



# TENSING ESG OVERVIEW

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# WHO IS TENSING?



Geospatial data consulting services



Part of the Avineon Group of spatial intelligence experts



Building fit for purpose data to simplify and automate



Expertise in Esri ArcGIS and FME technology platforms



An International footprint in Asia, Europe, and North America



Esri Gold Partner  
Safe Software Silver Partner



Provide specialists to help organizations enrich their data



60+ FME certified professionals  
30+ Esri certified consultants

# MISSION

## Elevating Spatial Intelligence

*To bring the power of geospatial decision making within reach for everyone.*

**Drive**  
innovation

geospatial business

**Democratise**

the use of ETL and GIS  
technology



**esri**

Partner Network  
**Gold**



# Power the Flow of Data

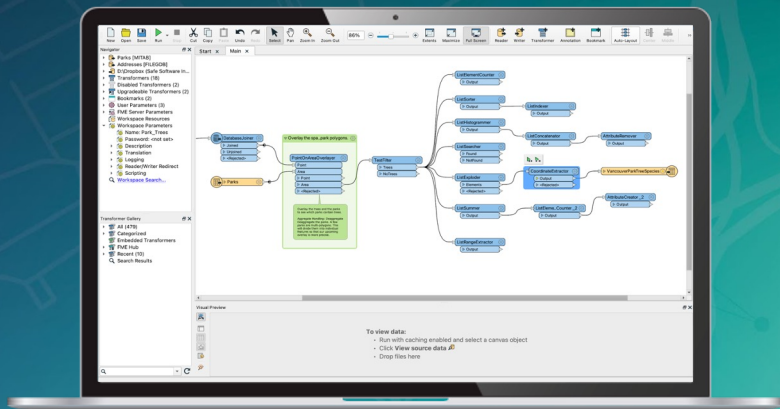
FME connects your data and applications with automated integration workflows.

Author

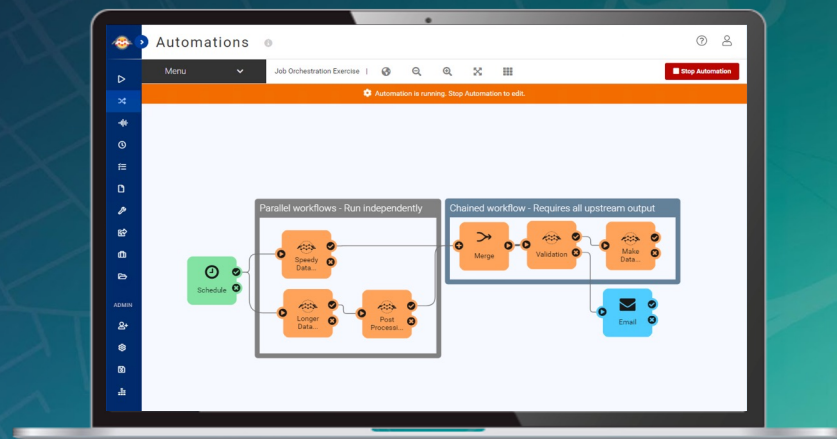
Quickly author data integration workflows in a graphical user interface, no coding required.

With FME, you can connect data between sources and destinations.

Use pre-built tools to transform & validate data, ensuring high quality.



