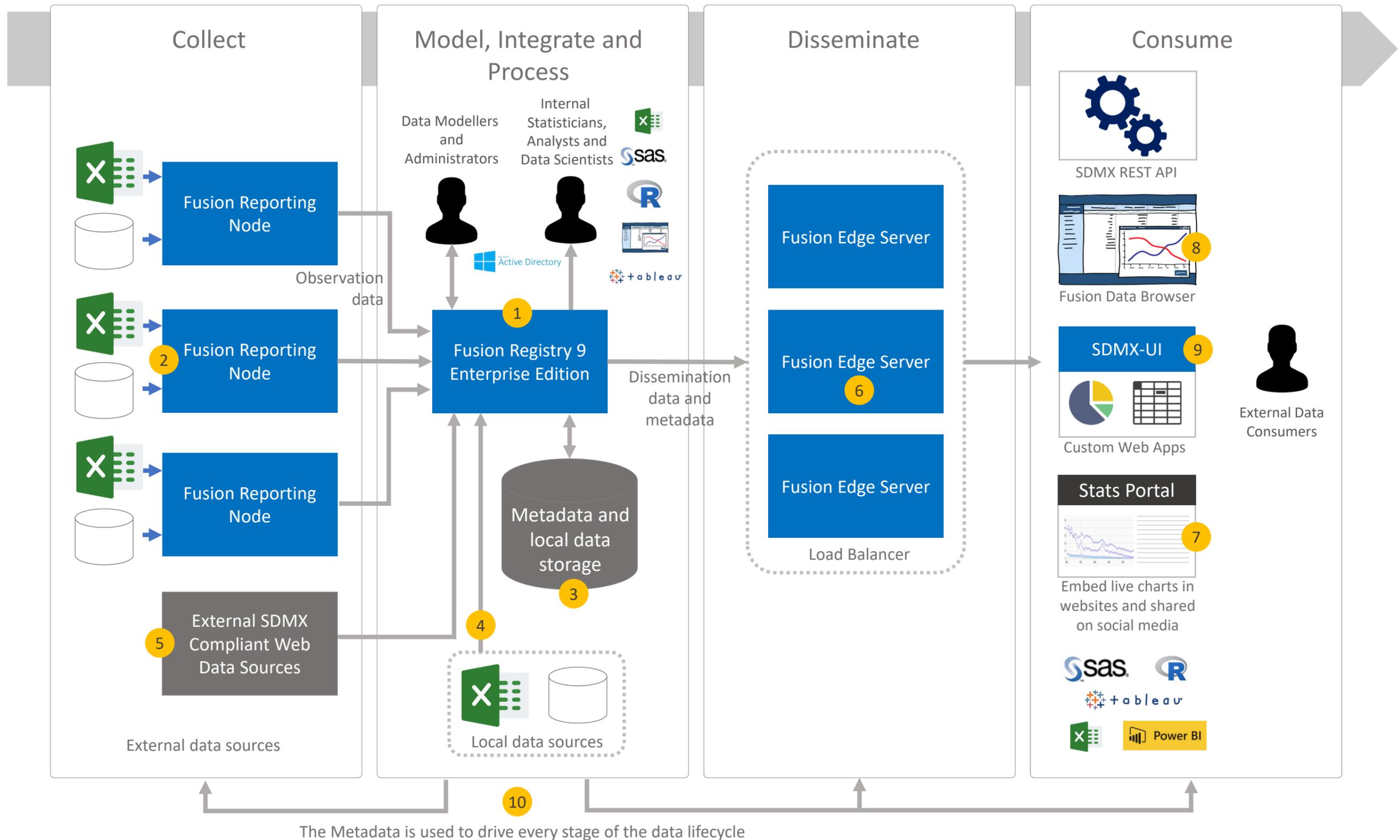


# Automate the full official statistics data lifecycle using Fusion Registry® 9 Enterprise Edition from Metadata Technology



- ❶ Fusion Registry 9 – the core data and metadata management engine
- ❷ Fusion Reporting Node – Fusion Registry's interface to external data providers and data sources
- ❸ Fusion Registry uses a SQL database for holding its structural metadata and any data that has been loaded
- ❹ Data can be loaded from files or dynamically extracted from linked SQL databases on demand
- ❺ Data from external SDMX compliant web sources can be dynamically integrated with that from other sources

- ❻ Fusion Edge Server – light-weight REST API server for driving live data dissemination products
- ❼ Live charts can be designed and embedded in websites or shared on social media
- ❽ Fusion Data Browser – a stand-alone web application for searching, browsing, visualising and downloading dissemination data
- ❾ SDMX-UI – Metadata Technology's JavaScript framework for building custom data-driven web apps
- ❿ The structural metadata, comprehensive information about how the data is structured, drives all stages of the lifecycle

# Fusion Registry® 9 Enterprise Edition is a statistical data management system supporting the complete official statistics lifecycle



## Who is it for?

Fusion Registry 9 is for official statistics organisations who need an efficient and controlled way to collect, integrate, process and disseminate aggregated time series in a form that can be easily discovered and consumed both by professional and casual users.

