DROPSOLID
ARTIFICIAL INTELLIGENCE

WHITEPAPER 02

THE SOVEREIGN AI SERIES

WHITEPAPER 1 · PROCURE
AI sovereignty, procurement

WHITEPAPER 2 · DEPLOY
Two deployments in production

WHITEPAPER 3 · OPERATE
Transparency and governance

SOVEREIGN AI IN THE FIELD · EPSO & PIDPA

Sovereign AI in production

Two public-sector deployments, documented end to end. What was built, what it cost, what would be different now.

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EXECUTIVE SUMMARY

Sovereign AI is already in production. Here is the architecture.

Two organisations run sovereign AI in production on the Dropsolid AI platform today: the **European Personnel Selection Office (EPSO)** and **Pidpa**, the public-sector water utility for the Belgian province of Antwerp.

This whitepaper documents both deployments end to end, at the architectural level. What was in place before, what was built, what it cost in effort, what it produced, and what would be different if you did it now.

EPSO cut the volume of repeat questions reaching its recruitment teams, in every official language it serves. Pidpa runs "Pip" for the citizens of its province, on a fully sovereign stack. Both deployments satisfied procurement in institutional environments where **a US-hosted dependency would have killed the project.**

IN THIS REPORT

01 Two deployments, documented end to end

02 Six patterns worth stealing

03 The proof, and what we do differently

> Sovereignty was not the tax on speed. It was the reason speed was possible.

PART ONE

Two deployments, documented end to end

What was in place before, what was built, what it cost in effort, what it produced, and what would be different if you did it now. One serves candidates across 24 languages. The other serves more than a million citizens.

USE CASE · EPSO

Recruitment support for every EU institution, internal and candidate-facing.

70%	24	<8 wk
fewer questions	EU languages	to rollout

USE CASE · PIDPA

Citizen service for a provincial water utility, on a fully sovereign stack.

1M+	Dropsolid-hosted	Pip
citizens served	vector database	live assistant

PART ONE · EPSO · RECRUITMENT AT SCALE

Recruiting for every EU institution, in 24 languages

EPSO organises the selection competitions through which staff are recruited for every EU institution: European Commission, European Parliament, Council, Court of Justice, Court of Auditors, External Action Service.

24
official languages

All EU
institutions and agencies recruited for

Tens of thousands
of candidates each year

The problem

Each recruitment cycle produced a wave of repeat questions: eligibility, required documents, language requirements, timetables, procedural rules. The selection support team answered the same questions repeatedly, in slightly different forms, per cycle. A high proportion had answers in EPSO's published procedural documents; candidates could not find them, could not navigate to the right section, or did not trust an answer that was not a direct plain-language explanation.

Why it mattered

Waiting days for an answer that should take minutes erodes candidate confidence in the selection process itself. For an EU institution operating in 24 languages, response time and clarity matter for the integrity of the process, not just for efficiency.

Constraints

EU data sovereignty ruled out most commercial AI platforms. Generic AI was not an option: **answers had to be citable back to specific sections of specific procedural documents, or they were unusable.**

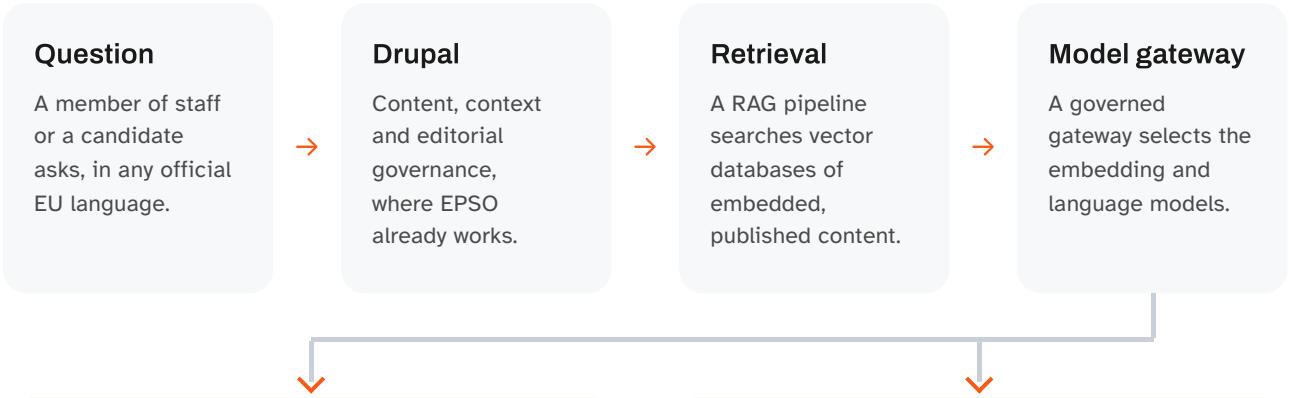
> Response time and clarity matter for the integrity of the process itself.

