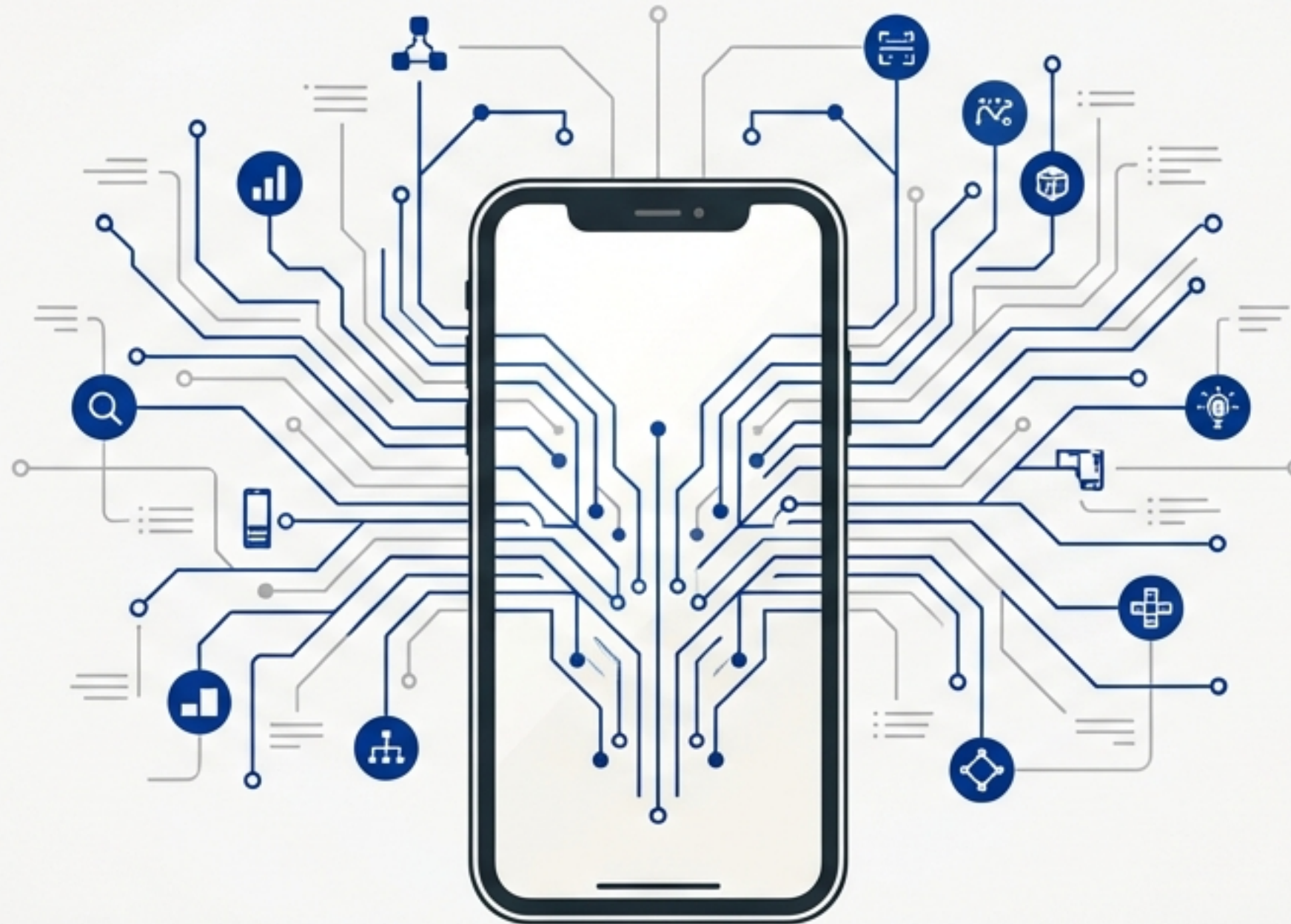# Public Commerce: A New Architecture for a Truly Mobile Marketplace

Distilling the Vision and Framework from Vagan Terziyan's Foundational Paper

The Mobile Device Has Evolved. Commerce Must Too.

The mobile phone has transformed from a simple communication tool into a **Personal Trusted Device**. It is now the hub for a wide array of new services and applications, including banking, payments, ticketing, and secure access operations. This way evolution, ticketing, and secure access operations. This evolution sets the stage for a new form of mobile electronic commerce (m-commerce).

