



MIXCONIX

SOLUTION BRIEF · FUNCTIONAL AND TECHNICAL
OVERVIEW

MIXCONIX Business Partner Validator

for SAP® Document and Reporting
Compliance



**Validate business partner master data
before the first e-invoice is issued.**

A side-by-side cloud application on SAP® Business Technology Platform (SAP BTP) for SAP S/4HANA® Cloud Public Edition. It checks VAT IDs, electronic addresses, bank details, addresses, duplicates and screening data against public registries and deterministic rules, so that SAP Document and Reporting Compliance receives correct data to work with.

This document describes what the application checks, how a validation run works, what it returns, and how it is built, secured and operated.



AT A GLANCE

Clean master data upstream, fewer rejected e-invoices downstream

An e-invoice is only as correct as the business partner record it is built from. Business Partner Validator (BPV) reads business partners from SAP S/4HANA Cloud through a released API, runs deterministic checks against registries and formal rules, and returns a finding for every check with the source it consulted.

155 deterministic validation rules	28 rule groups, selectable per run	500 business partners per batch run	5 severity levels, critical to info
1 isolated SAP HANA Cloud container per tenant	14 SAP BTP services bound in one EU landscape	11 scheduled jobs for continuous monitoring	0 modifications in the SAP S/4HANA Cloud core

Key characteristics

- **Companion, not replacement.** Runs next to SAP Document and Reporting Compliance and never modifies or extends it.
- **Deterministic first.** Rules decide the verdict. AI modules explain and prioritise, and never decide on their own.
- **Clean core.** Released APIs of SAP S/4HANA Cloud only. No custom objects, no direct table access.
- **Multitenant SaaS on SAP BTP.** One codebase, isolated data and AI resources per subscriber, EU data residency (Frankfurt).
- **Traceable output.** Every finding names the check, the verdict, the source consulted and the related EN 16931 business term.

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Scope of this release

SAP S/4HANA Cloud Public Edition · SAP BTP, Cloud Foundry environment, EU region · user interface in English and German.

1 · CONTEXT

Mandatory B2B e-invoicing turns master-data defects into rejected invoices

Across Europe, structured e-invoicing is becoming mandatory for domestic B2B transactions, and the EU's VAT in the Digital Age (ViDA) package extends digital reporting to intra-EU trade. Each mandate requires invoice data that is formally valid and consistent with official registries.

