InnoMatch

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# InnoMatch – City of Ghent Challenge Definition

11/11/2025

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Grant Agreement No.: 101165966
Call topic: HORIZON-EIC-2023-INNOVPRO-01
Type of action: Coordination and support action (CSA)

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# 1 Challenge Description

## 1.1 Name

Ai4PP

## 1.2 Pitch

Generative AI to assist public buyers in drafting legally compliant, consistent procurement specifications, trained on anonymised historical tenders and City templates, to save time, reduce errors, and enable scalable adoption across public authorities.

## 1.3 Organisation Description

The City of Ghent is a public authority and innovation leader in Belgium (third-largest city, >270,000 residents). As a major municipal organisation employing 6,000+ staff, we deliver broad services (mobility, urban planning, environment, culture, education, social care, digital services). Ghent is building a strong position in GovTech and AI, through partnerships with universities, research centres, and European networks, and has much of the infrastructure and strategy in place that could make it an excellent testbed for procurement innovation.

The Procurement Department manages a portfolio worth over €200 million, focused on goods and services. On average, we publish around 45 procurement contracts each year. Approximately 10 full-time equivalents contribute to drafting these contracts, alongside other responsibilities such as contract management, supplier engagement, and market exploration. Construction works and smaller expenditures are managed by other departments within the City.

## 1.4 Challenge Description

Drafting procurement specifications is a core step in every public tender but remains a heavily manual and resource-intensive task. Procurement officers must compile technical requirements, mandatory legal clauses, evaluation criteria, and templates while consulting with legal advisors, end users, and departmental managers. Today, this work is mostly managed using static templates, office tools, and manual copy-paste from earlier documents. While this approach functions in practice, it depends heavily on individual expertise, takes significant time to complete, and makes knowledge transfer difficult

The current way of working creates multiple challenges. First, the drafting process is slow, often taking weeks to translate user needs into a legally compliant, internally validated specification. Second, inconsistencies are frequent, as different drafters may interpret requirements or clauses differently. Third, errors and omissions expose contracting authorities to legal risk, complaints, or even annulments. These challenges are not unique to Ghent but are shared across municipalities, regional authorities, universities, hospitals, and central procurement bodies throughout Europe.

The impact is significant. Economically, significant staff time is devoted to repetitive drafting tasks, thereby diverting capacity from strategic procurement activities. Delays in tender preparation lead to delayed projects, which in turn affect service delivery and increase indirect costs. Socially, citizens and end users face longer wait times for essential infrastructure, services, or care. Legally, inconsistencies or mistakes increase the risk of disputes and undermine trust in public procurement processes.

Attempts to address this issue have so far relied on guidelines, training, and template libraries. While useful, these measures do not solve the underlying inefficiency or the difficulty of ensuring consistency and compliance at scale. Technology solutions remain underdeveloped: a scan of the market shows only early-stage research pilots and prototypes, none of which are mature, widely adopted, or certified for use in a public-sector context.

Addressing this problem has become urgent. Public procurement accounts for roughly 14% of European GDP, and public authorities face growing pressure to do more with fewer resources while complying with evolving legal frameworks. The City of Ghent's Procurement Department manages about 220 active contracts (goods & services) with a portfolio around €200 million and creates roughly 45 new contracts annually (construction excluded). The team comprises 11 buyers and ~25 staff in total; drafting a contract can consume up to half a buyer's working time due to meetings, validations and reviews. AI-driven specification support can reduce delays and administrative burden, improve specification quality, and boost transparency, resilience and compliance.

## 1.5 Challenge Main Objectives

The main objective is to partly automate and accelerate drafting of procurement documents, with a primary focus on technical specifications and award criteria, which consume the most time, while ensuring full legal and administrative compliance. By improving consistency and reducing errors across technical, legal and administrative sections, we aim to shorten lead times, lower legal risk, and free buyer capacity for higher-value activities. Ideally, the solution will also support generation of other procurement documents and templates.

The City of Ghent is interested in exploring how explainable, editable AI outputs, with human-in-loop approval, could safeguard trust and compliance. At the same time, the system shall preserve and share expert knowledge across organisations, enabling continuous learning and ultimately leading to higher-quality, more effective tenders that deliver greater value for public authorities.