# Power the Flow of Data



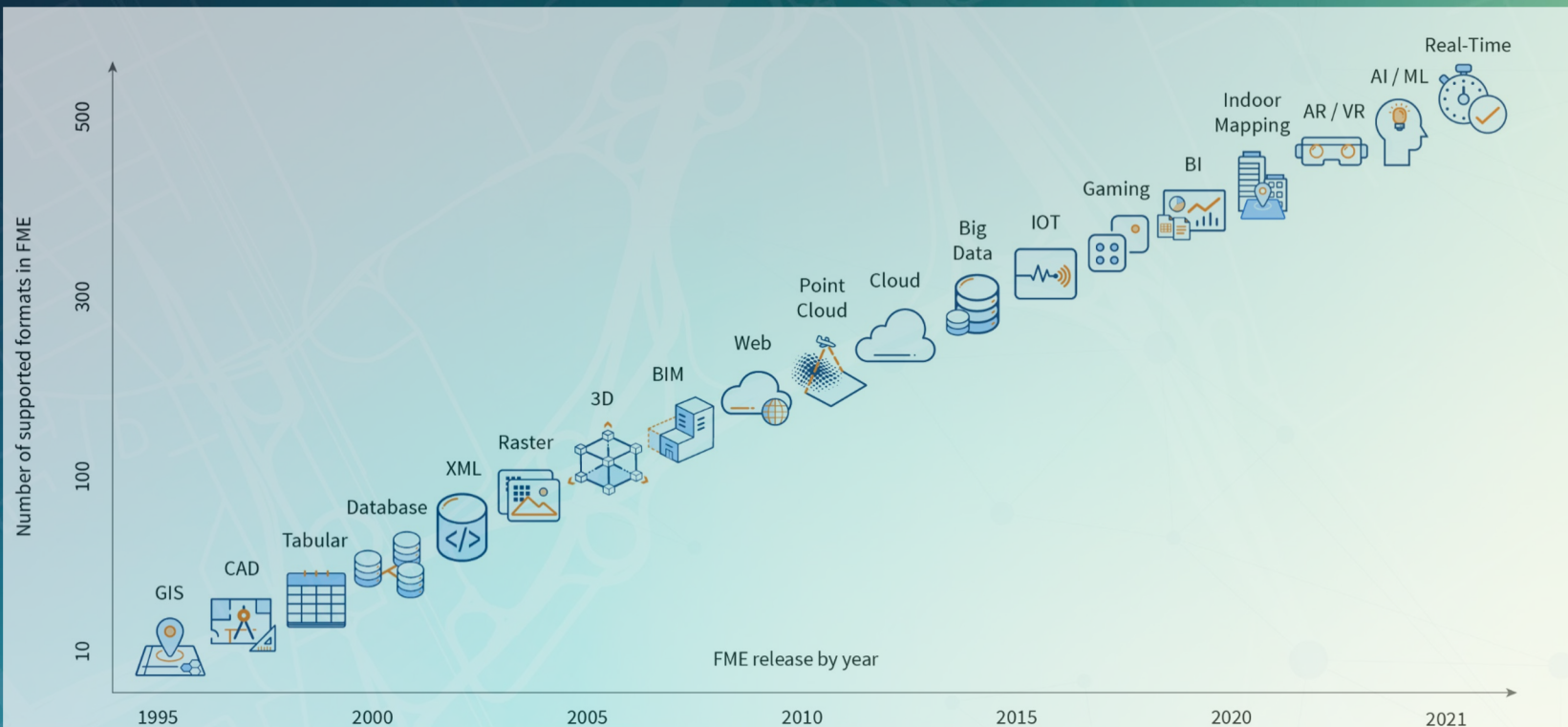
Automate

An automated integration workflow is critical. Data needs to flow freely between systems and applications.

Using FME's no-code GUI, you replace repetitive manual tasks with event-driven workflows and schedules.

FME helps you ensure that data is always up-to-date.

# Spatial Data is Everywhere...



### 3D/BIM/CAD

- Adobe 3D PDF
- IFC
- Autodesk (A360, AutoCAD Civil 3D, Map 3D, 3ds, FBX, IMX, MapGuide, Revit)
- Bentley (i-Model, MicroStation, ProjectWise)
- BIM Collaboration Format
- CityGML
- COLLADA
- gITF
- IBM TRIRIGA
- IMDF
- IndoorGML
- Trimble Sketchup
- LandXML
- Mojang Minecraft
- OpenSceneGraph
- STL
- Unreal Engine Datasmith
- Virtual Reality Modeling Language
- Wavefront OBJ
- X3D

### Business

- CSV
- Dropbox
- FTP
- Google Drive
- Microsoft (Excel, OneDrive, PowerBI, PowerPoint, SharePoint, Word)
- Qlik