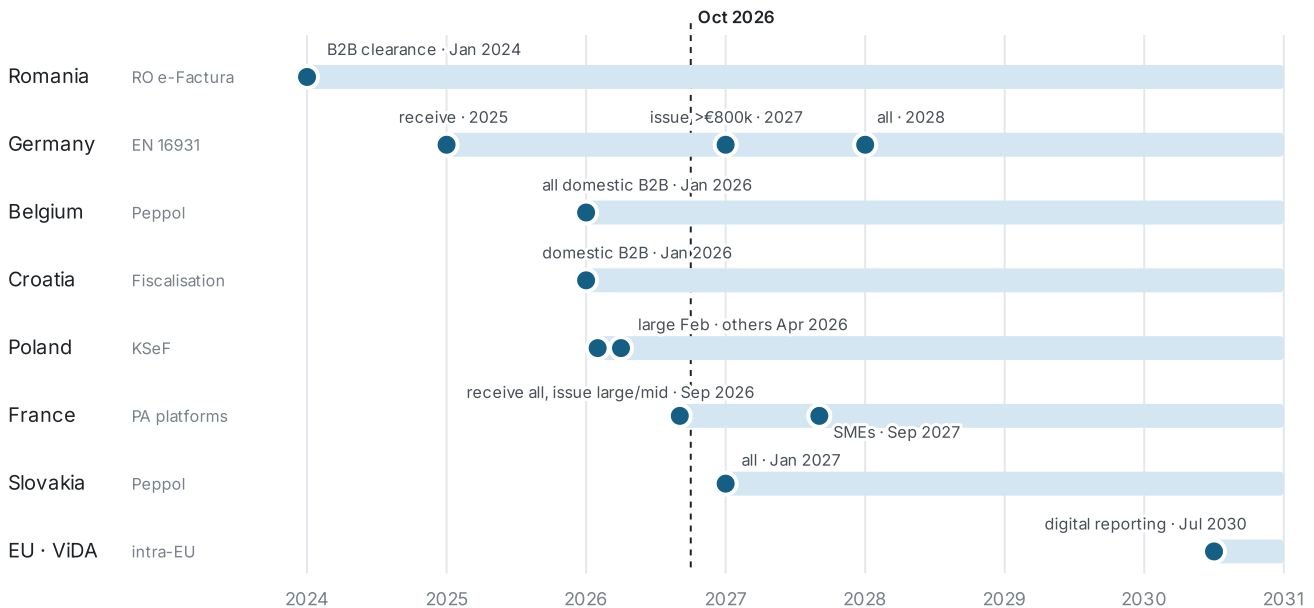


Figure 1 · Start dates of B2B e-invoicing obligations in selected countries (dots) and the period in force (bars). Dates as published by national tax authorities and summarised by public e-invoicing trackers; phases and thresholds simplified. Status October 2026.

Where rejections originate

SAP Document and Reporting Compliance generates, checks and transmits electronic documents from the data it receives. When a buyer's VAT ID is no longer valid, a Peppol participant ID or Leitweg-ID is wrong, or an IBAN fails its checksum, the document is formally correct but built on a defective record. The defect usually entered the system months earlier, when the partner was created or last changed.

What this means for master-data teams

- Each defective partner repeats its error on every invoice until the record is corrected.
- Corrections happen after a rejection, under time pressure, and partner by partner.
- Validity changes over time: VAT registrations lapse, sanctions lists change, companies become insolvent.

BPV moves the check to the point where the defect is cheapest to fix: the business partner record, before any document is created.

2 · POSITIONING

A side-by-side extension, upstream of SAP Document and Reporting Compliance

BPV runs on the customer's SAP BTP subaccount and reads business partners through the released OData API `API_BUSINESS_PARTNER`. It does not transmit documents and does not change how SAP Document and Reporting Compliance works.

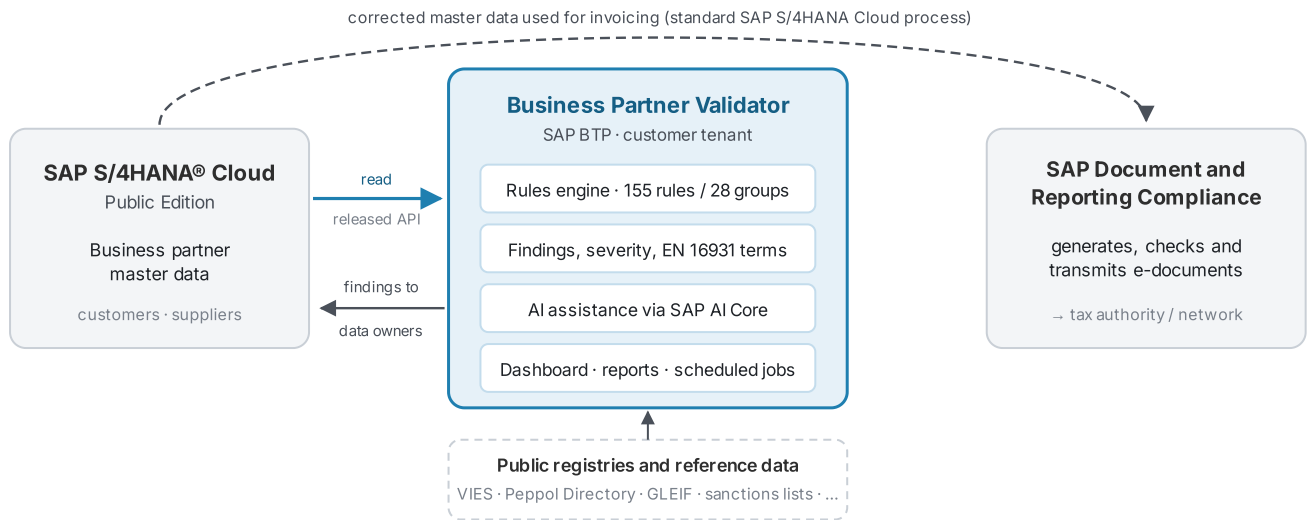


Figure 2 · BPV in the customer landscape. BPV reads and evaluates; the correction is made in the business partner record, and SAP Document and Reporting Compliance continues to work with SAP S/4HANA Cloud data as standard.

