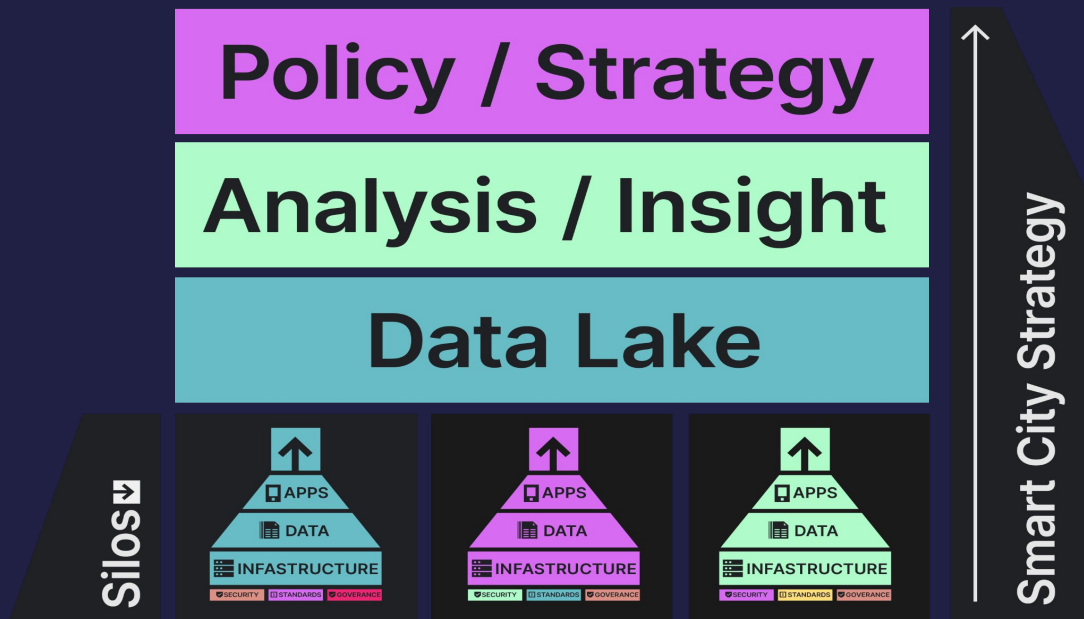
Bill Gates, 2024
(4th industrial revolution)

THE PROBLEM | Previous business models have failed



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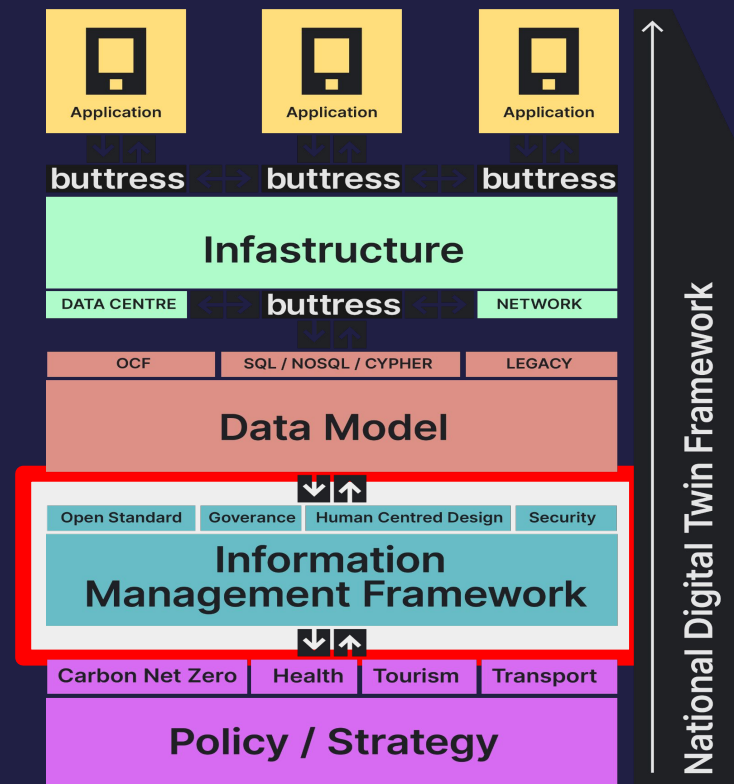
1. The rush to implement technology to solve challenges only creates more silos
2. No common data model
3. No common security framework
4. No Governance process across the Application layers
5. Too many data controllers
6. Too much lock in
7. SME risk averseness
8. Large data lakes creating data debt
9. Policy is reactive not proactive
10. No capability to manage this



Why a Digital Spine Framework works?

- Digital Spine framework and the Gemini Principles work together by promoting interoperability, insight, trust, and evolution.
- Gemini Principles provide the ethical foundation for National Cyber Physical Infrastructure (NCPI), emphasizing public good, security, and evolution.
- Gemini frameworks follow these principles, ensuring standardized, secure, and adaptable digital twins that can work together, offering valuable insights for informed decision-making.
- This synergy ensures a functional and beneficial National Digital Twin (NDT) concept.

Buttress is a key enabling technology for NDTs.



GEMINI FRAMEWORK | Digital twin architecture

Key: ? LEVEL STATUS  OCF  nodeStream  BUTTRESS  PULSE FUNCTIONS TECHNOLOGY