PART ONE · EPSO · WHAT WAS BUILT

Two use cases through one Drupal interface

Drupal for context and content management, a RAG pipeline with vector databases for embedding storage, and a governed model gateway that selects appropriate embedding and language models. Everything runs on EU-hosted infrastructure, aligned with GDPR and EU AI Act requirements.

ONE PIPELINE, TWO SURFACES



INTERNAL · SUPPORT STAFF

Knowledge Navigator

Staff query procedural documentation in natural language and get source-grounded answers with precise citations. New starters reach productivity faster, because the assistant compresses institutional knowledge that previously took weeks of informal onboarding.

PUBLIC · CANDIDATES, 24 LANGUAGES

Trusted Answers

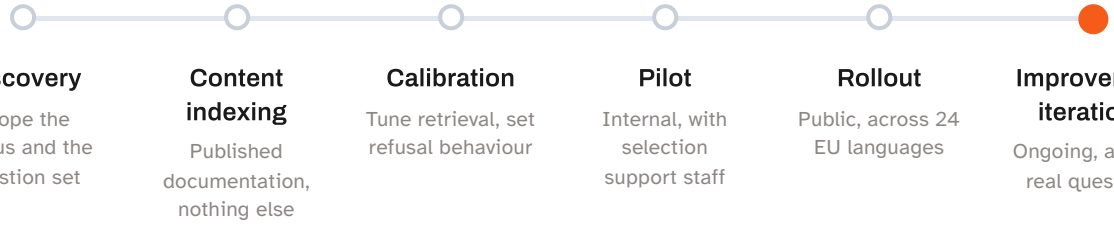
Answers in all 24 EU languages, each with citations candidates can click to verify against EPSO's published documentation. Where no usable source exists, the system says so and directs the candidate to human support.

> Traceability, auditability and explainability on every interaction.

PART ONE · EPSO · TIMELINE & RESULT

Under eight weeks, discovery to full rollout

The timeline was short because the sovereign architecture already existed. What follows is the sequence EPSO ran, and what it produced.



70%
fewer questions to the support team

24
EU languages, source-grounded

<8 wk
discovery to full public rollout

The result

70% reduction in incoming questions reaching the selection support team. The same procedural questions that previously consumed team capacity are now handled at the candidate-facing surface, with citations.

Onboarding time for new selection support staff dropped materially, and every interaction produces a trace export satisfying EPSO's information-governance requirements.

> "The EPSO functionality allowed us to decrease incoming questions by 70%."
>
> EUROPEAN PERSONNEL SELECTION OFFICE (EPSO)

PART ONE · PIDPA · CITIZEN SERVICE

A public water utility serving over a million citizens

Pidpa supplies drinking water to households and businesses across the Belgian province of Antwerp, with an operational footprint across source-water management, treatment, distribution, customer service and regulatory reporting.

The problem

Citizens had recurring questions: how to read a meter, how to update billing details, how to report a leak. Each answer existed in Pidpa's publications; citizens could not find them. They reverted to phone or email, which is operationally expensive.