How BPV relates to adjacent solution categories

CATEGORY	PRIMARY PURPOSE	RELATIONSHIP TO BPV
SAP Document and Reporting Compliance	Creates, validates and transmits electronic documents and statutory reports.	Complementary. BPV checks the partner data that these documents are built from, before a document exists.
Restricted-party screening	Name checks of partners against sanctions and embargo lists.	BPV includes sanctions and PEP checks as one rule domain among VAT, e-address, bank and address checks.
Supplier onboarding portals	Collect partner data through self-service at creation time.	BPV validates the full existing partner base and re-checks it on a schedule, independent of how records were created.
Generic data-quality tools	Profiling and cleansing across many data domains.	BPV is specific to e-invoicing requirements and maps every finding to EN 16931 business terms.

3 · FUNCTIONAL SCOPE

155 rules in 28 groups, organised in validation domains

Each rule receives a business partner and its context and returns a finding. Rule groups can be selected per run, so a team can, for example, re-check only VAT and bank data after a mass change.

DOMAIN	WHAT IS CHECKED	SOURCE CONSULTED
VAT identification	Real-time VAT ID verification for all EU member states; country-specific format rules (e.g. DE, AT, FR, IT, NL, BE, ES, PL, CZ, HU, SK, RO); duplicate VAT IDs; VAT IDs of plants abroad.	EU VIES; German Federal Central Tax Office (BZSt) confirmation service
Electronic address	Peppol participant ID registration; German Leitweg-ID structure and MOD 97-10 check digit; GLN with GS1 MOD-10 check digit; e-mail syntax and disposable-domain detection.	Peppol Directory; formal algorithms
IBAN and bank data	Country-specific IBAN length (e.g. DE 22, AT 20, CH 21, FR 27, IT 27 characters); MOD 97-10 checksum; bank lookup; BIC/SWIFT format.	openIBAN; Deutsche Bundesbank bank code data
Address and geo-risk	Completeness of country, city, street and postal code; postal-code formats per country (e.g. DE five digits, AT and CH four); ISO 3166-1 alpha-2 country codes; geocoding-based plausibility and geo-risk.	Geoapify; EU code lists
Legal entity and registers	Legal Entity Identifier status; company status in national registers for supported countries, including insolvency indicators.	GLEIF; national registers (e.g. ANAF and ONRC in Romania, BRREG in Norway)
Sanctions and PEP	Screening of partner names against consolidated sanctions and politically-exposed-person data, with scheduled list refresh.	OpenSanctions
Duplicates	Exact and fuzzy matching on name, address, VAT ID and bank data, with a confidence score per candidate pair.	Tenant data; AI-assisted similarity
Tax specifics	Withholding tax data; VAT exemptions; consistency across company codes.	Tenant data; formal rules
EN 16931 and e-invoicing readiness	Presence and format of the partner fields that feed mandatory invoice business terms; overall readiness of the record for e-invoicing.	EN 16931 semantic model; Peppol BIS Billing 3.0; XRechnung

Country coverage differs by check: VIES applies to all EU member states, while register and format checks cover the countries listed for each source. External services are called over HTTPS through public or released interfaces.

Selection criteria for a run

Company code · country · business partner category · creation or change date range · previous validation status.

Export

Results per partner and per run, exportable to Microsoft Excel and PDF for audit files and correction work lists.

4 · HOW A VALIDATION RUN WORKS

Select, configure, review. No development in the core system.

- 1 Select**
 Filter the business partners to validate by company code, country, category, date range and previous status. A batch holds up to 500 business partners; progress is tracked per batch.
- 2 Configure**
 Choose the rule groups for the run. AI assistance is enabled by default and can be switched off per tenant.
- 3 Validate and review**
 The rules engine evaluates each partner. Findings are listed per partner, sorted by severity, each with the rule, the verdict, the source consulted and a remediation suggestion.
- 4 Correct and re-check**
 Data owners correct the business partner in SAP S/4HANA Cloud. A delta run re-validates only the changed records.

