K-Square Programme Onboarding Agent: Project Scope and Rough Development Roadmap

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Abstract

This document defines the comprehensive scope of the K-Square Programme Onboarding Agent project, outlining prerequisites, system architecture, user interface requirements, agent capabilities, and an onboarding process. The project aims to transform manual programme team onboarding into an automated, intelligent system that delivers domain-specific insights, client profiles, and actionable recommendations. This scope encompasses the evolutionary development phases from the current Proof of Concept (PoC) to a fully-featured enterprise solution, including team composition, deliverables, and development timeline estimates.

1 Project Prerequisites

The successful implementation of the K-Square Programme Onboarding Agent requires the following foundational elements:

1.1 Statement of Work (SOW) Requirements

- **Signed SOW**: Formal project agreement with defined scope, deliverables, and timelines
- **Client Details**: Complete client information including company name, industry sector, and organisational structure
- **Business Domain**: Detailed understanding of the client's business domain and operational context
- **Company Details**: Comprehensive company profile including size, market position, and strategic objectives
- **Problem Statement**: Clear articulation of the business challenge to be addressed
- **Solution Overview**: High-level solution approach and expected outcomes
- **Architecture Diagrams**: Technical architecture and system integration requirements
- **Technology Stack**: Defined technology components and platform requirements

1.2 Technical Prerequisites

- **Development Environment**: Python 3.8+, Node.js 16.0+, npm 8.0+
- **Infrastructure Access**: SharePoint integration
- **Data Sources**: Internal repositories, external web sources, meeting recordings
- **Security Clearance**: Appropriate access levels for client data and internal systems

2 User Interface Requirements

The system shall provide a comprehensive user interface to accept and process all prerequisite information:

2.1 Conversational Interface

- **Programme Setup Interface**: Guided conversational flow for data input
- **Data Validation**: Real-time validation and confirmation of entered information
- **Progress Tracking**: Visual indicators of completion status and missing information
- **Multi-turn Conversations**: Context-aware dialogue management

2.2 Visual Dashboard

- **Client Profile View**: Comprehensive client information display
- **Domain Knowledge Board**: Industry insights and best practices presentation
- **Actionable Insights Panel**: Recommendations and task management
- **Meeting Analysis View**: Transcript analysis and extracted insights
- **Knowledge Base Interface**: Searchable repository of tagged information

3 Agent Architecture and Capabilities

The system employs five specialised agents to access and process information:

3.1 Programme Setup Agent

- **Conversational Guidance**: Interactive data collection through natural language
- **Data Validation**: Verification of completeness and accuracy
- **Repository Integration**: Access to internal SharePoint and document systems

3.2 Domain Knowledge Agent

- **Best Practices Retrieval**: Technology stack-specific recommendations
- **Industry Insights**: Domain-specific knowledge aggregation
- **Template Generation**: Reusable project templates and frameworks

3.3 Client Profile Agent

- **Web Intelligence**: Company details extraction from public sources
- **Profile Synthesis**: Comprehensive client profile generation
- **Stakeholder Mapping**: Key personnel and organisational structure analysis

3.4 Actionable Insights Agent

- **Recommendation Engine**: Synthesis of insights from all agents
- **Task Generation**: Actionable checklist and preparation items
- **Risk Assessment**: Potential challenges and mitigation strategies

3.5 Meetings Agent

- **Transcript Analysis**: Microsoft Teams recording processing
- **Action Item Extraction**: Automated identification of tasks and commitments
- **Engagement Metrics**: Meeting effectiveness and participation analysis

4 Onboarding Process Framework

The system facilitates a structured onboarding process designed to achieve team readiness.:

4.1 Phase 1: Information Gathering

- Initial conversational setup with Programme Setup Agent
- Collection of all prerequisite information
- Validation and confirmation of data completeness
- Initiation of parallel agent processing

4.2 Phase 2: Intelligence Processing

- Domain Knowledge Agent processes industry insights
- Client Profile Agent builds comprehensive client profiles
- Meetings Agent analyses historical interactions
- Cross-validation and data enrichment

4.3 Phase 3: Insight Generation

- Actionable Insights Agent synthesises recommendations
- Generation of team preparation materials
- Creation of project-specific checklists and guidelines
- Final validation and quality assurance

5 Recommended Team Composition

The development and implementation of this system requires a multidisciplinary team:

5.1 Core Development Team

- **Technical Lead**: Overall system architecture and integration oversight
- **AI/ML Engineer**: Agent development and natural language processing
- **Frontend Developer**: React TypeScript interface development
- **Backend Developer**: FastAPI and database implementation
- **DevOps Engineer**: Infrastructure and deployment management

5.2 Domain Expertise

- **Business Analyst**: Requirements gathering and process design
- **UX/UI Designer**: User experience and interface design
- **Quality Assurance**: Testing and validation protocols