This shift creates an environment fundamentally different from traditional Internet e-commerce, defined by the unique characteristics of mobile terminals, wireless networks, and user context.
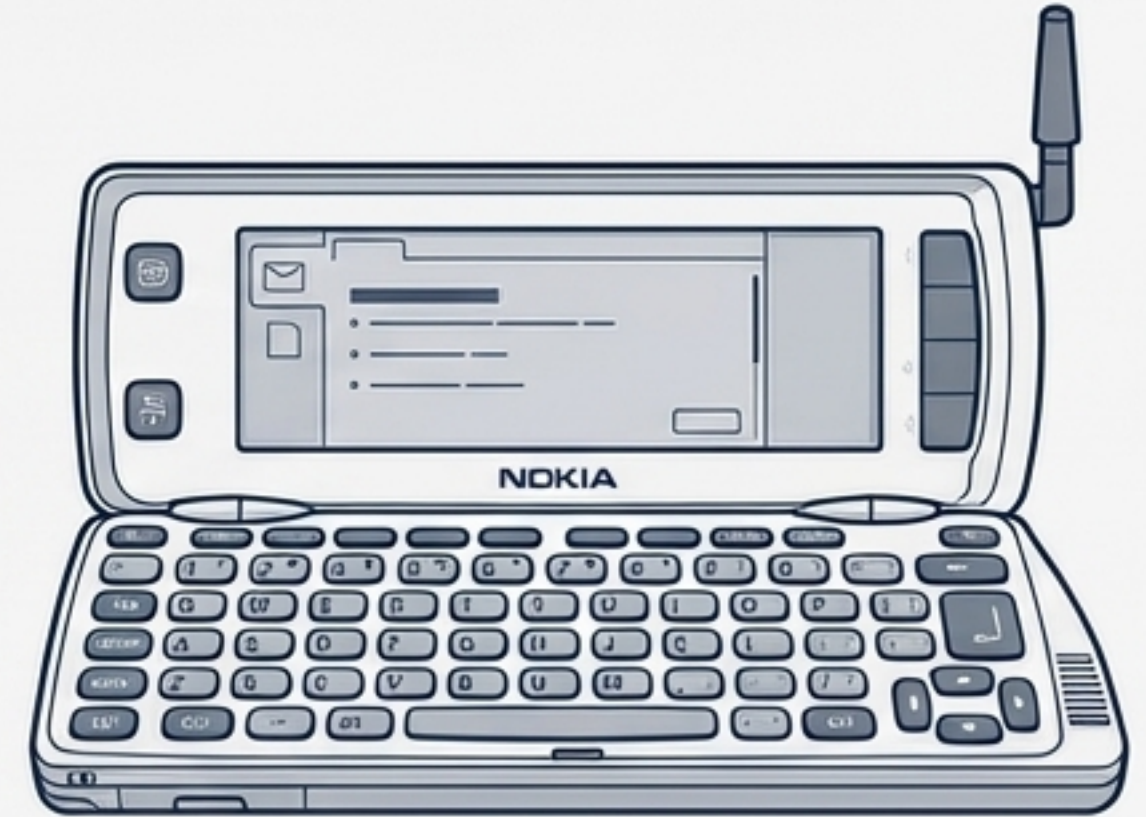
The 'P-Commerce' Puzzle: A Powerful Idea with a Fragmented Identity

What does "p-commerce" actually mean? The term has been used to describe multiple, distinct concepts, creating a barrier to a unified vision.

Postal Commerce
The original mail-order catalog model.

Position Commerce:
Location-based services, promotions, and navigation.

People Commerce:
Outsourced human resource management and recruitment.

Pocket Commerce:
Using a device to scan a UPC code and get product information.

Personalized Commerce:
Using personal profiles to deliver targeted content.

Pervasive Commerce:
Delivering applications customized for any device's capabilities.

NotebookLM

The Unifying Vision: Public Commerce

Public Commerce is a paradigm where every person in society participates in the public business process as both a potential buyer and a potential seller, empowered by location-aware mobile technology.

FROM

A passive consumer of commercial services.

→

TO

An active supplier *and* consumer of those services.

Public Commerce integrates the best features of previous concepts—it is location-based (Position), adaptive (Personalized/Pervasive), and enables peer-to-peer transactions (a modern Postal/Pocket).

A Day in the Life of a Public Commerce Participant
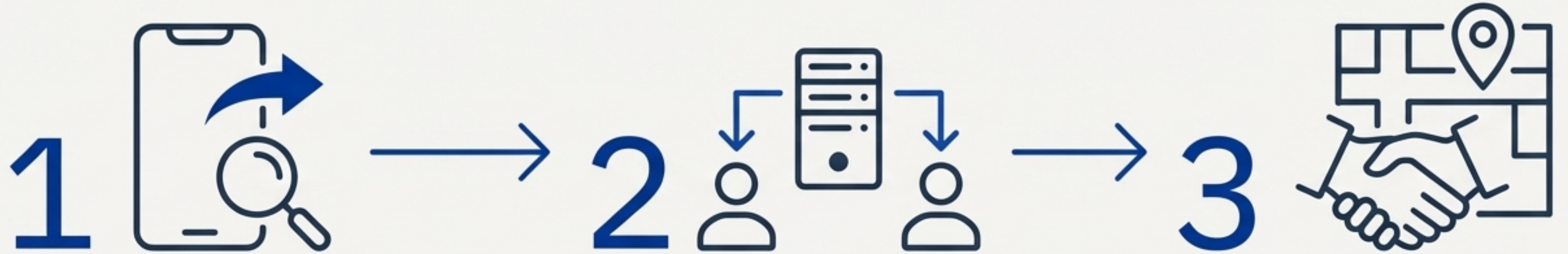
1 The Request

A user needs a specific item (e.g., a used camera lens). Using their mobile device, they create a **Short Mobile Request (SMR)**, classifying their need.

2 The Match

The Public Commerce server receives the SMR. It analyzes its database and finds a nearby user who has created a matching **Short Mobile Offering (SMO).**

3 The Transaction

The system facilitates the interaction: negotiation, secure payment, and logistics (e.g., providing a map to the seller's location). The peer-to-peer transaction is completed.