Deterministic first

Each rule is a pure function: it receives the business partner and its context and returns a finding. Rules do not open database connections or call external services themselves; data from registries is retrieved by dedicated connectors before evaluation. The verdict of a check therefore depends only on its input and is reproducible.

AI modules work on top of the rule results. They explain findings, group related defects, suggest corrections and support duplicate detection. They do not change a rule's verdict.

Severity model

LEVEL	MEANING
CRITICAL	Defect that leads to rejection of an e-invoice, e.g. invalid VAT ID or electronic address.
HIGH	Defect with a high risk of rejection or payment error, e.g. IBAN checksum failure, probable duplicate.
MEDIUM	Incomplete or inconsistent data that should be corrected.
LOW	Formal deviation without direct impact on invoicing.
INFO	Informational result, e.g. successful registry confirmation.

Continuous monitoring

Validity changes after a partner is created. Eleven scheduled jobs keep results current, among them:

- refresh of sanctions and PEP data and re-screening of partners
- delta validation of new and changed business partners
- daily insolvency checks

Dashboard

Data-quality score, open findings by severity, success rate of runs and AI usage, per tenant.

5 · OUTPUT

What a validation run returns

For every partner, the run returns each check, its verdict and the source consulted: EU VIES for the VAT ID, MOD 97-10 for the IBAN, the Peppol Directory for the electronic address. Findings carry the EN 16931 business term the field feeds into.

Business partner 1000123 · Example Handels GmbH · supplier · DE · company code 1010

Illustrative example, fictitious data

CHECK	EN 16931	RESULT	SOURCE CONSULTED	VERDICT
Name	BT-27	Name present and within field limits	Formal rule	PASS
VAT ID	BT-31	DE VAT ID valid and active	EU VIES	PASS
Electronic address	BT-34	Leitweg-ID check digit does not match (MOD 97-10)	Formal algorithm	CRITICAL
IBAN	BT-84	Length 22 correct for DE; checksum valid; bank identified	MOD 97-10 · openIBAN	PASS
BIC	BT-86	BIC format valid; country consistent with IBAN	Formal rule	PASS
Postal code	—	Five digits, within valid DE range	Formal rule	PASS
Duplicates	—	Probable duplicate of partner 1000871 (same VAT ID and IBAN, name variant), confidence 0.92	Tenant data	HIGH
Sanctions / PEP	—	No match above threshold	OpenSanctions	INFO

Remediation suggestion

CRITICAL · Electronic address (BT-34)

The check digit of the Leitweg-ID does not match the preceding characters. Request the correct Leitweg-ID from the public-sector buyer and update the business partner. Re-validate with a delta run.

Suggestions are generated from the rule result; where AI assistance is enabled, the explanation is phrased by an AI module on SAP AI Core with personal data masked.

Run-level data

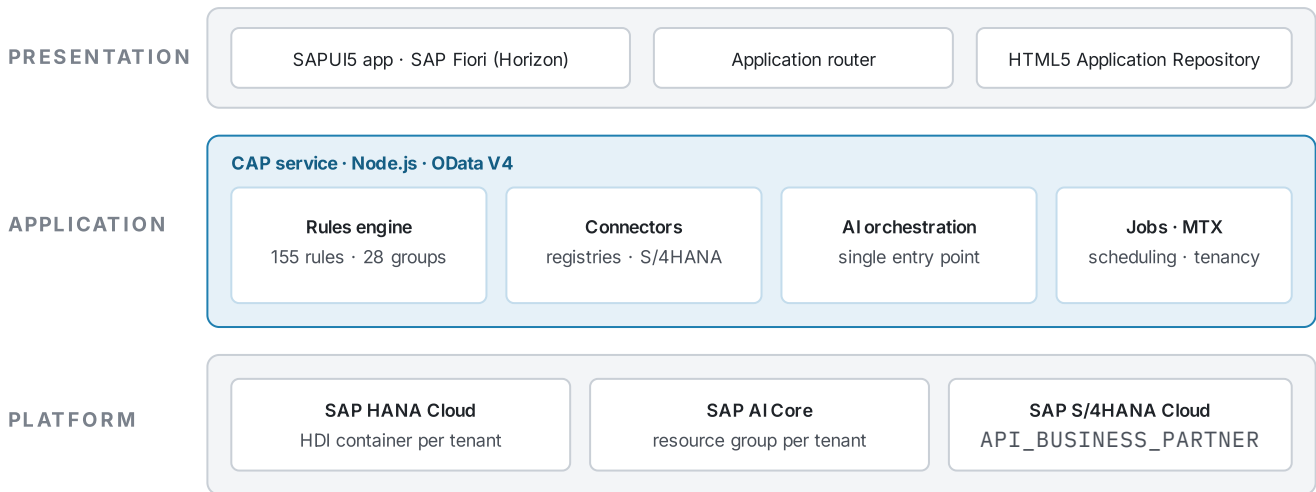
- batch ID, selection criteria, rule groups and timestamps
- number of partners validated and findings per severity
- duplicate candidate pairs with confidence scores
- run history for audit, exportable to Excel and PDF

