OiO

Integrated intelligence for exploration and development

Unify semantics through an oil and gas business world model and connect data, specialist tools, knowledge, and processes, providing reusable business capabilities to research institutes, business departments, and data and IT teams.

Operating context

Cross-system development research

For wells, intervals, reservoirs, and blocks, business users organize materials, specialist calculations, charts, and reports, and use the results for research analysis and business decisions.

Current workflow gaps

01 Materials and definitions are dispersed

Data retrieval and object and definition verification are repeated, making work preparation labor-intensive.

02 Tools and outputs are insufficiently connected

Software inputs, chart compilation, and evidence tracing are fragmented, making continuous output review difficult.

Expected deliverable

Link material conditions, specialist methods, execution records, and output reviews to create inspectable, reusable business outcomes.

Capabilities and value

01 Consistent business meaning

OiO Core provides semantic and business foundations, linking objects, resources, work, and constraints to the same task.

Basis: five-dimension ontology, KG0 standard relationships, and KG1 mappings

02 Evidence-based specialist processing

Large language models, small models, and the business world model (DWM) work together to connect task understanding, specialist processing, and business constraints. Condition: business definitions, resources, and specialist methods are available

03 Reviewable execution

Agent OS Runtime organizes tool calls according to rules and contracts and retains runtime states, exception handling, and result evidence. Checks: output review and execution-record verification

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Workflow and application

A six-layer architecture carries business tasks through from one layer to the next Core value and implementation mechanisms

Resource domain Layers 2-3 Intelligence domain Layers 4-5 Application domain Layer 6

Layer Primary responsibility Deliverable

1 Business ontology foundation The five-dimension ontology, anchors, MBU, and IPOMSQ unify objects, work, resources, and constraints | KG0 standard relationships KG1 mapping specifications

2 Resource forging Organize, process, validate, and publish data, documents, maps, tools, and rules | Resource packages aligned with business definitions

3 Resource operations Organize catalogs, instances, versions, permissions, quality states, and service entry points | Task resources and gap descriptions

4 Intelligent services Use three models together to understand requirements and match business units and resources Inspectable task plans

5 Runtime support Invoke tools according to authorization, rules, and capability contracts and manage states and exceptions | Outputs, runtime records, and evidence chains

6 Business application delivery Business apps, general intelligent applications, and specialist agents deliver outputs | Business outcomes and work entry points

The business ontology foundation runs through every layer. OiO Core provides semantic grounding, and Agent OS Runtime organizes execution. Workspace serves as the work entry point and preserves project context and collaboration relationships.

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Application and deployment

Typical applications and credible evidence

Resource governance and research applications

Phase II of an enterprise group's data lake: an initiative organized around master data, quality, metadata, and business services.
An enterprise group's exploration and development data application: integrated with more than 10 systems and built around 6 major thematic repositories.
The existing materials provide references for reuse; the specific implementation stage and supply scope are subject to project records.

Adoption and integration

Business definitions: ontology, anchors, and business units.
Resource services: delivered by the corresponding JuraData One products.
Data Q&A, mapping, and reporting are independent business products that run in Workspace; their capabilities belong to Layer 6.

Adoption conditions and next steps

Customers provide authorized data and interfaces, specialist tools and methods, and any required licenses. Jointly define business objects and output standards and produce a scenario-scope table and a resource and tool inventory.

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Start with an acceptance-testable task and define the resources, tools, operating conditions, and output standards. The foundation environment is essential; the intelligent-services environment is configured with each intelligent product.

Operating context

Single-well production-decline diagnosis

For a well, interval, and analysis period, researchers verify production, well-history, and operating-condition data and organize cause analysis and expert review.

Key gaps in task execution

01 Task conditions are incomplete

Critical materials, applicable methods, or authorization are insufficient, making the analytical basis difficult to confirm.

02 Conclusions and evidence are not connected

Cause judgments, supporting evidence, counter-evidence, and review comments are dispersed, limiting subsequent reuse.

Expected deliverable

Produce facts, candidate causes, supporting evidence, counter-evidence, and recommendations, then deliver diagnostic outputs after expert review.

Capabilities and value

01 Assess work effort

Compare effort for material preparation, specialist calculations, output compilation, and expert review within the same task.

Basis: a manual baseline and consistent measurement definitions

02 Assess output quality

Check output quality, evidence completeness, and exception-handling records against specialist results.

Basis: output templates, review standards, and validation records

03 Assess reusability

Repeat the task for another applicable object and confirm the conditions for reusing resources, methods, and tools and the additional effort required.

Basis: the applicable object scope and a reusable-asset inventory

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Workflow and application

Six-layer collaboration in single-well diagnosis
Application value and validation methods

Researchers and specialist experts Single well, interval, and period Reviewable diagnostic outputs

Inputs

Production, well-history,
and operating-condition data

Data lake and business systems
and specialist tools

Specialist methods
Output templates,
and review requirements

Product workflow

1. Definition and resource preparation

Define objects and inputs/outputs; process and validate materials; and provide authorized access to data and tools.

2. Planning and controlled execution

Form a candidate plan; check prerequisites; and invoke applicable specialist tools according to contracts.

3. Output presentation and review

Present facts, candidate causes, evidence, counter-evidence, and recommendations for specialist expert review.

Outputs

Diagnostic outputs
and specialist graphics

Runtime records
and evidence chains

Reviewed, published,
and reusable resources

Experts confirm the intended use and standards for the output; after review and version release, it returns to the resource pool for reuse.

When data are missing, a method is inapplicable, or authorization is insufficient, supplement conditions, await confirmation, or hand the task to a person.
Chart generation does not prove that a diagnosis is correct or that a production intervention has been approved.

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Application and deployment

Typical applications and credible evidence

Production operations and specialist decision-making

An oilfield in the Middle East: links acquisition, monitoring, anomaly models, maintenance reports, and response responsibilities.
An enterprise group's gas-field development initiative: 7 disciplines, 142 business activities, and 123 algorithm components; plan preparation fell from 15 days to 5 days, and collaborative response time from 72 hours to 4 hours.
The existing materials present the results but do not provide the complete statistical period, sample set, or acceptance records.

Adoption conditions and product boundaries

Configuration: the foundation environment is essential, while the intelligent environment is configured with each intelligent product; the two levels are not sold independently.
Scope: modules, versions, interfaces, and licenses are confirmed per project.
Status: AgentFactory, JuraML, and seismic curation are in design or development.

Conduct joint validation

Both parties confirm the ontology, business units, resource mappings, and tool contracts.
Agree on product versions, exception workflows, and review responsibilities and submit a joint validation plan.