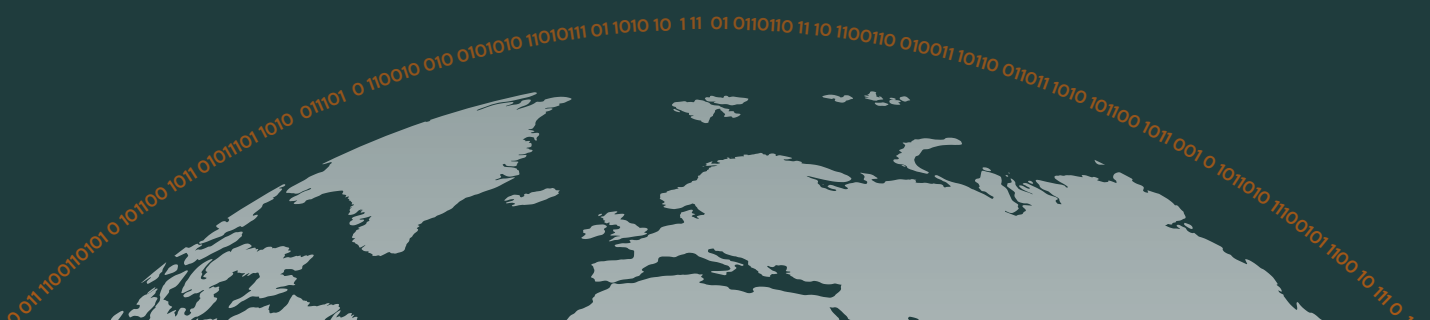


DIGITAL TWINS AS REGULATED DATA PRODUCTS

A DATA ASSET FOUNDATIONS USE CASE

Digital Twins are Becoming Regulated Digital Products	2
Common Patterns Across Regulated Sectors	3
A Potential Approach: Building Sector 'Twin Stacks'	4
Potential Sector Use Cases	5
• Finance: Balance-sheet and Risk Digital Twins as Products	5
• Health: Operational, Device, and Patient-level Twins	6
• Cross-sector Compound Twins: The Biggest Business	7
How to Use the DAF Structure in Practice: Potential Scenario	8
The Isle of Man	9
Important Disclaimer	10

LEARN MORE: WWW.DIGITALISLEOFMAN.COM/DATA-ASSET-FOUNDATIONS



DIGITAL TWINS ARE BECOMING REGULATED DIGITAL PRODUCTS

In many sectors, digital twins will only reach their full commercial potential once the multi-party, regulated, liability-heavy data product problem is solved. That is precisely the gap the Isle of Man's Data Asset Foundation (DAF) framework is designed to address: providing a repeatable legal, governance, registry, valuation, and distribution model that treats data as a formal asset.

A digital twin is not a static model. It is a continuously updated representation of an asset or system, incorporating live data feeds and feedback loops to predict, simulate, optimise, and support decision-making.

The greatest commercial value emerges when digital twins move beyond single organisations and become part of integrated digital environments: multiple twins, simulations, users, organisations, and processes connected through digital threads.

In practice, the differentiator is rarely the model itself.

It is whether you can:

- contract for data rights and purpose limitations
- prove provenance and quality
- enforce access and usage controls
- provide audit trails regulators and partners accept
- monetise data assets and derived decision products at scale

The Data Asset Foundations structure aligns to these friction points. It is designed to treat data as an asset class through a formal framework with:

- a legal wrapper
- a data asset register
- embedded governance frameworks
- consistent valuation approaches
- commercial and technical distribution rails

COMMON PATTERNS ACROSS REGULATED SECTORS

Across finance, health, energy, and mobility, similar structural challenges arise.

ECOSYSTEM DATA IS REQUIRED

No single organisation holds sufficient data to build a high-fidelity twin. Value is created by combining datasets across multiple parties.

REGULATION AND LIABILITY ARE CENTRAL

Data quality, auditability, security, consent, and model risk are non-negotiable.

INTEROPERABILITY STANDARDS DETERMINE ADOPTION

These sectors already operate on standards, such as banking APIs, clinical interoperability frameworks, grid data models, and EV charging protocols.

THE HIGHEST-VALUE TWINS ARE DECISION TWINS

Continuous sensing leads to forecasting and simulation, which in turn drives actions such as workflows, controls, market transactions, or operational interventions.

So the real barrier is scaling trusted cross-org data sharing. The Data Asset Foundations initiative is positioned as a scalable solution to do exactly that.