Each finding remains traceable to the rule that produced it and to the external source that was consulted at the time of the run.

6 · TECHNICAL ARCHITECTURE

A multitenant CAP application on SAP BTP, Cloud Foundry environment

Built with the SAP Cloud Application Programming Model (CAP) on Node.js, with an SAPUI5 user interface in the SAP Fiori design. One codebase serves all subscribers; data and AI resources are isolated per tenant.



SAP BTP, Cloud Foundry environment · EU region (Frankfurt) · authentication through XSUAA

SAP BTP services used

AREA	SERVICE	PURPOSE IN BPV
Identity and tenancy	SAP Authorization and Trust Management service (XSUAA)	OAuth 2.0 authentication, five role templates
	SAP SaaS Provisioning service · SAP Service Manager	Subscription, tenant onboarding and offboarding, HDI containers per tenant
	SAP HTML5 Application Repository service	Hosting of the user interface
Data and AI	SAP HANA Cloud (HDI)	Validation runs, findings and configuration per tenant
	SAP AI Core · generative AI hub	Inference for all AI modules, resource group per tenant
Integration	SAP Destination service · SAP Connectivity service	Connection to SAP S/4HANA Cloud and external registries
Operations	SAP Job Scheduling service	Scheduled refresh, delta and insolvency jobs
	SAP Audit Log service · SAP Credential Store	Audit trail; storage of all secrets
	SAP Cloud Logging · SAP Alert Notification service	Structured logs, health alerts
	SAP Cloud Transport Management service	Controlled transport of releases

7 · SECURITY, DATA PROTECTION, MULTITENANCY

Isolated per tenant, auditable, and built on released interfaces

Authentication and authorisation

- SAP Authorization and Trust Management service (OAuth 2.0) behind the application router.
- Five role templates, assigned through the customer's identity provider.
- Security-header and quota middleware on all service endpoints.

Secrets and audit

- All credentials are kept in SAP Credential Store; none are stored in the code repository or in environment variables.
- Security-relevant events are written to the SAP Audit Log service.
- Static code analysis and security workflows run on every change; dependency licences are checked and a software bill of materials (SBOM) is produced.

Clean core

- Access to SAP S/4HANA Cloud only through the released OData API `API_BUSINESS_PARTNER`.
- No custom objects in the core, no direct database access, no RFC table reads, no screen scraping.
- Lifecycle decoupled from the SAP S/4HANA Cloud release cycle.

Multitenancy

- Tenant lifecycle (subscribe, upgrade, unsubscribe) handled by the CAP multitenancy extension and SAP SaaS Provisioning service.
- An isolated SAP HANA Cloud HDI container per tenant, created through SAP Service Manager.
- A dedicated SAP AI Core resource group per tenant.

Data protection

- Data residency in the EU on SAP BTP (Frankfurt region).
- Personal data is masked on every AI path before a prompt is sent, using SAP Data Privacy Integration; masking is on by default.
- Data processing agreement in line with the EU General Data Protection Regulation; erasure on request and full data removal at tenant offboarding.
- Business partner data is processed for validation; the master record remains in SAP S/4HANA Cloud.

