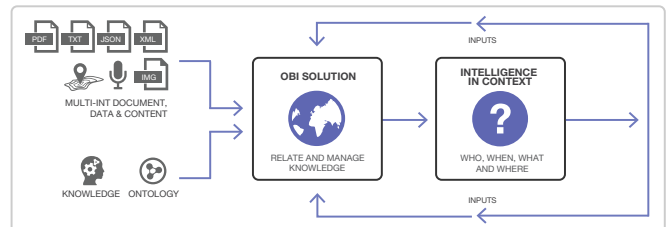


# Object-Based Intelligence

## Putting National Security Information in Context

The MarkLogic Object-based Intelligence (OBI) solution is a high fidelity analytical approach capable of surfacing actionable insight from an ocean of noise. It is at the center of our Enterprise Data Layer, and places intelligence in context by answering *Who? When? What? and Where?* It provides tradecraft tools and a data model required to store, enhance, and disseminate and analyze dynamic intelligence products. All input information – structured or unstructured – is modeled and correlated using an OBI approach.



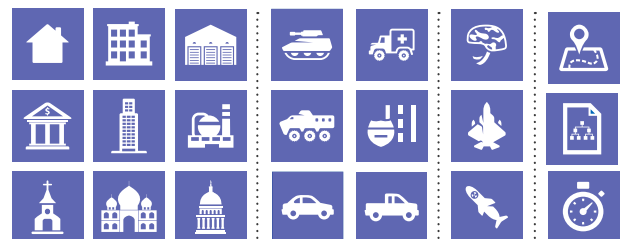
The MarkLogic OBI solution supports n-dimensional contextual descriptions of Multi-INT content including content level aggregation across domains. It accommodates massive volumes via a distributed architecture. Attribute-level metadata allows users and automation to annotate and enrich all datasets and objects with pedigree, provenance, geospatial, temporal, and access information. Metadata fields can evolve dynamically with the mission’s needs and support multiple COI-specific taxonomies and ontologies. The framework also provides a flexible mechanism to create, navigate, and manage relationships between objects and their various attributes. Semantic technology is used to define relationships, proving the ability to capture the complexity and richness of world events.

## Why Objects?

For defense and security organizations, an Object represents a physical or intangible object – such as a person, place or event – that should only exist in one place across systems and processes. This concept is not new and has been used as part of Command and Control models for decades.

Things such as buildings, vehicles, and individuals – as in the illustration below – are associated with an object comprised of attributes. Multiple Object types can be defined to cover the varieties of information domains across organizations and systems. The MarkLogic OBI approach allows you to discover and search Objects across communities of interest (COIs) and agencies in order to address current knowledge sharing, data duplication, and provenance traceability challenges.

Objects also enable dynamic Tasking, Collection, Processing, Exploitation, and Dissemination (TCPED) business process improvement by continuously incorporating the most dynamic intelligence. The ontology-based semantic layer enables real-time processing, exploitation, and dissemination across multiple COIs by providing thematic views and intelligence products, greatly increasing effectiveness compared to current linear TCPED processes.



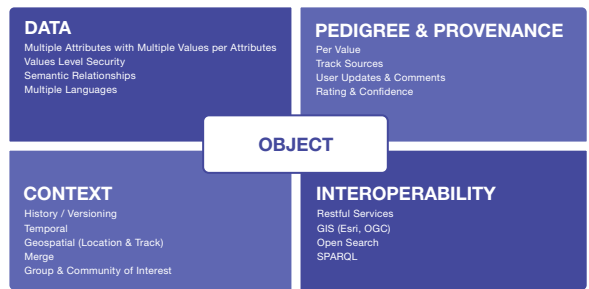
OBJECT EXAMPLES



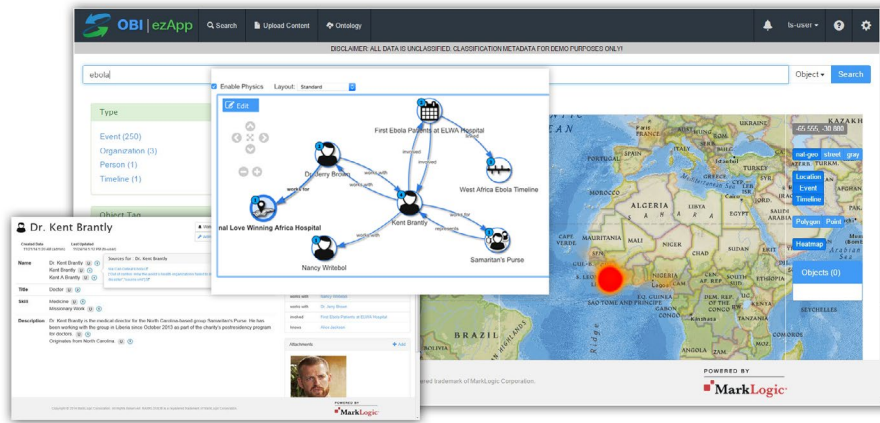
# The MarkLogic Object Model

The MarkLogic OBI solution is based on an innovative and flexible Object Model that dynamically defines object types and their relationships, using semantics. Objects can have an unlimited number of attributes which have multiple values. Objects can be stored and managed by the OBI infrastructure or virtualized from external systems-of-record. Each object is contextualized geospatially and temporally. Multiple geometries are supported. For example, an airport object can be associated with a point location and a complex polygon representing its footprint. Each value has value-level metadata including: compartmented access, releasability, provenance, pedigree, update history, user comments/rating, and temporal context.

## ONTOLOGY BASED OBJECT MODEL



The temporal context includes validity time and periodicity. For example, a name can be valid between 12/1/2005 and 1/5/2014 and a usage for a plaza can be "Town Market" every Friday from 5am to noon. The graphic above illustrates an example object's characteristics.



# About MarkLogic

For over a decade, organizations around the world have come to rely on MarkLogic to power their innovative information applications. As the world's experts at integrating data from silos, MarkLogic's operational and transactional Enterprise NoSQL database platform empowers our customers to build next generation applications on a unified, 360-degree view of their data. Headquartered in Silicon Valley, MarkLogic has offices throughout the U.S., Europe, Asia, and Australia. For more information, please visit [www.marklogic.com](http://www.marklogic.com).

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