## 1.6 Solution Functional Requirements

### 1.6.1 Compulsory Functional Requirements (MUST HAVE)

This document sets out the must-have requirements for a time-bound pilot (proof-of-concept) of the AI4PP solution. The pilot is an experimental staging effort, not a final product, designed to validate core capabilities , assess legal compliance, usability, security, and performance, and define a clear path to scale. Suppliers should propose practical, testable solutions for the pilot, keeping these requirements in mind.

- **Legal compliance enforcement:** Outputs must include required Belgian and EU procurement clauses and flag any missing mandatory elements, as well as clauses that are mandatory for the city of Ghent. The clauses that are mandatory need to be adjustable in the future (since this can change based on the regulation).
- **The system must minimise hallucination and ensure generated text is grounded in authoritative, auditable sources:** Outputs must be traceable to source documents (with source IDs and confidence indicators), use a searchable, versioned knowledge store, and include an auditable anonymisation step compliant with GDPR (if applicable).
- **Template engine & constraints:** Apply City-approved templates and enforce mandatory/optional clause tagging and structural constraints.

- **Editable outputs & human-in-loop:** Generated drafts must be fully editable; legal review and final sign-off gates are mandatory for defined procurement thresholds.
- **User-friendly UI:** The tool shall be intuitive and accessible for non-IT experts, such as procurement officials. It should support easy drafting, reviewing, and editing of clauses, with functionality to save, update, and reuse content in templates.
- **Performance & reliability:** The system must deliver interactive draft generation with low, predictable latency and high availability. Clause-level updates should respond within ~1 second, and full draft generation within ~10–30 seconds under normal pilot load. Target availability for a production version: ≥99.5% during business hours, with basic incident monitoring and reporting.
- **Interactive Clause Editing:** The system must allow users to select and edit specific parts of a generated specification (e.g., a clause, section, or paragraph). Based on the user's input or adjustments, the AI should regenerate or adapt only that section while preserving the rest of the document unchanged. This enables rapid iteration, ensures user control, and keeps the draft aligned with specific needs or preferences.
- **Context-Aware Drafting:** AI should consider contextual factors such as project type, budget, contract value, and procurement procedure (open, restricted, negotiated, etc.) to tailor clauses. Pre-configured decision trees for clause applicability.
- **Input-Driven Initiation:** The system should allow users to provide structured and unstructured inputs such as: what is being procured (goods, services, works), budget or value threshold, procurement procedure type (open, restricted, negotiated, etc.), timeline / delivery requirements, special considerations (e.g., sustainability, social impact, Environmental & social governance, City-specific priorities), department / unit initiating the procurement…

### 1.6.2 Desirable Functional Requirements (NICE TO HAVE)

This section lists the nice-to-have features for the AI4PP pilot. These are desirable enhancements,not mandatory for the pilot, intended to demonstrate added value, usability improvements, and scalability potential (collaboration, advanced analytics, multi-language support, continuous learning, etc.). Suppliers may propose which optional features they can include during the pilot, describe how they would be tested, and outline a realistic roadmap and cost estimate for delivering additional capabilities at scale.

- **Collaboration features:** Real-time comments, assignments, and multi-user editing.
- **Automated suggestions:** Style/clarity improvements, alternative phrasings, and simplification of legalese.
- **Data protection & anonymisation:** Automatic, auditable anonymisation pipeline before any training or indexing; GDPR compliance and DPIA.
- **Template library management:** Versioned, per-department templates and clause tagging marketplace.
- **Multi-language support:** Added English drafting and accurate legal-preserving translation (Dutch is required).
- **Contract obligations extraction:** Post-award extraction of obligations, deadlines and automated monitoring hooks.
- **Continuous learning:** Secure mechanism to incorporate validated edits into model re-ranking (with opt-in governance).
- **Security & hosting flexibility:** TLS, encryption at rest, RBAC and support for on-prem or VPC-hosted vector DB/model serving for sensitive data.
- **Accessibility & localization:** WCAG (Web Content Accessibility Guidelines) basics and localised UI (user interface).
- **Integration:** Secure REST API (Representational State Transfer Application Programming Interface)/connectors for Document Management System (DMS), SSO authentication ( single sign on), and export to existing workflows.
- **Explainability & provenance:** Each generated paragraph must include provenance (source document IDs and similarity) and a confidence/risk score.
- **Audit, versioning & approvals:** Full audit trail, version control for compliance and traceability.