Constraints

Public-sector procurement required sovereign deployment, full audit capability, ISO 27001 documentation, a DPA, sub-processor disclosure, and a contract under European law. **Generic AI platforms hosted outside the EU were disqualified.**

WHAT WAS BUILT

Trusted Answers, branded **"Pip"**. It answers citizen questions using only Pidpa's published content: web pages, news articles, FAQs and PDFs.

Every answer includes source citations citizens can click to verify. Where no usable source is found, the system explicitly says so and directs users to the FAQ or human support.

MEET PIP



INDEXED SOURCES

- Web pages
- News articles
- FAQs
- PDFs

> Each answer existed in Pidpa's publications. Citizens could not find them.

PART ONE · PIDPA · ARCHITECTURE & RESULT

Architecture decisions worth documenting

Four decisions shaped this deployment, each a deliberate trade.

Stateless single-turn Q&A

No conversation state is retained between turns, to maximise data privacy.

Abuse prevention

IP-based rate limiting and honeypot fields protect the public endpoint.

Phased rollout

Internal evaluation, then contact-centre deployment, then external users.

Vector database migration

Moved off a US-hosted service to a Dropsolid-hosted alternative on EU infrastructure, mid-rollout.

IN PRACTICE · CLOSING THE LAST LAYER

Pidpa **moved off a US-hosted vector service to a Dropsolid-hosted alternative** during the rollout, specifically to close that sovereignty layer. The initial configuration had already cleared procurement. Operational complexity was the price, and regulatory defensibility was what it bought.

THE RESULT

1M+
citizens served in production

Reduced AHT
average handling time

Scripts retired
at the contact centre

Contact-centre scripts were retired because AI answers were good enough to replace them. A detailed AI trace, a scoring dashboard, and feedback evaluation run in production for auditability.

PART TWO

The patterns worth stealing

Six patterns generalise from these two deployments to any public-sector organisation considering sovereign AI.

01 – 03

What the system may say

Three patterns on sources, citations, and speed to production.

04 – 06

How the system survives review

Three patterns on exposure, vectors, and the trace.

PART TWO · THE PATTERNS WORTH STEALING

Six patterns generalise to any public-sector organisation considering sovereign AI.

Neither deployment invented anything exotic. What made them work was a set of decisions taken early and held to. Three of the six.

01 Index published content only

Both EPSO and Pidpa restrict the AI to organisation-published documents only, excluding third-party or scraped material and anything the model happens to know. This eliminates a category of hallucination and makes citation possible at all. Pidpa answers only from its own published content, and EPSO indexes published recruitment material and nothing beyond it.

02 Cite every answer, and decline the rest

Every response includes a click-through to source. When retrieval finds no confident match, the system says so rather than generating a plausible answer. Pip carries clickable citations on every answer, and both systems state explicitly when no usable source exists.

03 Ship in weeks, not months

An eight-week timeline is the expected outcome when the sovereign architecture is already in place. Long AI project timelines usually reflect infrastructure that is not sovereign yet, not model capability. EPSO went from discovery to full rollout in under eight weeks, across 24 EU languages.

THE COMMON THREAD

Grounding beats fluency in a regulated context. All three decisions trade a little fluency for an answer someone can check.

PART TWO · THE PATTERNS WORTH STEALING

The remaining three, and the through-line

The first three shape what the system is allowed to say. These three shape how it reaches production and how it survives review.

04 Roll out by exposure, not by pilot

Both deployments moved from internal evaluation, to limited external, to full external: real production at limited exposure, widening as confidence rises.

05 Separate the vector store on day one

Neither organisation runs a hosted-anywhere vector database. Even when the initial choice satisfies broad procurement, deeper compliance review may push you to move it. Designing for that up front turns a migration into a switch.

06 Produce the trace, then publish it

Both deployments produce a per-interaction trace: the question, the retrieved passages, the model used, the response returned and the citations included. This trace is the defence when an inspector asks how an answer was reached.