The Architectural Blueprint
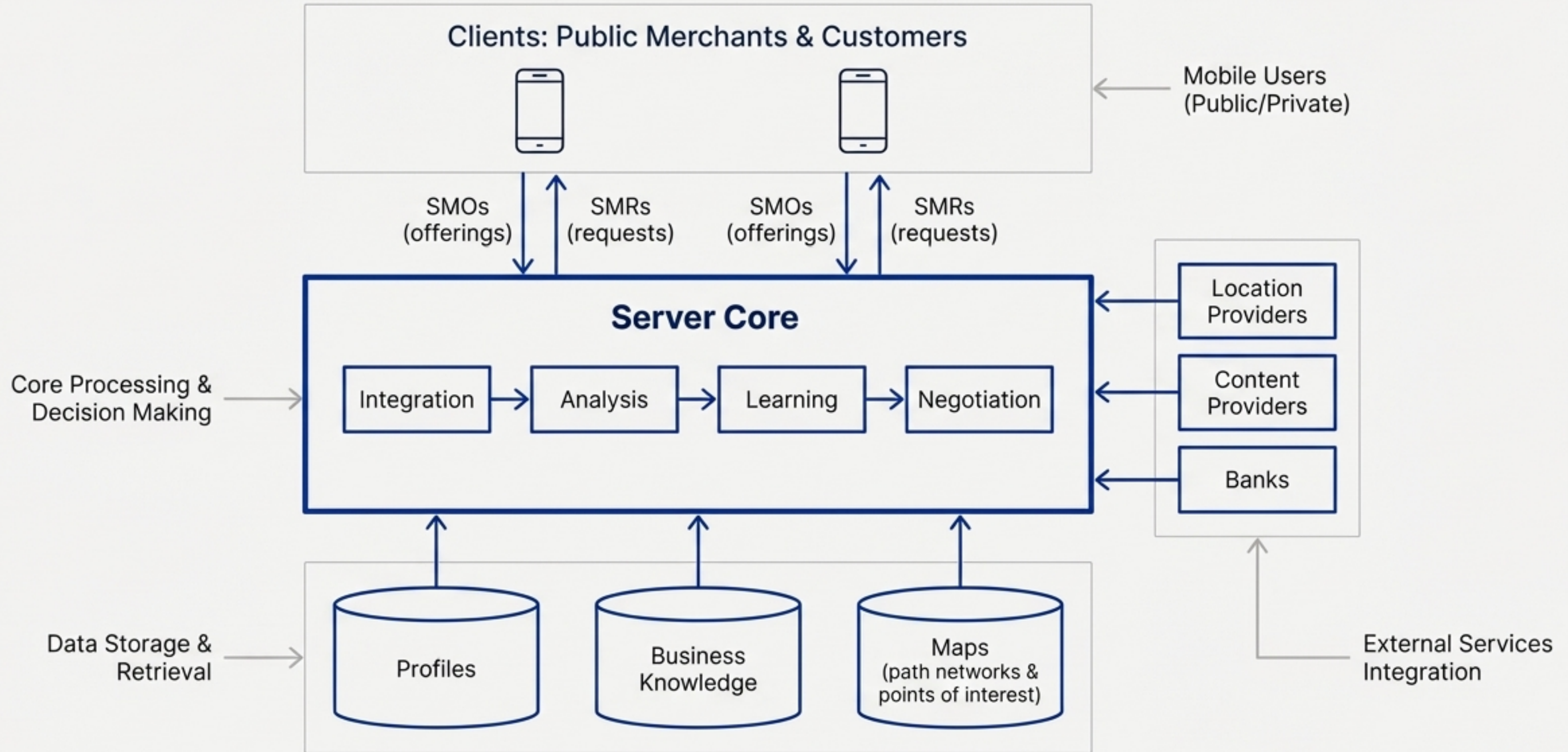
The Technological Foundation

Data & Semantics

XML

Provides a platform-independent way to structure data for profiles, requests, offerings, and geographical information (via GML). It ensures the *meaning* of data is preserved across the system.

Logic & Portability

Java

Enables powerful, cross-platform client-side applications that can analyze data, render maps, and provide a rich user interface, moving beyond simple WAP browsers.