## 1.7 Pilot Scope

Pilot the AI4PP solution within the City of Ghent's Procurement Department using 20–50 real procurement cases focused on a specific product category. Participants will include procurement officers, legal reviewers, and IT administrators.

The pilot shall validate RAG-based clause improvement, City-approved template enforcement, and human-in-loop approval workflows.

All interactions and generated drafts must be in Dutch. The setup must capture user feedback, measure compliance accuracy, and assess system usability, performance, and integration with existing procurement processes to inform full-scale deployment.

### 1.7.1 Type and number of targeted end-users (for the pilot)

| End-user type | Roles/Engagement | Number |
|---|---|---|
| Procurement Officers | Create briefs, generate/edit drafts, evaluate AI suggestions | 4 to 6 |
| Project manager | Pilot coordination, KPI tracking, functional design | 1 |
| IT administrator | Integration, security, SSO support | 1 |
| Legal reviewer | Check output based on legal compliance | 1 |

Table 1. Targeted End-Users

### 1.7.2 Language

Dutch is the  required language for the end users.

English is optional, as it would be helpful for later scaling opportunities.

### 1.7.3 Other aspects

- The pilot requires a secure staging environment with access to anonymised historical procurement documents and templates that we will provide. This needs to be easily accessible from our own Stad Gent network for several people.
- Technical support should be available for troubleshooting, and version-controlled logging must be enabled for audit and performance assessment purposes. Possibly using a ticketing system to log possible issues & communicate in a trackable & official way, or any appropiate measure agreed between the city and the selected provider..

## 1.8 Pilot Set-Up Conditions

### 1.8.1 Ethical, Legal or Regulatory

All pilot activities must comply with GDPR, City of Ghent data protection policies, EU procurement law, and the EU AI Act. A Data Protection Impact Assessment (DPIA) and an AI-risk assessment (in line with the EU AI Act) will be completed before indexing any documents. Uploaded materials will be anonymised automatically and logged (anonymisation audit). The pilot will maintain required AI-Act documentation (risk-management file, technical documentation, and processing records) and ensure appropriate human-in-the-loop oversight where applicable.

### 1.8.2 Technological

The solution preferably supports SSO (SAML/OAuth2) for authentication and integrates with the City's DMS (= sharepoint). API setup can be provided by our internal IT partner District09.. In the future, we will need a separate quality environment from the production environment for testing & to expand functionality.

If possible, in the future the system should allow hosting of the vector database and AI models on the City's own servers or within a secured on-premises infrastructure to maintain full control over sensitive data.

### 1.8.3 Data Access

The City will provide full access to the complete dataset of our historical procurement documents (or other useful information sources) plus approved templates and possible guidance. Data cleaning & structuring efforts can be provided by the city itself. Access to DMS metadata and procurement records will be granted in read-only mode for retrieval and context, under strict access-control and logging. Any use of uploaded files for model training requires explicit legal agreement and a separate data-processing arrangement which will be provided in due time, to ensure it does not affect the pilot timeline.

### 1.8.4 Other

The City will allocate procurement officers' and legal reviewers' time for testing and feedback, and can provide physical/virtual meeting spaces if needed. Additionally support will be provided by District09. They are the dedicated internal ICT partner of the City of Ghent. In this project, District09 will support infrastructure, authentication, secure data hosting (on-premise or VPC), integration with the document management system, and ensure compliance with IT policies and data-protection standards. Their involvement is crucial for the pilot's technical deployment, operational reliability, and for scaling the solution to other departments while aligning with the city's digital strategy.