THE THROUGH-LINE

Each of these six is settled before the first answer is generated, which is why they belong in a procurement conversation rather than a remediation plan. So the test is simple: ask a vendor to show you all six, in production, for somebody else.

PART THREE

The proof, and what we do differently

Procurement asks the same questions of every AI vendor. Both deployments answered them with architecture rather than assurances, which is the whole argument of this paper.

FIVE QUESTIONS ANSWERED

Five procurement questions, answered side by side by EPSO and Pidpa.

THE OPERATING MODEL

What Dropsolid does differently, and why both cases run on one platform.

PART THREE · THE QUESTIONS THESE DEPLOYMENTS ANSWERED

Five questions, answered with architecture

Procurement asks a long list. These five decided both projects, and both organisations answered them with a diagram or a demonstration rather than a commitment to build.

	THE QUESTION	EPSO	Pidpa
01	**Where do inference and embeddings run?**	EU-hosted inference and embedding models. No US dependency anywhere in the answer path.	Same posture, confirmed in writing before procurement would proceed.
02	**Where does the vector store run, and can we self-host it?**	Managed EU vector store, reviewed and accepted at architecture stage.	Moved to a Dropsolid-hosted vector database on EU infrastructure mid-rollout, after deeper compliance review.
03	**What happens below the confidence threshold?**	Declines and routes the candidate to a human channel when confidence is low.	States explicitly when no usable source is found. No answer without a source.
04	**How many languages, with source-grounded output?**	24 EU languages, each answer grounded in published EPSO content.	Dutch, under the same grounding rule.
05	**What audit trace do you produce per interaction?**	A governance layer records the sources behind every generated answer.	Every answer carries clickable citations the citizen can verify.

These five procurement questions are the ones these two deployments tested in production. Whitepaper 1 carries the full set of 15 procurement questions and the knowledge behind them. Guide 01, the vendor evaluation checklist for sovereign AI, expands them into 40 questions to ask before you sign.

HOW TO READ THE ANSWERS

A vendor who can name the region, show the trace and demo the refusal has already built it. A vendor who answers with a roadmap has not.

PART THREE · WHAT DROPSOLID DOES DIFFERENTLY

We sell an operating model.

The Dropsolid AI platform ships as an extension to Drupal, not a replacement. Your CMS stays where it is. The AI capability lives inside your editorial governance. The sovereignty posture matches your procurement requirements.

An extension to your existing stack

Your CMS stays where it is, and the AI capability lives inside your existing editorial governance.

A model-agnostic gateway

Swap language models, embedding models and vector databases per deployment without rebuilding the use case.

ONE PLATFORM, TWO APPLICATIONS

Drupal	Content, context and editorial governance, where your teams already work.
RAG pipeline	Retrieval limited to indexed, published content. Nothing else reaches the model.
Vector database	EU-hosted, Dropsolid-managed.
Governed model gateway	Model choice, policy enforcement and the audit trace for every interaction.
Embedding & language models	Swappable, with the sovereignty posture the deployment requires.

> The two use cases in this whitepaper run on the same platform. Same architecture. Different application. That's the point.

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ABOUT DROPSOLID

Dropsolid is the Drupal Diamond Partner behind the sovereign AI use cases in production at EPSO and Pidpa.

Since 2013
building on Drupal

ISO 27001
certified: Dropsolid NV with Dropsolid AI NV

Ghent, BE
headquartered in Belgium

THE SOVEREIGN AI SERIES

Whitepaper 1 · PROCURE
AI sovereignty: a CIO's procurement guide for the EU AI Act

YOU ARE HERE
Whitepaper 2 · DEPLOY
Sovereign AI in production: EPSO and Pidpa, documented end to end

Whitepaper 3 · OPERATE
Glass box vs black box: the enterprise AI transparency playbook

Run the eight weeks yourself

Guide 02, the 8-week rollout playbook, turns the timeline in this paper into a week-by-week plan, with the gates each stage has to clear.

Download the 8-week rollout playbook →

Talk to Dropsolid AI

EPSO ran this plan to full rollout in under eight weeks.