Connectivity & Access

GPRS

Provides the 'always-on' packet data capability essential for instant connectivity, where users pay for data transferred, not idle time.
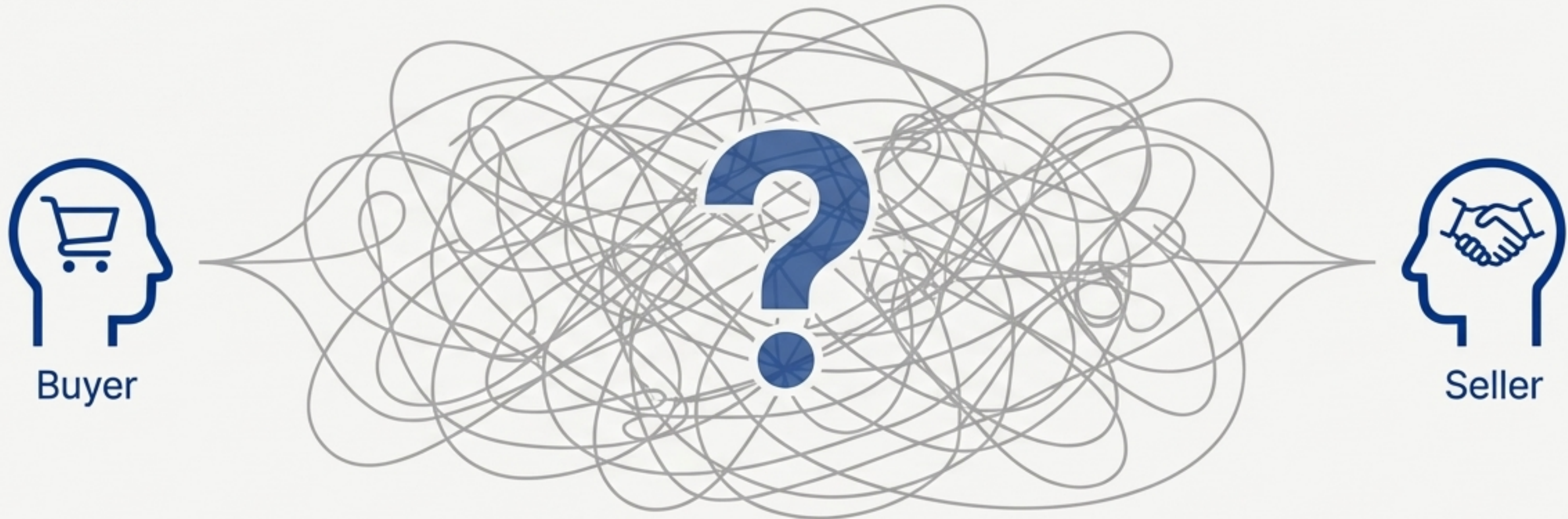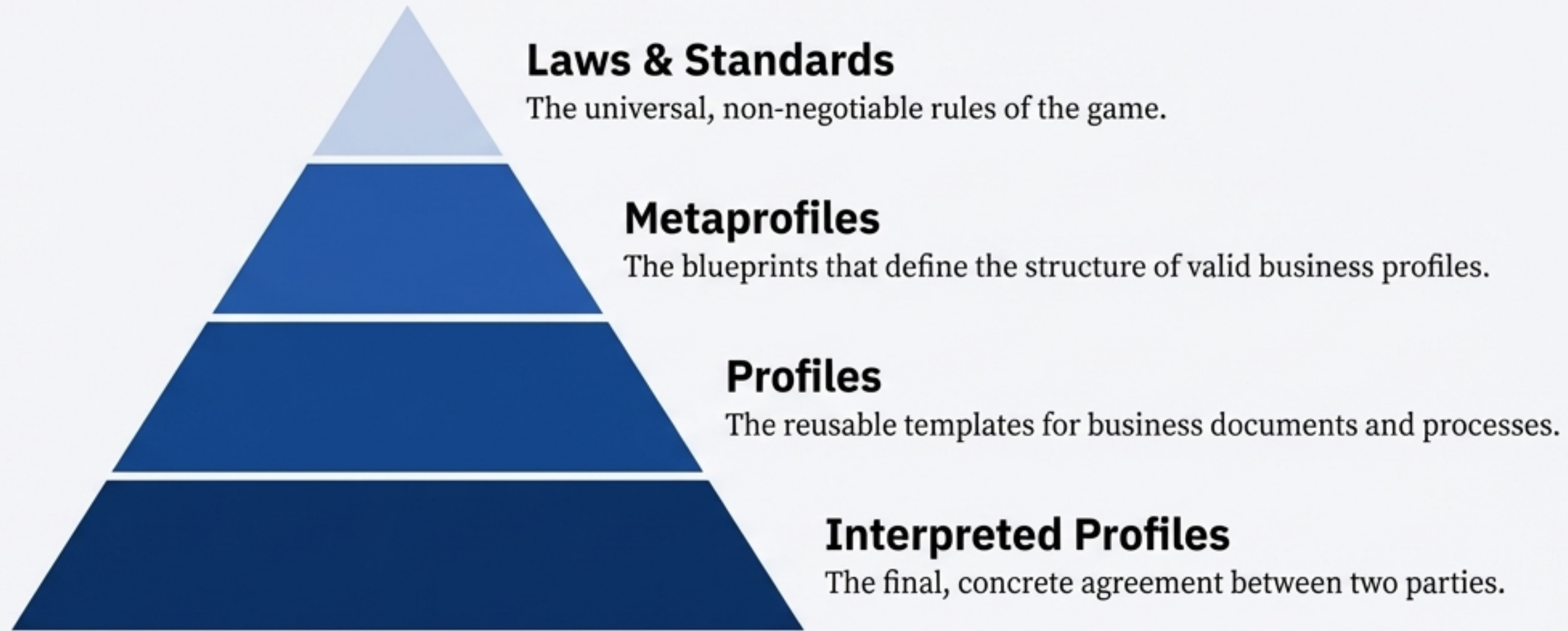
Trust & Integrity

Open Standards

A suite of standards to ensure secure and reliable transactions: **TAML** (Transaction Management), **S2ML** (Security), and **P3P** (Privacy).

NotebookLM

The Core Challenge: Enabling Consensus at Scale

How can a system enable any buyer and any seller to seamlessly agree on the terms of a transaction? This requires consensus on everything from universal legal compliance and security protocols down to the specific details of a single product or service.

Buyer

Seller

The Solution: A Multilevel Profiling Framework

Laws & Standards
The universal, non-negotiable rules of the game.

Metaprofiles
The blueprints that define the structure of valid business profiles.

Profiles
The reusable templates for business documents and processes.

Interpreted Profiles
The final, concrete agreement between two parties.

This framework allows the system to manage business operations by moving from general rules to specific agreements, ensuring every transaction is valid and mutually understood.