Implication for digital twins:

- Digital twins must be designed as regulated data products, not internal analytics tools
- Trust, governance, and interoperability determine adoption more than model sophistication
- Cross-organisation data sharing is the primary scaling constraint

A POTENTIAL APPROACH: BUILDING SECTOR 'TWIN STACKS'

Each sector can be viewed as a layered stack:

- Asset layer: what is being twinned (e.g. portfolio, patient pathway, grid, fleet)
- Signal layer: telemetry, events, and contextual data
- Decision layer: prediction, optimisation, and simulation
- Action layer: controls, workflows, trading, settlement, or operational response
- Assurance layer: governance, audit, compliance, valuation, and distribution

The Data Asset Foundation provides a legal and operational framework that underpins all layers of the stack.

ASSET

Portfolio • Patient Pathway • Grid • Fleet

SIGNAL

Telemetry • Events • Contextual & Time-Series Data

DECISION

Prediction • Optimisation • Simulation

ACTION

Controls • Workflows • Trading • Settlement • Operational Response

ASSURANCE

Governance • Audit • Compliance • Valuation • Distribution

DATA ASSET FOUNDATION

POTENTIAL SECTOR USE CASES:

HIGH-VALUE TWIN PRODUCTS AND WHERE DAF COULD HELP

FINANCE: BALANCE-SHEET AND RISK DIGITAL TWINS AS PRODUCTS

Why it is difficult:

- Data is fragmented across banks, fintech, bureaus, merchants, payroll providers and telcos.
- Sharing is governed by strict consent and purpose limitations.
- Audit expectations are high; model risk governance is now a board-level issue.

Where DAF is a force multiplier:

- **Asset register:** provenance, lineage, quality KPIs, rights, restrictions, and liabilities become standardised.
- **Embedded governance:** makes data management controls (stewardship, quality, security, auditability) enforceable rather than aspirational.
- **Distribution rails:** repeatable access controls and templated legal arrangements reduce partner onboarding time.
- **Valuation discipline:** enables clear cost and income attribution, including consistent pricing (subscription, usage-based, outcome-based), and potentially supports financing narratives tied to contracted revenues.

Concrete finance product ideas that fit DAF:

- **Consent-verifiable affordability feature store:** A registered set of features (e.g., income regularity, expense volatility, debt service coverage bands) licensed to lenders and credit decisioning platforms.
- **Fraud signal exchange:** A consortium model where contributors share controlled, privacy-preserving fraud indicators and receive value based on contribution and usage metering.
- **Portfolio climate twin dataset:** Shared reference data plus derived risk signals, licensed with explicit permitted uses and audit trails.

POTENTIAL SECTOR USE CASES:

HIGH-VALUE TWIN PRODUCTS AND WHERE DAF COULD HELP

HEALTH: OPERATIONAL, DEVICE, AND PATIENT-LEVEL TWINS

Healthcare twins vary widely by purpose: operational optimisation is very different from clinical decision support, and both differ from autonomous systems. Requirements change drastically based on data ownership, access, storage, and intended clinical use.

High-value health twin products:

- Hospital operations twins
- Disease-specific care pathway twins
- Medical device fleet twins

Why it is difficult:

- Sensitive data, strict consent requirements, and complex clinical governance.
- Higher regulatory scrutiny for systems influencing clinical decisions.
- Data provenance and auditability are critical for trust.

Where DAF helps (when applied carefully):

- Purpose limitation and consent traceability: explicitly tracked and enforceable.
- Audit-ready lineage: clear evidence of which datasets and versions drove decisions.
- Multi-party governance: hospitals, device manufacturers, and service providers can participate under a neutral structure.

Concrete health product ideas that fit DAF:

- **Hospital operations data cooperative:** Registered operational datasets (minimised/pseudonymised where possible) powering flow forecasts and resource optimisation. Strong ROI, with less clinical regulatory risk than patient-level modelling.
- **Device performance and safety twin:** Multi-vendor device telemetry and maintenance events governed with warranty/liability constraints; outputs sold as performance and safety intelligence.
- **Patient-level twins:** Disease-specific decision support with explicit human oversight, tight governance, and strict restrictions on reuse.

POTENTIAL SECTOR USE CASES:

HIGH-VALUE TWIN PRODUCTS AND WHERE DAF COULD HELP

CROSS-SECTOR COMPOUND TWINS: THE BIGGEST BUSINESS

This is where a data company can build a defensible moat – products that sit between industries.

For example: vulnerability and energy-support twin (Health + Energy + Public sector)

Use case:

- Identify high-risk households based on energy usage anomalies plus vulnerability indicators to trigger support interventions.

