NOVA Invoice Suite · Key To Business S.r.l.

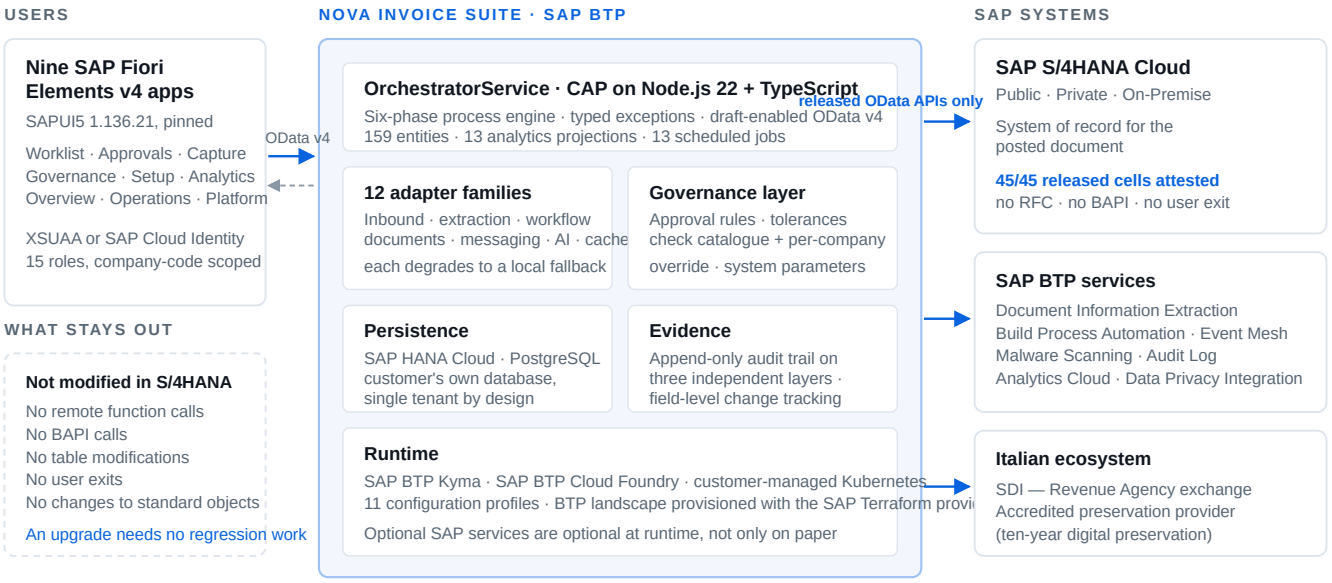
ARCHITECTURE

A side-by-side extension that leaves the digital core untouched

How the solution is built, where each part runs, and what exactly crosses the boundary towards SAP S/4HANA — with the Clean Core claim expressed as something measurable rather than asserted.

1.0.0	2026-09-10	CAP · Fiori Elements v4	Single tenant per customer
Version	Date	Model	Tenancy

The landscape



Everything on the left of the SAP column is the extension. The arrows towards SAP S/4HANA are OData calls to released APIs and nothing else — no remote function calls, no BAPI calls, no table access, no user exits.

The service layers

LAYER	WHAT LIVES THERE
Tier 1 — Fiori-facing	The main orchestrator service consumed by eight of the 9 applications, plus a workflow service, an inbound service for machine-to-machine reception, and a super-administrator service for the platform application. Draft-enabled OData v4, annotation-driven user interfaces.
Tier 2 — S/4HANA proxies	Six remote proxies over released SAP APIs — business partner, electronic document file, supplier invoice, purchase order, service entry sheet, operational accounting document item. All extend one common remote-service base that carries timeouts, retries and circuit breaking.
Repository layer	Every database query against the domain model is centralised in a repository, with a fixed contract: transaction-first, explicit locking where a read precedes a write, bulk operations that no-op on an empty set, and no exception handling inside — so a failure surfaces where the decision is taken.
Process engine	The six-phase lifecycle as data: a template of steps, per-company overrides, typed transitions, and a check catalogue with severities and override policies. Adding a step is configuration, not a release.
Adapters	12 families — inbound, extraction, workflow, documents, notifications, messaging, responsibility, AI, cache, audit, monitoring, transport. The active implementation is chosen by a system parameter, per company code.

Clean Core, stated as a measurement

«Clean Core» is easy to claim and hard to prove, so the product carries the proof as data. A catalogue is the single source of truth for every SAP S/4HANA API consumed: for each entry it records the OData service, the

destinations, the communication scenarios, the editions on which SAP has released it, and the SAP object used as evidence.

45/45	0	2
cells released Level A (objects × editions)	RFC, BAPI, table modifications, user exits	independent gates, read together

The two gates matter separately, and the second exists because the first is not enough. The first says the object consumed is *released*. The second says the production profiles *actually resolve* those APIs to real remote services rather than to development mocks — a distinction that once hid a real defect for an entire audit round, when thirteen of fourteen remote services silently resolved to CSV mocks on every production profile while the release attestation stayed green. An attestation that reports only the first measure is misleading, so both are published together.

> **Standard-first is a rule with a cost attached.** The Italian eDocument reception channel was migrated from a customer-namespace ABAP view reading internal eDocument tables to the SAP-released view I_IT_ELECTRONICDOCINCGINVOICE, released on all three S/4HANA editions. The SAP view is the default; the legacy path is still selectable through an explicit parameter and emits a warning on every run, and its removal is a roadmap item — because a deprecated path that is silent is a path nobody migrates off.

Where it runs

TARGET	DATABASE	IDENTITY	NOTES
SAP BTP Kyma	PostgreSQL	OIDC	Primary, deployed from CI
SAP BTP Kyma	SAP HANA	OIDC	For customers standardised on HANA
SAP BTP Cloud Foundry	SAP HANA Cloud	XSUAA	Multi-Target Application descriptor
Customer Kubernetes	HANA or PostgreSQL	OIDC (e.g. Keycloak)	For on-premise landscapes

11 configuration profiles cover these combinations. The BTP landscape itself — identity, connectivity, destinations — is provisioned with the official SAP Terraform providers, so a customer environment is reproducible rather than hand-built.

Integration with SAP services

SAP SERVICE	USED FOR
SAP Document Information Extraction	Reading PDFs and scans into the same governed process as structured invoices
SAP Build Process Automation · S/4HANA Flexible Workflow	Approval workflow, as alternatives to the built-in engine
SAP Responsibility Management	Determining the approver from organisational responsibility rather than a table
SAP Event Mesh	Consuming S/4HANA electronic-document events and publishing the product's own

SAP Malware Scanning Service	A mandatory, fail-closed control on every document boundary
SAP Audit Log · SAP Cloud Logging	Security events and observability
SAP Analytics Cloud	A live OData v4 connection over dedicated read-only projections
SAP Data Privacy Integration	Data-subject information reporting, using SAP's own field names
SAP Cloud Transport Management	Moving customising between environments as a controlled package

Upgrade safety

Because nothing is modified in SAP S/4HANA and every consumed object is released, an S/4HANA upgrade does not require regression work on the extension. Edition availability is declared per API and enforced at runtime, so a capability that does not exist on a given edition is *refused* rather than failing unpredictably in the middle of a process.

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