The Framework Layers: The Rules of the Game
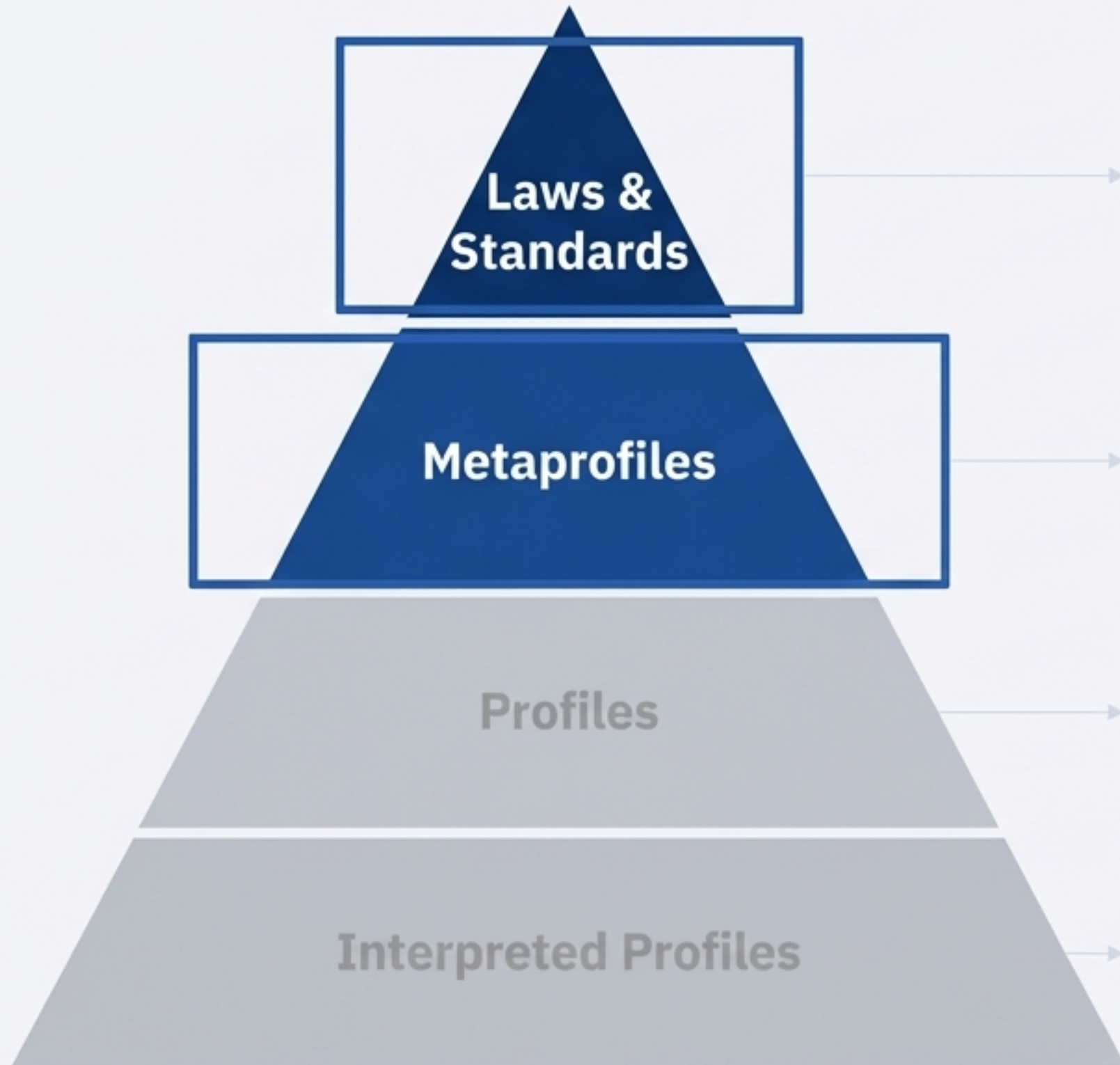
Level 1: Laws & Standards

The highest level, containing the universal rules that govern all transactions. This includes international and local laws and industry-wide standards.

Examples: Transaction management protocols (ACID properties), payment standards, security requirements (S2ML), and privacy laws (P3P).

*The "Constitution" of the P-Commerce ecosystem.*

Level 2: Metaprofiles

The 'blueprints' for profiles, defined as **Meta Document Type Definitions (Meta-DTDs)**. They don't contain business data, but rather define the *architecture* of valid DTDs at the level below.

Ensures that all profiles created in the system follow a consistent and valid structure.

The "Zoning Laws" that dictate how buildings (profiles) can be constructed.