- R Statistical Data
- Salesforce
- Slack
- Socrata
- Tableau

### Databases, Data

#### Warehouses & Big Data

- Amazon Web Services (AWS Athena, Aurora, DynamoDB, Redshift, S3)
- Apache Hive (Hadoop)
- CouchDB
- dBase
- Denodo
- Elasticsearch
- Google Cloud (BigQuery, Cloud Spanner, Cloud SQL)
- IBM (Cloudant, dashDB, DB2, Informix)
- JDBC (Java Database Connectivity)
- LDAP
- Microsoft (Access, Azure, SQL Server)
- MongoDB
- Netezza
- ODBC (Open Database Connectivity)
- Oracle (Oracle, Oracle Spatial)
- PostgreSQL
- SAP HANA
- Snowflake

- Spatialite
- SQLite

### GIS/Mapping

- Adobe Geospatial PDF
- AML
- AIXM
- CARIS
- CARTO
- Cesium
- Cityworks
- ERDAS (Mapper, IMAGINE)
- Esri (ArcGIS, AGOL, ASCII Grid, ArcSDE, Geodatabase, I3S, Shapefile)
- Garmin (GDB, MapSource, POI)
- GDAL
- GE Smallworld
- GTFS
- GeoJSON
- GeoRSS
- GML
- GPX
- HERE Venue Maps
- HTML
- Intergraph GeoMedia
- MapInfo (MIF/MID, TAB, NGrid)
- OGC GeoPackage
- OpenStreetMap (OSM)
- Ordnance Survey Maps
- PostGIS
- S-57 (ENC) Hydrographic Data

- TomTom POI
- TopoJSON

### Raster/Point Cloud

- Adobe (Flash, Illustrator)
- ASTM E57
- DICOM
- Entwine Point Tile (EPT)
- GeoTIFF
- GIF
- JPEG & JPEG 2000
- Landsat-8
- LAS
- LizardTech MrSID
- Microsoft
- NetCDF
- NIFTI
- Planet
- PNG
- PointCloud XYZ
- Pointtools POD
- RIEGL Laser Scan Database
- Sentinel-1 & Sentinel-2
- SVG
- TIFF
- U.S. Geological Survey Elevation Model

### Web

- JSON
- WFS
- WMS
- XML

See full list of 450+ integrations:  
[safe.com/integrate](https://safe.com/integrate)

# The Rise of Spatial Data

The value of Spatial Data is recognised by more and more vendors.







Easily move data between **450+ sources** including geospatial data, big data, and real-time data.