### Modelling Your Data

Creating a well-structured model of your data domain is an essential first step: specifying the statistical datasets required, the concepts being measured, how they are classified and rules for data quality. If you're familiar with SQL databases, it's equivalent to defining the tables in a schema and the values acceptable for each column – so-called 'structural metadata'.

Fortunately Fusion Registry 9 ❶ provides a powerful set of tools to help you do this.

Rather than the SQL model of tables and columns, Fusion Registry uses SDMX – an international standard for describing and exchanging statistical information.

Why use SDMX?

SDMX is a non-proprietary open standard specifically designed for statistics. It also provides a common language for exchanging both the statistical data and structural metadata with other organisations and systems simplifying integration and improving interoperability.

### Collecting Data from Multiple Providers and Sources

Fusion Reporting Node ❷ is a separate module providing a simple and reliable interface for collecting data from external providers and sources. It's specifically designed for use cases where data needs to be collected and integrated from multiple reporting organisations such as national statistics offices or government agencies.

How does it work?

Each data reporter has their own Reporting Node. They can submit data either in Excel spreadsheets uploaded interactively using the web user interface, or if the Node is running on premises, configure it to automatically extract the data from a SQL database.

The Reporting Node checks that data is correctly structured and complies with quality rules before it is forwarded to the central Fusion Registry.

Collecting data on time, every time.

Fusion Registry's Reporting Calendar allows the data collector to schedule when data updates should be submitted. Data providers are reminded by email when submissions are due, or data is automatically extracted from the linked SQL database.

### The Metadata Driven Approach

Fusion Registry uses the **structural metadata** that describes your data model to drive ❸ every stage in the data lifecycle making it efficient and controlled.

#### Efficient

The processes and services that make up the data lifecycle use the **structural metadata** to automatically configure themselves. A new data set added to the data model automatically appears for collection, data discovery and dissemination – no software changes required.

#### Controlled

Fusion Registry acts as a central authoritative source of metadata allowing operation of the data lifecycle to be tightly controlled.

### Data Integration – The Virtual Data Repository

Fusion Registry acts as a 'virtual data repository' which seamlessly integrates data dynamically retrieved from external sources with that stored locally ❹ to respond to queries. External sources can be Fusion Reporting Nodes ❷, or SDMX compliant web services provided by third parties such as Eurostat and the European Central Bank ❸.

What's main the benefit?

When integrating large numbers of data sources holding potentially high volumes of data, the virtualisation approach avoids the overhead of physically replicating all of the data into a central location, and the problem of keeping it up to date. Fusion Registry uses caching to reduce any performance impacts of retrieving external data on-demand.

Data can be stored locally if required, either by loading it directly into Fusion Registry's local storage ❹, or opting to download the data from selected Fusion Reporting Nodes rather than retrieving it on demand. Local storage may be appropriate for smaller data sets, or where the source data is dynamic and a consistent snapshot is required.

### Supporting Internal Data Consumers

Internal statisticians, analysts and data scientists can use Fusion Registry's Virtual Data Repository as a central source of time series. Connectors are available for a range of packages including 'R', Tableau and SAS, plus Metadata Technology's FusionXL addin for Excel.

### Secure, Reliable and Scalable Data Dissemination

A cluster of Fusion Edge Servers ❺ provide a reliable and scalable solution for disseminating data.

Fusion Edge Server is a light-weight REST API server that can be used to drive a wide variety of public and private dissemination products including:

- Fusion Data Browser ❻ - Metadata Technology's web app for discovering, visualising and downloading data
- Custom web data applications
- Live charts embedded in web statistics portals or shared on social media

It can also be used to publish a data API either directly, or through an API gateway service such as those offered by Microsoft Azure or Amazon Web Services.

#### Secure

Dissemination data and metadata is pushed from the master Fusion Registry to the Edge Server cluster which can be deployed to the DMZ or even remote cloud regions. Once primed with data, the Edge Servers are autonomous and require no connection back to Fusion Registry or any private services. They use a proprietary in-memory database which avoids any SQL database vulnerabilities.

#### Reliable and Scalable

Fusion Edge Servers are designed to be deployed in clusters which can even be distributed across multiple geographic regions for ultimate resilience and performance. Because each Edge Server operates autonomously, the clusters can be easily scaled to respond to demand. Data refreshes can also be timed to the second by uploading the new data and setting a publication time – useful for controlling embargo.

### Building Custom Web Apps using SDMX-UI

Metadata Technology's SDMX-UI ❻ JavaScript framework provides web developers with a powerful client-side API for building custom data dissemination web apps.

SDMX-UI provides methods for querying and manipulating data, plus a range of data picker, table and chart visual components. That makes it easy to build data dashboards, statistics portals and integrate live data into new and existing websites.