The Framework Layers: The Building Blocks of Business

Laws & Standards

Metaprofiles

Profiles

Interpreted Profiles
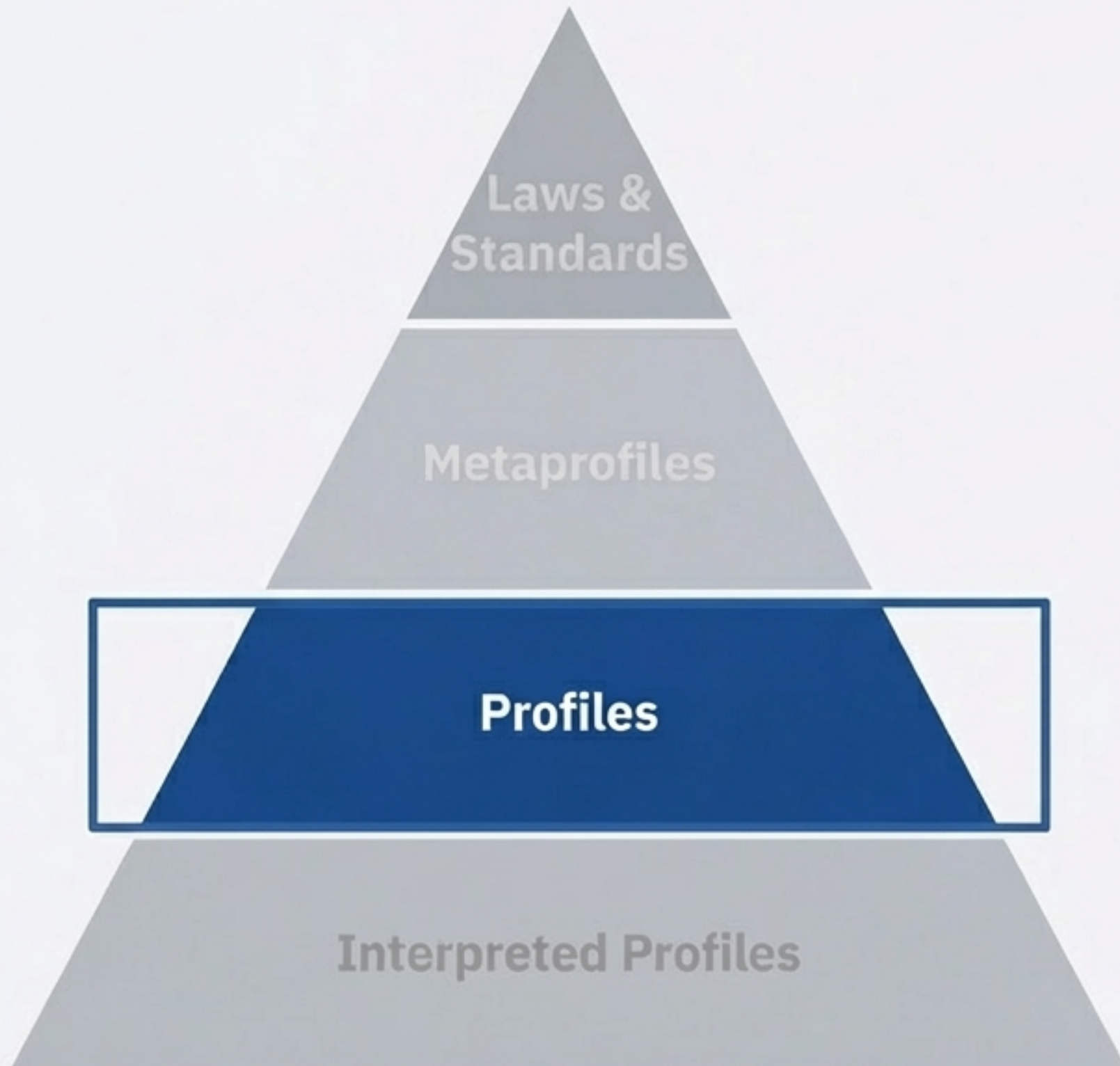
Level 3: Profiles

This layer contains reusable templates for common business documents and processes, typically in the form of **Document Type Definitions (DTDs)**.

The **Common Business Library (CBL)** is cited as a key example, providing standard XML building blocks for generic business concepts.

Examples: Standardized formats for product catalogs, purchase orders, invoices, and shipping schedules.

By using these common templates, the system ensures interoperability between different parties and dramatically simplifies the process for users.

The Framework Layers: The Final Agreement
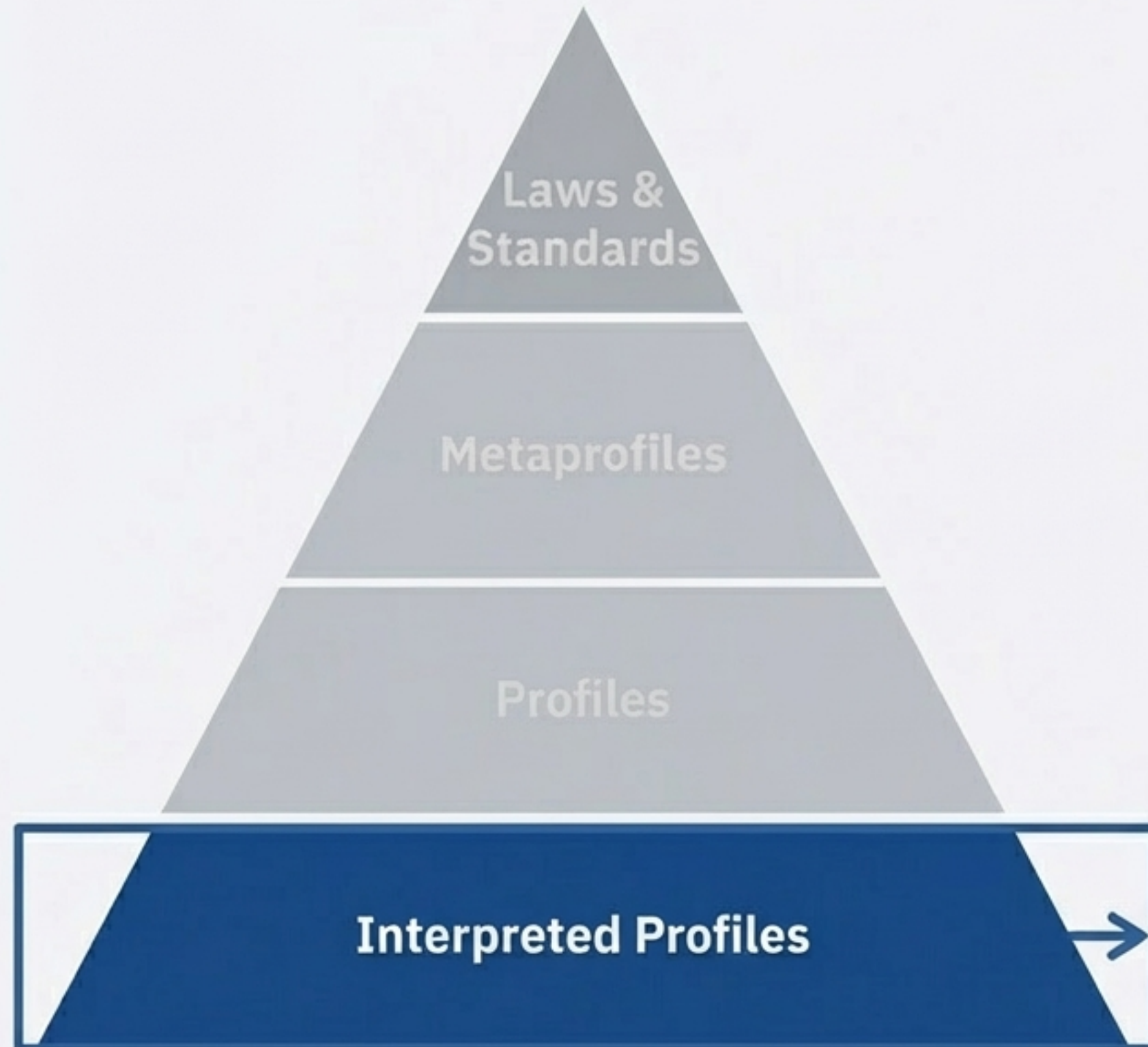
Level 4: Interpreted Profiles

