Building the **Ultimate HR System** with MCP & AI Agents

A Comprehensive Analysis of Technology Stack, Feasibility, and ROI

93%

Cost Reduction

vs Traditional Development

Modern HR Architecture Delivers Unified Talent Management
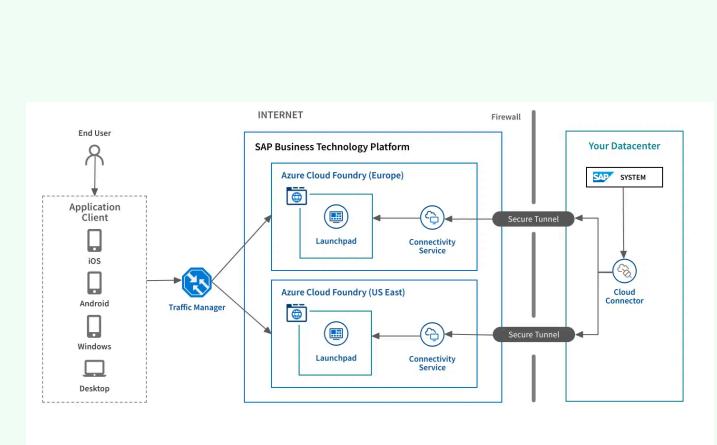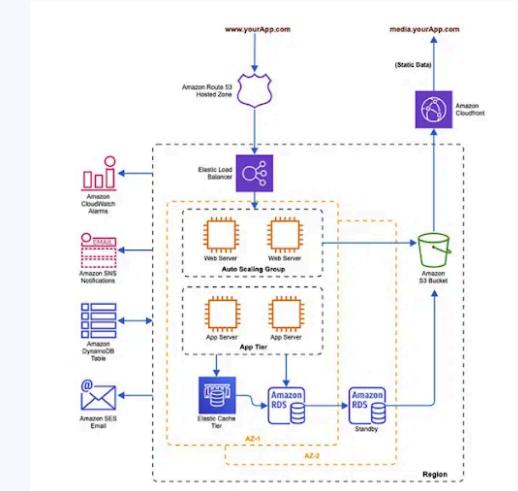
Traditional monolithic HR systems cannot keep pace with modern workforce demands. A **composable architecture** using MCP and AI agents enables organizations to integrate best-of-breed solutions while maintaining unified data and workflows.

80%

Reduction in Integration Complexity

vs Traditional Point-to-Point Integrations

Architecture Layers

Frontend Layer
Refine.dev React App

MCP Orchestration
MetaMCP/MCPX Gateway

AI Agent Swarm
5 Specialized Agents

Backend Services
Supabase + Browserbase

External Integrations
Job Boards, Payroll, LMS

Data & Analytics
BI, ML Models, Reporting

Optimal Technology Stack Combines Proven Platforms

Supabase

PostgreSQL database, authentication, real-time subscriptions, storage, SOC2/HIPAA compliance

$25/mo Pro tier

Refine.dev

React framework for CRUD apps, pre-built components, headless architecture, native Supabase support

Free & Open Source
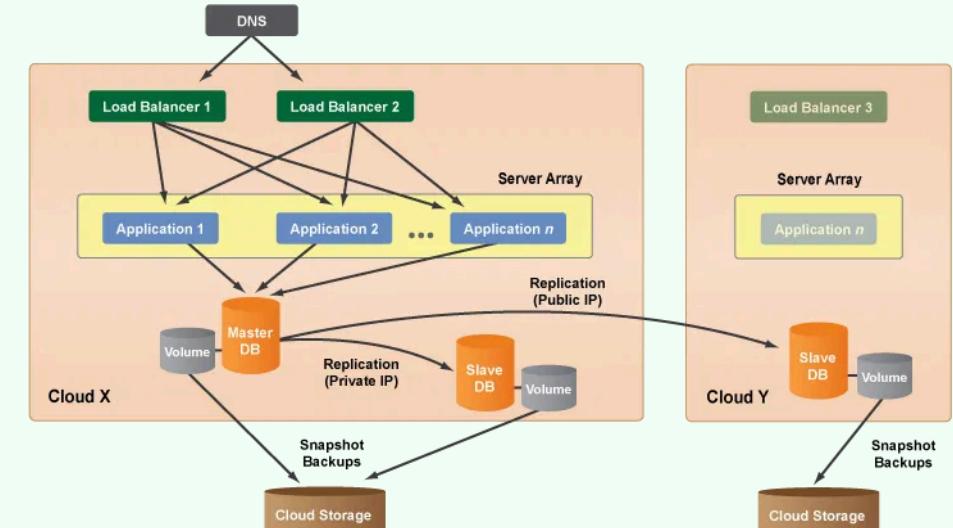
MetaMCP/MCPX

Unified MCP gateway, 75,400+ star ecosystem, access controls, usage tracking, load balancing

Free (MetaMCP)

Browserbase

Serverless browsers for AI agents, no infrastructure management, Live View for human oversight

$99/mo Startup tier

🔌 Key MCP Connectors

- Supabase MCP (Database)
- Gmail MCP (Email)
- Puppeteer MCP (Browser)
- Slack MCP (Communications)
- Google Drive MCP (Storage)
- HR Partner MCP (HR Ops)

Cost Tiers

Tier	Monthly Cost	Use Case
MVP	$0-50	Free tiers, validation
Production	$100-200	Small-mid size orgs
Enterprise	$500-2000	Large scale, compliance

Deployment: Vercel (Free tier for MVP, $20/mo Pro for production) with global CDN and automatic scaling

Implementation Feasibility Shows 85-95% Success Rate

Modern AI platforms can successfully implement the HR system with minimal human intervention, reducing development time by **75%** and costs by **93%** compared to traditional approaches.