Company certifications

MIXCONIX.COM SRL is certified to ISO 9001:2015 (quality management) and ISO/IEC 27001:2022 (information security management). Both certificates apply at company level and cover all applications and processes.

Personal data processed

DATA CATEGORY	WHERE AND WHY
Business partner data	Names, addresses, tax and bank identifiers in validation runs and findings, for the purpose of the check.
User data	Login name and role assignments; user ID in audit log entries.
AI requests	Prompts are built from masked data; token usage is metered per tenant.

8 · AI SUBSYSTEM AND OPERATIONS

AI that assists inside governed boundaries, and an application that is run for you

AI subsystem

Thirteen AI modules and an assistant support users in understanding and fixing findings: explaining results in plain language, prioritising work lists, suggesting corrections and supporting duplicate detection.

- **One route.** Every model call passes through a single orchestration entry point to SAP AI Core and its generative AI hub.
- **Model governance.** An allowlist defines which models may be used; requests for other models are rejected.
- **Privacy.** Personal data is masked before a prompt leaves the application.
- **Control.** AI assistance is enabled by default and can be switched off per tenant. The rules engine works the same with AI off.
- **Cost transparency.** AI inference runs on SAP AI Core and is billed by SAP to the customer's SAP BTP account. Token usage is metered call by call and shown on the dashboard. Customers can use their own SAP AI Core instance.

Operations and lifecycle

TOPIC	IMPLEMENTATION
Packaging	Multitarget application (MTA), semantic versioning
Transport	SAP Cloud Transport Management service
Monitoring	Health endpoint linked to SAP Alert Notification service; structured logs in SAP Cloud Logging
Scheduling	Eleven jobs via SAP Job Scheduling service
Resilience	Runbook, backup and disaster recovery procedures
Upgrades	Applied centrally for all tenants, independent of the SAP S/4HANA Cloud release cycle
Support	During business hours (CET)

Roles

Access is controlled through five role templates delivered with the application and mapped to role collections in the customer's SAP BTP subaccount and assigned to users through the customer's identity provider, so that access can be granted in line with internal controls.

Technology summary

COMPONENT	TECHNOLOGY
Application framework	SAP Cloud Application Programming Model (CAP), Node.js
Service protocol	OData V4 (application); OData V2 for API_BUSINESS_PARTNER
User interface	SAPUI5, SAP Fiori design (Horizon theme), English and German
Persistence	SAP HANA Cloud, HDI container per tenant
Runtime	SAP BTP, Cloud Foundry environment, EU region
AI	SAP AI Core, generative AI hub

9 · IMPLEMENTATION AND PUBLISHER

From subscription to the first validation run

- 1 Subscribe**
 Subscribe to the application from the customer's SAP BTP subaccount. The tenant, its HANA container and its AI Core resource group are created automatically.
- 2 Connect SAP S/4HANA Cloud**
 Set up a communication arrangement for the business partner API and a destination in SAP BTP.
- 3 Assign roles**
 Map the five role templates to role collections and assign them through the identity provider.
- 4 Run**
 Start the first validation run on real business partner data and review the findings.

A guided pilot on the customer's own data and customer-specific rules can be added as a service.

Prerequisites

ITEM	REQUIREMENT
ERP	SAP S/4HANA Cloud Public Edition
Platform	SAP BTP global account with a subaccount in the Cloud Foundry environment
Identity	Identity provider connected to the subaccount (e.g. SAP Cloud Identity Services)
Integration	Communication user and arrangement for the business partner API
AI (optional)	SAP AI Core entitlement; customers' own instance supported
Browser	Current browsers supported by SAPUI5

Documentation

- Solution overview and technical overview (one page each)
- Data processing agreement, end-user licence agreement, support terms
- Administration and operations runbook for subscribers



About MIXCONIX

MIXCONIX.COM SRL is an independent software vendor in Braşov, Romania, and an SAP partner in the SAP PartnerEdge® program (Build). Its product and engineering teams develop cloud applications on SAP BTP for SAP S/4HANA Cloud customers in Europe. Business Partner Validator is the result of more than eighteen months of work by these teams. The company is certified to ISO 9001:2015 and ISO/IEC 27001:2022.
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