The bottom layer represents the final consensus. It is a concrete **XML document** created when a user fills out a template from the 'Profiles' layer.
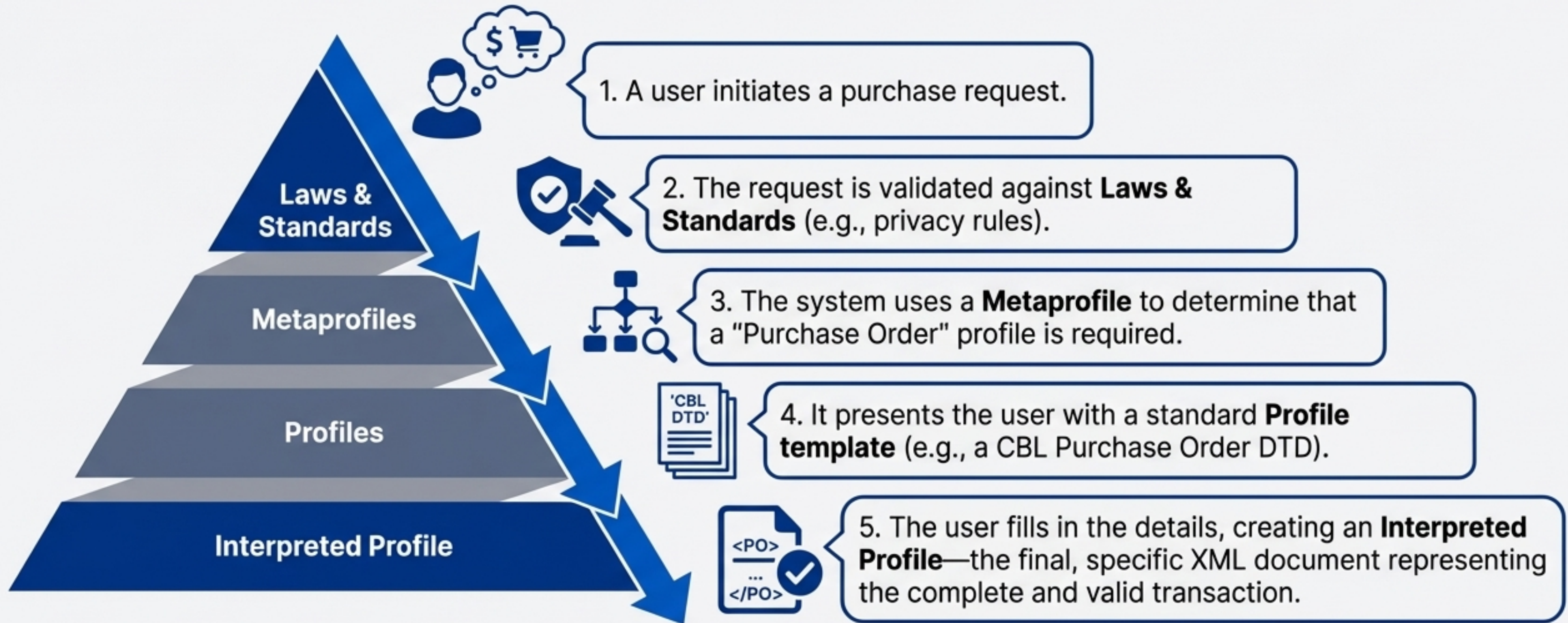
This document captures all the specific features of the reached agreement between the buyer and seller.

A completed purchase order XML file, containing the specific buyer, seller, product ID, quantity, price, and shipping details, all structured according to the CBL DTD.

This is the machine-readable record of the transaction, validated against all the layers above it.

Pyramid layers (top to bottom): Laws & Standards, Metaprofiles, Profiles, **Interpreted Profiles**

```
<buyer>
...
<product>
  <quantity>
  <price>
</product>
...
</buyer>
```

The Framework in Action: From Request to Consensus

Pyramid levels (top to bottom):
- Laws & Standards
- Metaprofiles
- Profiles
- Interpreted Profile

1. A user initiates a purchase request.

2. The request is validated against **Laws & Standards** (e.g., privacy rules).

3. The system uses a **Metaprofile** to determine that a "Purchase Order" profile is required.

4. It presents the user with a standard **Profile template** (e.g., a CBL Purchase Order DTD).

5. The user fills in the details, creating an **Interpreted Profile**—the final, specific XML document representing the complete and valid transaction.

Outcome: An automated process that guarantees every agreement is structured, compliant, and understood by both parties.

NotebookLM

A Blueprint for the Future of Mobile Commerce

1 A Unifying Vision

Public Commerce reframes the mobile user from a simple consumer consumer into an active participant in a fluid, peer-to-peer marketplace.

2 A Robust Architecture

A scalable client-server model built on open standards like XML, Java, and GPRS provides the technical foundation for this vision.

3 An Intelligent Engine

The Multilevel Profiling Framework is the Framework is the core innovation, providing the 'secret sauce' for automated negotiation and consensus at scale.