## 1.9 Expected Impacts and KPIs

Expected impacts include reduced drafting time, improved document consistency, fewer legal issues, and higher staff productivity. Pilot KPIs:

- **Efficiency:** ≥50% reduction in time to produce first usable draft. Analysis of current time spent to be done before the start of the pilot.
- **Adoption:** ≥50% of new specs partially generated or reviewed with AI within pilot department.
- **User satisfaction:** average user satisfaction score ≥4/5 among pilot users.

## 1.10 Business Opportunity

### 1.10.1 Market Size

At organisation level, Ghent's Procurement Department manages a portfolio worth over €200 million and dozens of tenders annually, focused on goods and services. This figure covers only the central procurement department; additional scaling potential exists within the organisation for construction works (managed by other departments) and smaller departmental procurements handled directly by individual units. Nationally, Belgian public procurement exceeds tens of billions yearly (with hundreds of contracting authorities), all facing similar specification-drafting burdens. Europe-wide procurement spending is roughly €1.5–2 trillion annually (around 14% of GDP), representing thousands of local, regional, and federal authorities that could adopt a compliant AI drafting tool. Beyond municipalities, potential users include regional authorities, universities, public hospitals, and central procurement bodies. Several observing public buyers are already following the project's progress, indicating strong replication potential across Europe.

### 1.10.2 Sustainability Plan

**Post-pilot engagement options (feasible given constraints)**

- **Gradual internal roll-out (recommended):** extend from the Procurement Department to other departments (e.g., construction works) over 6–12 months, retaining mandatory legal sign-off gates. Pre-procurement extensions will be governed by short, time-boxed collaboration agreements / MOUs that define scope, KPIs, data protection (anonymisation/DPIA responsibilities), roles, timelines and exit clauses. This low-cost path requires limited D09 effort and is the most practical first step.
- **Multi-buyer pooled pilot:** invite 2–3 neighbouring authorities to join a shared, anonymised-data pilot under lightweight MOUs and a joint steering group to govern data, IP, decision rights and cost allocation. Financial models may combine cost-sharing, in-kind contributions (staff time, hosting, data access), targeted vendor reduced fees or in-kind vendor support in exchange for anonymised learnings and co-development, and pursuit of co-funding (EU grants or partner contributions). Clear, measurable obligations (LOIs/MOUs), incentives (shared costs, steering membership, limited-scope access) and short proof-of-value phases (e.g., 6–12 weeks with objective KPIs) will be used to convert observing buyers into committed partners while minimising their downside via explicit exit clauses.
- **Extended evaluation:** if legal or integration issues surface, run an additional 3–6 month validation phase focused on risk mitigation before formal procurement. All

pre-procurement collaboration agreements will specify the financial and non-financial contributions expected from each party and the vendor's commitments.

**Earliest plausible procurement timing & gating conditions**
Earliest realistic procurement window: 6–12 months after a successful pilot and any pre-procurement extensions, conditional on completing the gating checklist below. Procurement may only commence after DPIA and legal governance approval, successful security testing, attainment of KPI targets, and D09 confirmation of production hosting and integration capacity.

**Factors that could postpone procurement**

- Prolonged DPIA or unresolved legal/regulatory questions.
- D09 capacity constraints or competing IT priorities.
- Inadequate pilot KPIs or low user adoption.
- Complex legacy integrations requiring additional development.
- Delays in multi-party governance or funding agreements when pooling data.

**Coordination with budgets & decision calendars**
Align the post-pilot business case with the next City budget cycle (target next 6–12 month decision point). If formal procurement cannot be funded immediately, implement an interim minimal-cost production pilot (VPC or controlled on-prem staging) funded via a mix of City contribution, partner cost-sharing, vendor discounted fees, or grant funding to preserve momentum and learning.

**Immediate checklist before procurement-phase planning**

- Confirm executive sponsor and obtain LOIs/MOUs from participating authorities.
- Finalise collaboration agreement with scope, KPIs, data protection, cost model and exit terms.
- Secure D09 commitment for hosting/integration timeline or an interim hosting plan.
- Complete DPIA and schedule legal sign-off windows.
- Finalise pilot KPI report and draft business case for Finance submission.