**Automate** trigger actions with event-based workflows to remove manual effort.

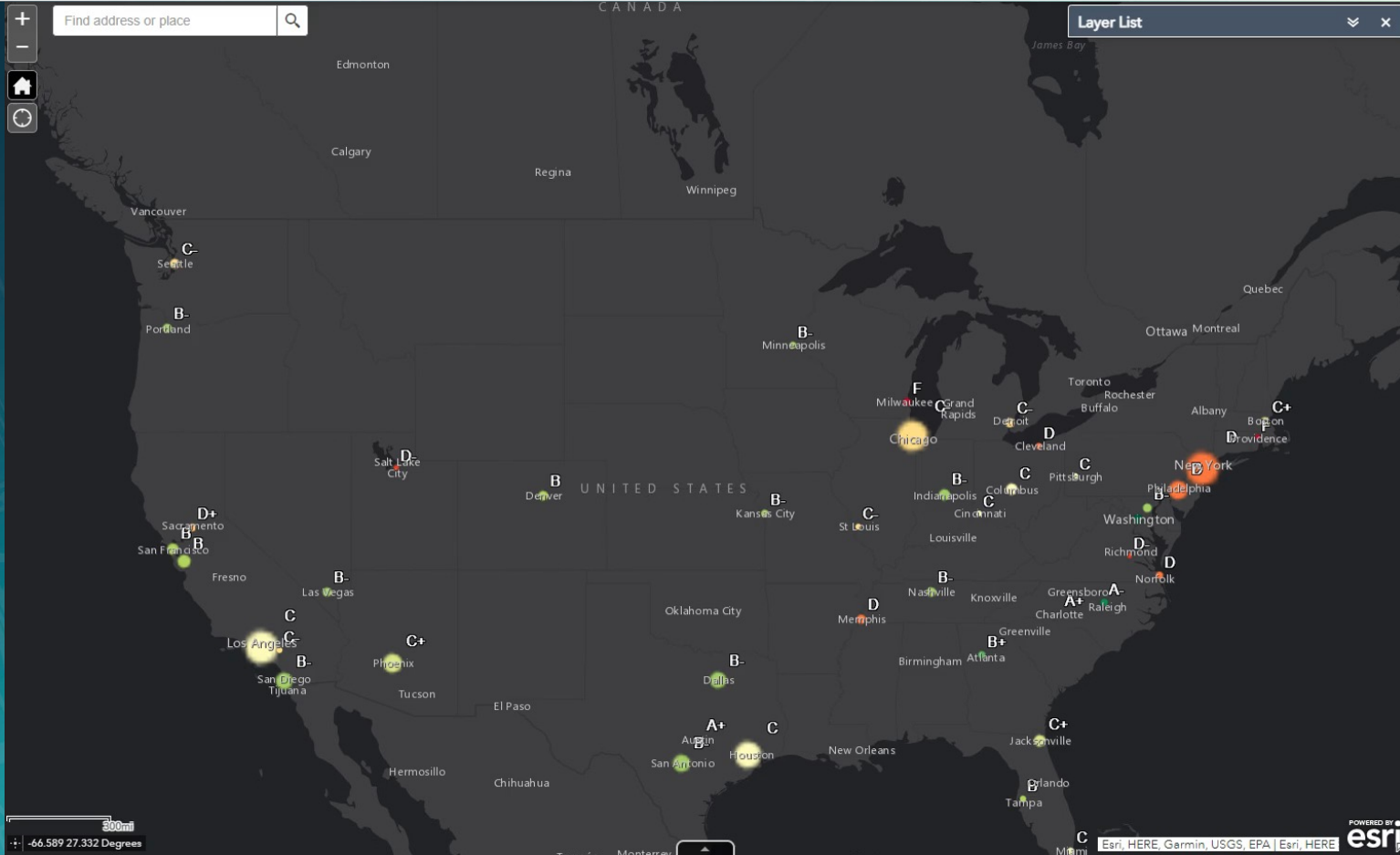


Use a library of over **500+ transformers** to combine and restructure data without writing code.



Improve data accessibility and sharing with **self-serve apps**

# ESG Asset location review



## Office Location Planning

postcode (optional)

duration\_minutes

choose the location (optional)



OK

Distance  
Times

# Workbench

\*NONE -- HTML (C:\Users\OliverMorris\Aveon\Tensing\Tensing - UK - Presales\221117\_OGC\_ESG\_Conference\Office Locations\Isolines.fmw) - FME Workbench 2022.1

File Edit View Readers Transformers Writers Run Tools Help

New Open Save Run Stop Cut Copy Paste Undo Redo Select Pan Zoom In Zoom Out 32%

Extents Maximize Full Screen Reader Writer Transformer Annotation Bookmark Auto-Layout Center Middle Publish Republish

Navigator

- report output [HTML]
- Transformers (30)
- Upgradeable Transform...
- Bookmarks (5)
- User Parameters (4)
- FME Server Parameters
- Web Connections
- Workspace Resources
- Workspace Parameters
  - Password: <not set>
  - Name: <not set>
  - Description
  - Logging
  - Reader/Writer Redi...
  - Translation
  - Scripting
- Workspace Search...

