**CityMesh.AI Protocol White Paper v0.1  
(Registration & Protection Edition)**

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# Abstract

CityMesh.AI defines a new class of urban-scale network protocol that enables Agent-to-Agent (A2A) negotiation, scheduling, and escrow between consumer AI agents and merchant AI agents. This protocol turns traditional platform-based transactions into protocol-based autonomous cooperation—shifting from human-managed platforms to self-negotiating intelligent agents.

（中文）CityMesh.AI 定义了一类城市级网络协议，使消费者AI与商户AI之间能够进行“代理对代理”的自动化议价、排期与托管结算。该协议将传统的“平台撮合型交易”升级为“以协议为核心的自治协作”，从人工平台转向由智能体自行谈判与协作。

# 1. Background and Vision

Modern internet commerce is trapped within centralized intermediaries—platforms own data, control payments, and dictate trust. CityMesh.AI redefines this model by building a decentralized negotiation layer where AI agents represent both sides, transact directly, and maintain verifiable trust through receipts and minimal on-chain proofs.  
  
（中文）现代互联网商业深受中心化平台制约：平台掌控数据、支付与信任。CityMesh.AI 提供去中心化的“议价与信任层”，由AI代理代表双方直接交易，并通过可验证收据与最小化上链证明建立可信。

# 2. Protocol Overview

CityMesh.AI operates as an open, modular protocol—not a platform. It provides a framework for autonomous negotiation, task scheduling, and verified settlement among AI systems.  
  
Core modules:  
1) Negotiation Layer — machine-readable language and decision rules for Agent↔Agent bargaining.  
2) Escrow & Settlement Layer — standardized interfaces for escrow and multi-party splits.  
3) Open Receipt Graph — verifiable Proof-of-Service receipts forming a trust web.  
4) Subnet Economy — community/city-scale autonomous mesh with routing fees and local governance.  
  
（中文）CityMesh.AI 是开放、模块化的协议，而非平台。它为AI系统提供自治议价、任务排期与可验证结算的框架。  
核心模块：  
1）议价层：机器可读议价语言与决策规则；  
2）托管结算层：托管与多方分账标准接口；  
3）开放收据图谱：可验证的服务完成证明；  
4）子网经济：社区/城市级自治网，带路由费与本地治理。

# 3. Core Innovations

(1) Agent↔Agent Negotiation: autonomous bargaining based on consumer preferences and merchant revenue models.  
(2) Open Receipt Graph: cryptographically signed receipts; optional minimal on-chain anchoring.  
(3) Protocol-First Architecture: usable via SMS/WeChat/WhatsApp; merchants join with POS printer + QR.  
(4) Multi-Rail Escrow: cards, Interac, business transfers, optional crypto; auditable split rules.  
(5) Subnet Governance: neighborhood/city subnets earn routing fees and govern locally.  
  
（中文）  
（1）代理对代理议价：依据消费者偏好与商户收益模型自动协商；  
（2）开放收据图谱：签名收据并可最小化上链锚定；  
（3）协议优先架构：可在短信/微信/WhatsApp中使用；商户以POS打印机+二维码接入；  
（4）多轨托管：银行卡、Interac、企业转账与可选加密支付；分账规则可审计；  
（5）子网治理：社区/城市子网收取路由费并自治。

# 4. Data & Agent Architecture （資料與智能代理架構）

[Consumer AI] ⇄ [Negotiation Layer] ⇄ [Merchant AI]  
 │ │  
 └── Escrow Engine ⇄ Receipt Graph ⇄ Subnet Router  
  
Each AI agent communicates via standardized JSON schemas: service\_type, time\_window, price\_range, add\_on\_conditions, credit\_profile. All communications are signed, timestamped, and stored as verifiable logs.  
  
（中文）此架构定义 CityMesh.AI 的核心运行机制：消费者AI与商户AI以标准化数据结构交换信息；所有消息含数字签名与时间戳，确保可追溯与防篡改；托管引擎与收据图谱维护交易安全；子网路由器负责本地区域内AI节点评分发与身份校验。

# 5. Trust & Security Model （信任與安全模型）

• Decentralized Trust: Proof-of-Service receipts act as micro-certificates.  
• Data Minimization: Only essential metadata is stored or hashed.  
• Governance: Each subnet maintains its own arbitration and reputation oracle.  
  
（中文）信任模型采用去中心化设计：  
1）每笔交易完成后生成“服务完成证明”（Proof-of-Service）作为微型凭证；  
2）数据最小化，仅记录必要信息或哈希；  
3）每个子网拥有独立仲裁与信誉节点（Reputation Oracle），可本地化风控与争议处理。

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