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INTRODUCTION

Patient journey is a vital exercise across the product lifecycle, used to identify unmet needs, gaps in care, and to define and size target populations. We had previously developed an optimized process, automating it to the extent possible with pre-agentic AI technologies. The workflow, however, still required substantial input from multiple teams, with hand-offs across time zones.

To address these limitations, we developed a distributed multi-agent AI system in which autonomous agents collaborate through a patented agent-to-agent (A2A) protocol, working alongside human team members to deliver the end-to-end workflow.

METHOD



Supervisor based distributed multi-agent system

A single Orchestrator agent acts as a “supervisor”, receiving input from users and delegating work to the appropriate sub-agents.



Tool access via MCP

Each agent has dedicated access to Model Context Protocol (MCP) servers and uses an intelligent planner to sequence tasks via MCP.



Human-in-the-Loop Interface

Experts can review, validate, and intervene at any stage. This approach maintains transparency and trust in automated workflows.



Evaluation with LLM-as-a-Judge

It acts as a clinical subject matter expert and applies LLM-as-a-Judge techniques for quality assurance and auditability.

RESULTS

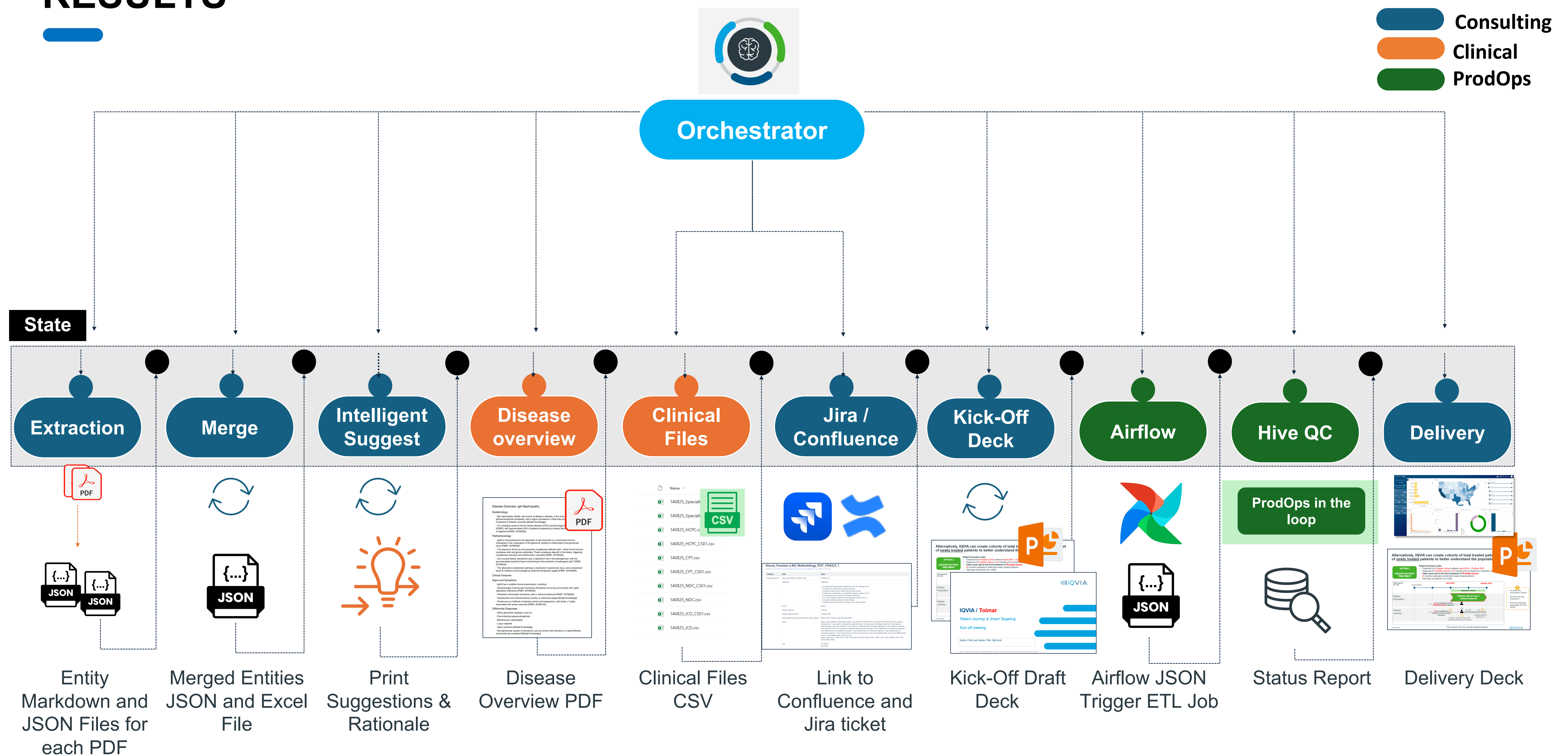


Figure 1: Distributed multi-agent system with Orchestrator and ten sub-agents

1

Increased efficiencies leading to higher throughput within the teams

2

Removed lag times from the human-to-human hand offs

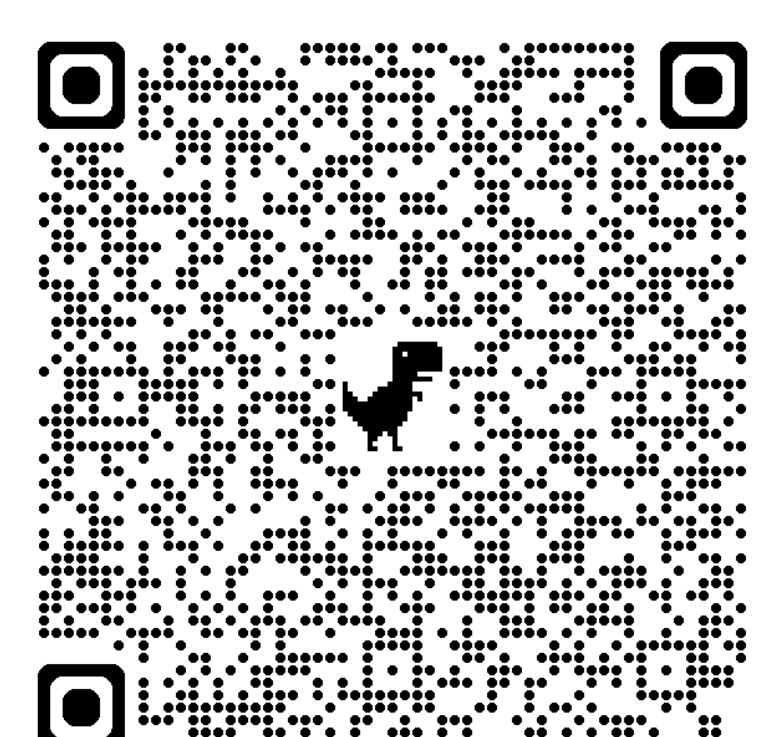
3

Reduced delivery times by 30% through enhanced co-ordination

CONCLUSIONS

- We have developed a trustworthy, scalable, and distributed multi-agent AI system that transforms the end-to-end delivery of Patient Journey projects.
- It is integrated with collaboration platforms (e.g., SharePoint, Teams, Email), eliminating delays caused by human-to-human handoffs.
- Our multi-agent system enhances efficiency, consistency, and throughput across teams.

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