Powering the Next Evolution: The Semantic Web

The Semantic Web aims to enrich the web's data with knowledge representation features, permitting inference and creating an intelligent, autonomous internet.
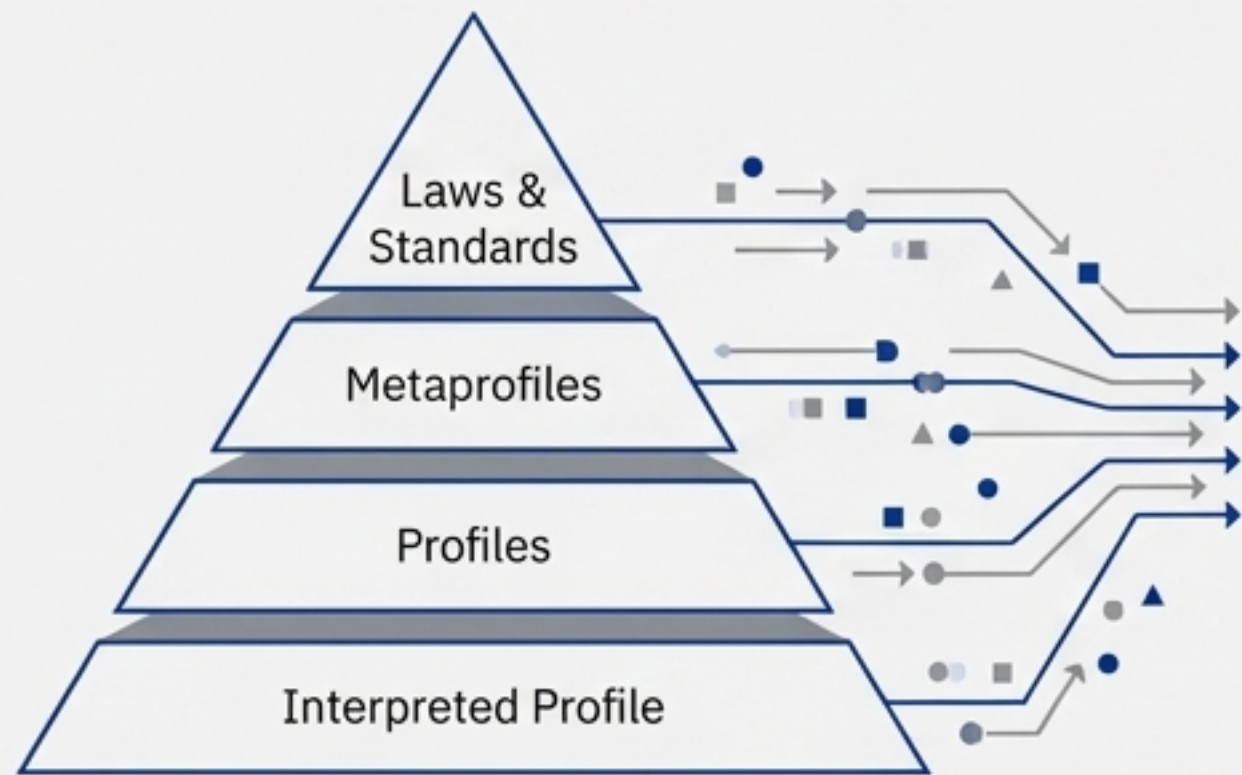
By structuring business interactions with clear, machine-readable meaning, Public Commerce is a practical implementation of the Semantic Web's core principles.
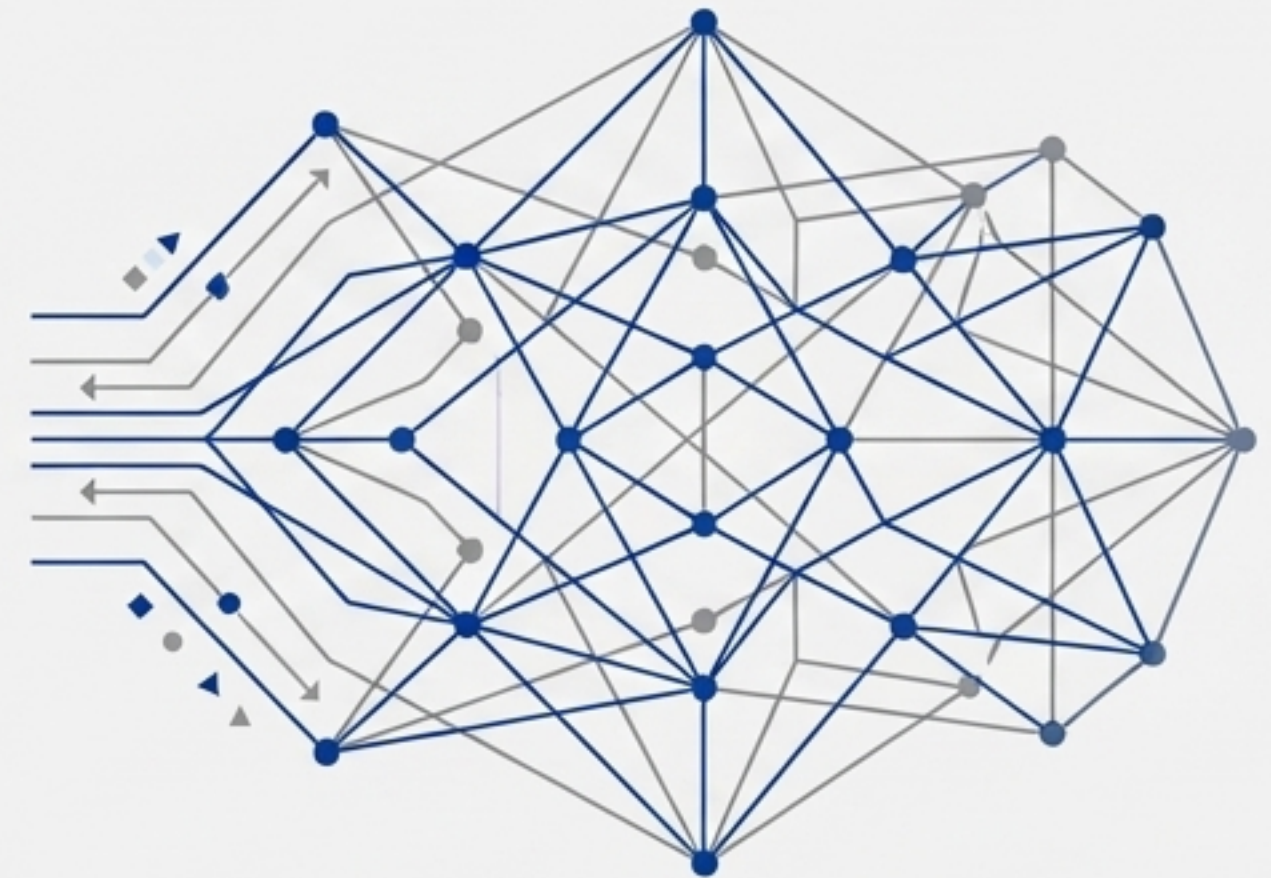
"The framework's ability to interpret content through multiple contexts—filtering it through different levels of profiles—is a foundational step toward making the web truly useful for a specific user in a specific location."