Transformer Gallery

- All (501)
- Categorized
- Embedded Transformers
- FME Hub
- Recent (10)
- Search Results

Visual Preview

To view data:

- Run with caching enabled and select a canvas object
- Click **View source data**
- Drop files here

Feature Information

| Property                        | Value         |
|---------------------------------|---------------|
| Dimension                       | 2D            |
| Number of Vertices              | 0             |
| Min Extents                     | nan, nan      |
| Max Extents                     | nan, nan      |
| Attributes (6)                  |               |
| _creation_instance (64 bit ...) | 0             |
| fme_feature_type (string: ...)  | Creator       |
| fme_geometry (string: UTF-8)    | fme_undefined |
| fme_type (string: UTF-8)        | fme_no_geom   |
| point_location (string: UTF-8)  |               |
| postcode (string: UTF-8)        | OX4 2U        |
| IFMENull                        |               |

Features Selected: 0 of 0

# Common Integration Challenges

Geometry mismatch

Poorly documented APIs

Semantic mismatch

Uneven data quality

Spatial reference system issues

Overwhelming scope

Stakeholder engagement

# Solution Approaches

## Geometry mismatch

- geometry conversion and generalization

## Poorly documented APIs

- connectors
- API wrappers
- simplify user xp

## Semantic mismatch

- define mappings between known standards

## Uneven data quality

- formalize data QA process

## Spatial reference system issues

- coordinate checks, SRS name mapping

## Overwhelming scope

- start with a narrow scope and add over time

## Stakeholder engagement

- rapid POC creation
- gamification

# Observations & Common Characteristics

- Non-standardized inputs can be brittle
  - web site changes, urls ,etc
- API services standardized on protocol and format help (REST/JSON), but schema interpretation, transformation and semantic translation remains a challenge
- Significant effort to integrate across diverse range of sources
- Modular model based approach relatively easy to automate and modify once hard work of schema and semantic transformation is in place
- Major role to play for open standards to simplify this process
- Importance of multiple or overlapping sources for similar information
- Data trends
  - need observation time as well as location
- Sensors can provide data quality checks
- Importance of aggregation, anonymisation
- Reality is that most systems need to have support for a range of data sources including support for both open and defacto proprietary standards such as ESRI AGOL, Excel, Azure services, Autodesk Tandem, Bentley, ITwin, AWS etc

# Round table questions

- To what degree are data silos barriers for decision making. Are these barriers a result of:
  - accessibility (e.g., poor search catalogue, lack of metadata)
  - data formats – not easily used by current software tools or overly simplified / too complex
  - data is fragmented/incomplete/outdated – too much work to incorporate
  - access rights – how is the data licensed - commercial use prohibited
  - cost – is the value of using the data outweighed by the cost perception that spatial data is special with high barrier to using it
- Leading on to how can we identify them, overcome these barriers and prevent them?
- How do you check the provenance of data – do you perceive earth observation data to offer a source of truth?
- Is there any marketing advice you would give the geospatial community to promote the use of geospatial data in ESG and ultimately be more mainstream



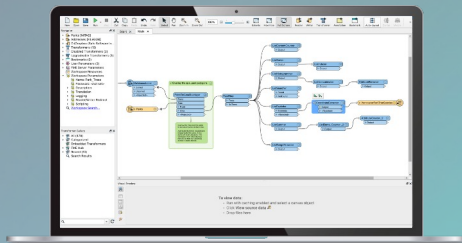


**ELEVATING SPATIAL  
INTELLIGENCE**

[www.tensing.com](http://www.tensing.com)

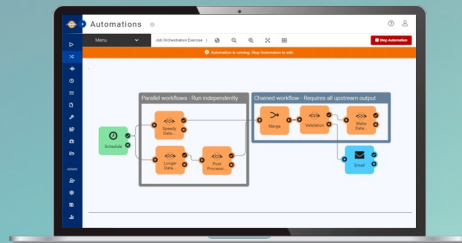
# FME Enterprise Integration Platform

*The only Enterprise Integration Solution  
with comprehensive support for Spatial Data*



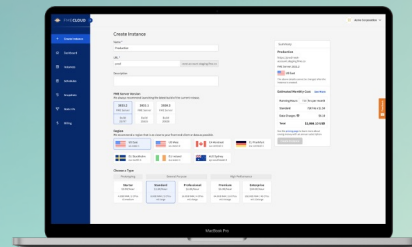
## FME Desktop

Build & Run Data Workflows



## FME Server

Automate Data Workflows



## FME Cloud

FME Server in the  
Cloud



## FME Mobile

Deliver the Power of  
FME to Mobile