85-95%

Manus AI

Full execution environment with automatic error recovery. **118 hours total** (75 hours AI + 43 hours human review). Token cost: ~$5.
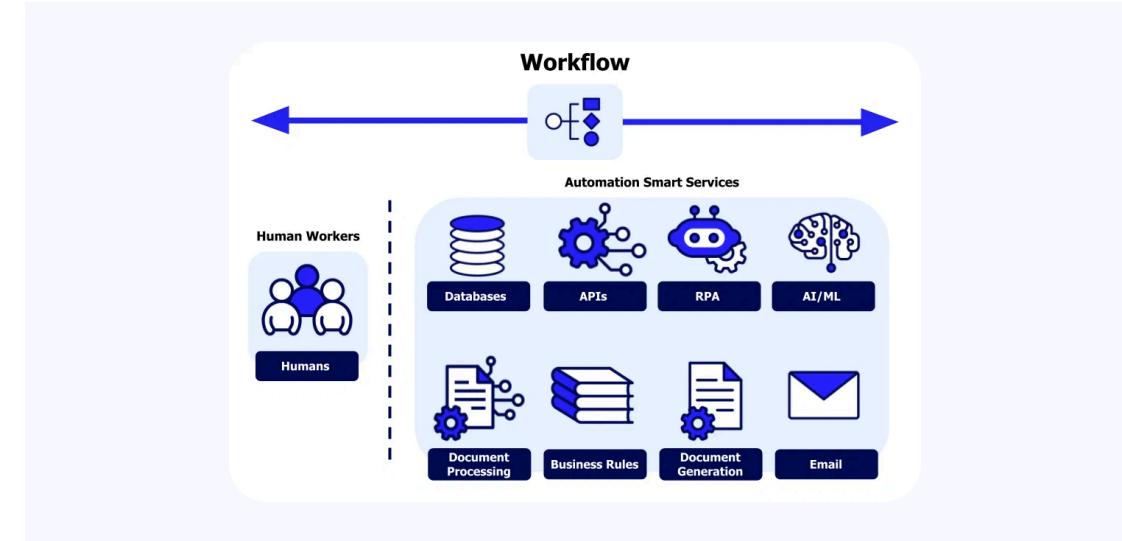
75-85%

Refine.dev + AI

Well-documented framework with clear CRUD patterns. Standard components have 95% success rate. Requires human refinement for complex logic.

✓ Key Success Factors

Clear instruction sets • Iterative development cycles • Standard technologies • Human review at checkpoints • Incremental deployment

Human Intervention Points

5-10% — **Requirements Clarification**
Ambiguous specifications, edge cases

10-15% — **Design Decisions**
UI/UX choices, architecture patterns

10-20% — **Error Resolution**
Unexpected API errors, integration failures

20-30% — **Quality Assurance**
Security review, performance testing

Recommended: Autonomous execution for 70-80% of tasks, human-in-the-loop for 20-30% requiring judgment, human approval for 100% of production deployments.

Cost & Time Savings: 93% Reduction, 75% Faster

Traditional Development

$83,000

4-6 months • 1000 hours

High Risk

AI-Driven with Manus AI

$6,105

2-4 weeks • 118 hours

Medium Risk

Total Savings

$76,895
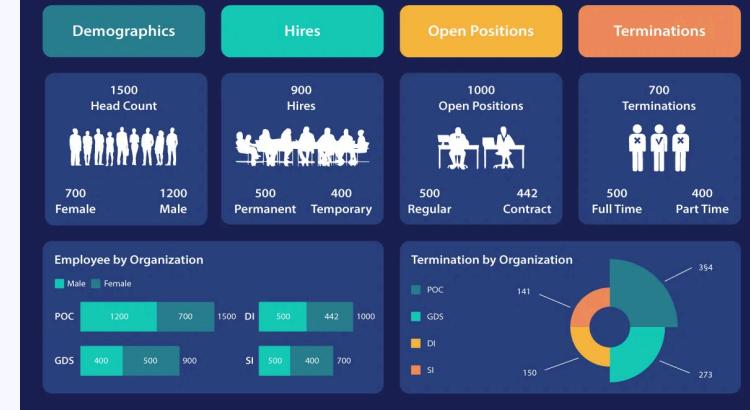
93% cost reduction

75% time savings

Phase-by-Phase Breakdown

Phase	Manus Time	Human Review	Total	Token Cost
Database Schema	2h	1h	3h	$0.24
Authentication	3h	2h	5h	$0.15
ATS Module	8h	4h	12h	$0.40
VMS Module	6h	3h	9h	$0.30
HRIS Module	10h	5h	15h	$0.50
MCP Integration	4h	2h	6h	$0.10
AI Agents	8h	4h	12h	$0.36
Testing & QA	12h	8h	20h	$1.49
TOTAL	**75h**	**43h**	**118h**	**$5.05**

Executive Summary

Demographics	Hires	Open Positions	Terminations
1500 Head Count	900 Hires	1000 Open Positions	700 Terminations
700 Female / 1200 Male	500 Permanent / 400 Temporary	500 Regular / 442 Contract	500 Full Time / 400 Part Time

Employee by Organization

Male Female

POC 1200 700 1500 DI 500 442 1000

GDS 400 500 900 SI 500 400 700

Termination by Organization

POC GDS DI SI

354 141 273 150

MVP Tier

$0/mo

Free tiers only

Production

$194/mo

Small-mid orgs

Enterprise

$1,500+

Large scale

First-Year ROI

$300K+

Mid-size org