Caution

- Very sensitive; governance must be exceptional.
- If done responsibly, it can unlock public-private data cooperation with measurable societal benefit.

Why this matters:

- The largest digital twin opportunities sit between sectors, not within them
- Cross-sector twins create defensible positions that are difficult to replicate
- Neutral governance structures are essential to unlock participation



HOW TO USE THE DAF STRUCTURE IN PRACTICE: **POTENTIAL SCENARIO**

STEP 1: REFINE REGISTRABLE DATA ASSETS AS PRODUCT SKUS

Every asset should include:

- scope, schema, identifiers and update cadence
- retention and security classification
- quality KPIs (completeness, timeliness, accuracy, drift)
- permitted uses + prohibited uses
- consent and restriction history (where relevant)
- liability notes and audit expectations

STEP 2: BUILD 10–20 FOUNDATION ASSETS THAT POWER MULTIPLE TWINs

Examples:

- **Mobility:** charging sessions, charger health signals, fleet utilisation features
- **Energy:** flexibility dispatch outcomes, congestion forecasts, asset health features
- **Finance:** affordability features, fraud indicators, climate exposure mappings
- **Health:** operational flow datasets, device fleet telemetry

STEP 3: TREAT GOVERNANCE AS A PRODUCT FEATURE

Operationalise stewardship, quality controls, access approvals, monitoring and audit trails. The Data Asset Foundation initiative helps embed this in the structure rather than bolting it on.

STEP 4: CHOOSE MONETISATION MODELS

- subscription to signals (APIs)
- usage-based pricing (per call, per asset, per simulation)
- outcome-linked pricing (share of savings, loss reduction)
- royalty licensing for feature stores
- consortium models with contribution-based entitlements

STEP 5: EARLY VALUATION DISCIPLINE

Using existing valuation methodologies:

- income-based (contracted revenues)
- market-based (comparables/substitutes)
- cost-based (recreation and opportunity cost)

The key is consistency so pricing stops being political and becomes repeatable.

THE ISLE OF MAN

A self-governing nation in the heart of the British Isles, the Isle of Man is renowned for its political stability, forward-looking regulation, and collaborative business environment. As home to one of the world's most agile digital economies, it is the ideal jurisdiction to pioneer the future of data.

DIGITAL ISLE OF MAN

Digital Isle of Man is an Executive Agency within the Isle of Man Government, driving the Island's digital future by creating the environment for business success, shaping policy, and leading innovation. It empowers businesses to grow and lead globally, positioning the Isle of Man as a hub for digital excellence.

EDM ASSOCIATION

To deliver the Data Asset Foundations initiative, Digital Isle of Man has partnered with the EDM Association – the world's leading global association for data management, standards and analytics. With more than 700 member organisations spanning financial services, technology, government, and numerous industries, the EDM Association sets the global standards for data best practices, governance, and value realisation.



JOIN THE FUTURE OF THE DATA ECONOMY

This is your opportunity to shape global standards, pioneer new business models, and unlock the full commercial power of your data.



www.digitalisleofman.com/data-asset-foundations



contact-digital@gov.im

IMPORTANT DISCLAIMER

The strategies, structures, commercial models and functionality outlined in this document are hypothetical and illustrative and are intended to support discussion of potential Data Asset Foundation use cases in the context of the proposed Foundations (Amendment) Bill 2025 and associated programme in the Isle of Man. These measures are proposed only and remain subject to parliamentary approval, amendment and Royal Assent. Any operational mechanisms – including Data Governance Frameworks, controls, standards, assurance processes and any functional specifications for a Data Asset Register – remain in draft/development and may change materially as legislation, regulations, procurement and system design are finalised.

This document is not: (a) legal, tax, accounting or financial advice; (b) a definitive statement of law, regulation or government policy; (c) an offer, commitment or guarantee to implement any model, capability, timetable or outcome; or (d) an endorsement that any described approach will be compliant or acceptable to auditors, regulators, counterparties or markets. Any valuation, accounting treatment, governance approach or commercial structure must be assessed on its specific facts and may be subject to auditor and regulatory judgement. Nothing in this document addresses all considerations relevant to Data Asset Foundation use cases, including (without limitation) data protection and privacy, confidentiality, intellectual property and data rights, sector-specific regulation, cross-border transfers, information security, or contractual enforceability. Participants should conduct their own due diligence and obtain independent professional advice before relying on or implementing any approach described.

To the maximum extent permitted by law, the Isle of Man Government and Digital Isle of Man disclaim responsibility and liability for losses arising from reliance on this document.

Document status: current as at 2 February 2026; may be superseded.