5.3 Stakeholder Engagement

- **Project Manager**: Timeline and deliverable coordination
- **Programme Directors**: Domain knowledge and validation
- **End Users**: Feedback and acceptance testing

6 Evolutionary Development Phases

The project follows a structured evolution from PoC to enterprise solution:

6.1 Phase 1: Enhanced Conversational Intelligence

Duration: X Weeks

- Advanced natural language understanding capabilities
- Context-aware response generation
- Multi-turn conversation handling with memory
- Personalised interaction patterns
- Emotional intelligence integration
- Learning from user interactions and feedback

6.2 Phase 2: Information Processing Capabilities

Duration: X Weeks

- Automated meeting summary generation
- Advanced document analysis and extraction
- Cross-reference capabilities across data sources
- Enhanced knowledge base integration
- Smart search functionality with semantic understanding
- Historical context awareness and pattern recognition

6.3 Phase 3: External Data Integration

Duration: X Weeks

- Industry database connections and APIs
- Real-time market intelligence feeds
- Regulatory compliance updates and monitoring
- Competitor analysis integration
- Economic indicators tracking and correlation

- News and trends monitoring with relevance filtering

6.4 Phase 4: Information Verification Framework

Duration: X Weeks

- Automated fact-checking mechanisms
- Source credibility assessment algorithms
- Cross-validation protocols and confidence scoring
- Automated verification agents
- Comprehensive audit trail generation
- Quality assurance and accuracy metrics

7 Phase Deliverables

7.1 Current PoC Deliverables

- Functional conversational interface
- Basic agent architecture implementation
- React TypeScript frontend with core functionality
- FastAPI backend with SQLite database
- Proof of concept demonstration

7.2 Phase 1 Deliverables

- Enhanced conversational AI with context awareness
- Improved user experience and interface refinements
- Advanced natural language processing capabilities
- User feedback integration and learning mechanisms
- Performance optimisation and scalability improvements

7.3 Phase 2 Deliverables

- Automated document processing pipeline
- Meeting analysis and summary generation
- Enhanced knowledge base with semantic search
- Cross-reference and correlation capabilities
- Historical data analysis and pattern recognition

7.4 Phase 3 Deliverables

- External data source integrations
- Real-time market intelligence dashboard
- Regulatory compliance monitoring system
- Competitive analysis and benchmarking tools

- Economic and industry trend analysis

7.5 Phase 4 Deliverables

- Comprehensive verification and validation framework
- Automated fact-checking and source verification
- Quality assurance metrics and reporting
- Audit trail and compliance documentation
- Enterprise-grade security and governance

8 Development Timeline Estimation

8.1 Current State: PoC to MVP Transition

Estimated Duration: 3 weeks

- Code refinement and optimisation
- User interface enhancements
- Basic testing and quality assurance
- Documentation and deployment preparation
- Initial user acceptance testing

8.2 MVP to Production-Ready System

Estimated Duration: X Weeks

- Comprehensive testing and validation
- Security implementation and compliance
- Performance optimisation and scalability
- Integration with enterprise systems
- User training and change management

8.3 Complete System Development

Total Estimated Duration: X Weeks

- All four evolutionary phases implementation
- Comprehensive testing and validation
- Enterprise deployment and integration
- User training and adoption programmes
- Ongoing maintenance and support framework

8.4 Resource Requirements

- **Development Team**: 6-8 full-time equivalent resources
- **Infrastructure**: Cloud hosting, development environments, testing platforms
- **Licensing**: Software licenses(?), API access, third-party services (LLMs)

9 Risk Assessment and Mitigation

9.1 Technical Risks

- **AI Model Performance**: Continuous monitoring and model refinement
- **Integration Complexity**: Phased integration approach with fallback options
- **Scalability Challenges**: Cloud-native architecture and performance testing

9.2 Business Risks

- **User Adoption**: Comprehensive change management and training programmes
- **Data Quality**: Robust validation and verification frameworks
- **Regulatory Compliance**: Ongoing legal and compliance review processes

10 Conclusion

The K-Square Programme Onboarding Agent represents a transformative approach to programme team preparation and client engagement. This comprehensive scope document outlines the journey from the current Proof of Concept to a fully-featured enterprise solution that will revolutionise how K-Square onboards programme execution teams.

The structured evolutionary approach ensures manageable development phases whilst delivering incremental value to the organisation. The estimated 18-24 month development timeline provides a realistic framework for achieving the complete vision whilst allowing for iterative improvements and user feedback integration.

Success in this endeavour will position K-Square as a leader in AI-powered programme management, delivering significant competitive advantages through reduced onboarding times, improved team preparedness, and enhanced client satisfaction. The investment in this system will yield substantial returns through increased operational efficiency and the ability to scale programme delivery capabilities.