IST 645 – Managing Information Systems Projects

Assignment 1A – Project Charter/Scope Document

Group 2

Team Members:

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1. Project Identification

Project Name: Neurala AI Visual Inspection Integration at Floyd Furniture

Project Number: IST645S25A1A

2. Project Background and Overview

Company Overview

Floyd Furniture, headquartered in Detroit, Michigan, is a digitally native and sustainability-focused furniture brand specializing in modular, easy-to-assemble furniture. The company recently secured a major contract with Wayfair to supply 5,000 units of two key products:

- The Floyd Shelving System (Tall Shelving Unit)
- The Floyd Round Table

Problem Statement

Floyd Furniture faces quality control issues that impact customer satisfaction and production efficiency:

- Manual inspections lead to inconsistent defect detection, resulting in missing fasteners and surface imperfections (scratches, paint inconsistencies, blemishes).
- Wayfair's stringent quality requirements demand improved defect tracking and reporting.
- Scaling production to meet increasing demand requires automation and process optimization.

Solution Overview

To enhance quality control and process efficiency, Floyd Furniture will implement Neurala's Vision Inspection Automation (VIA) AI system:

- Automates quality inspections using AI-driven image analysis.
- Enhances defect detection for fastener kitting and surface finish.
- Seamlessly integrates with Floyd's Salesforce CRM to track defects and optimize workflows.
- Reduces human error and improves efficiency by decreasing manual inspection time.
- Utilizes Neurala's Explainability feature for real-time defect insights and model improvements.
- Incorporates Multi-ROI (Region of Interest) technology for comprehensive defect detection.

3. Project Business Case

Key Benefits & Expected Outcomes

- Enhanced Product Quality: AI-driven defect detection ensures consistency, reducing errors and customer complaints.
- Operational Efficiency: AI reduces manual inspection time by 50%, optimizing workflow.
- Cost Reduction: Minimized material waste, rework costs, and defective product returns.
- Scalability: AI-powered automation supports future growth without increasing labor costs.
- Competitive Advantage: Establishes Floyd as an industry leader in AI-driven quality assurance.
- Data-Driven Decision Making: AI-generated defect analysis improves manufacturing processes over time.

4. External and Internal Factors

External Factors:

- Growing consumer expectations for flawless, defect-free products.
- Increasing competition as manufacturers adopt AI-driven quality control.
- Regulatory compliance for product quality and safety.
- Market fluctuations influencing production demands.
- Rapid technological advancements in AI and machine vision.

Internal Factors:

- Existing challenges in manual quality inspections.
- Need for AI integration without disrupting existing workflows.
- Availability of defect images for AI training.
- Employee adaptation to AI-powered inspection.
- Reliance on Salesforce CRM for defect tracking.

5. Deliverables

Product Deliverables:

- Neurala VIA software for AI-driven defect detection.

- GigE Cameras for automated visual inspections.
- AI models trained to detect surface defects and missing fasteners.
- Salesforce CRM integration for defect reporting.
- Employee training and operational documentation.
- Performance dashboards for real-time defect tracking.

Process Deliverables:

- AI Model Training Plan
- Integration Roadmap for AI and CRM
- Standardized AI-based inspection procedures
- User Testing & Training Reports
- Post-Implementation Review & Optimization Plan
- Quality assurance reports based on AI performance

6. Known Project Time and Cost Constraints

- Budget: Limited allocation for AI software, cameras, and workforce training.
- Timeline: Six-month phased deployment to minimize disruptions.
- Training Needs: Employees require AI onboarding and operational training.

7. Out of Scope and Assumptions

Out of Scope:

- Redesign of Floyd Furniture's production line.
- Expansion beyond the initial two product lines.
- Custom AI model development beyond Neurala VIA's capabilities.
- Full automation of the production process beyond quality control.

Assumptions:

- Neurala VIA is compatible with Floyd's existing PLC systems.
- Floyd's IT and manufacturing teams will collaborate effectively.
- Adequate defect image data is available for AI training.
- Initial deployment will set the foundation for future AI expansion.

8. Project Team and Organizational Structure

Role	Name	Responsibility
Project Manager	Michael D'Amore	Oversee project execution and ensure timely delivery.
AI Integration Lead	Smita Deulkar	Lead AI model training and integration.
IT Lead	Seayon Dsilva	Manage system integration with Salesforce CRM.
Quality Assurance Lead	Dhananjay Pawar	Ensure quality control and validate AI-inspected products.
Operations Lead	Dhrumil Shah	Coordinate workflow adjustments and implementation.
AI Training & Support	Tejas Vanavale	Provide technical support and workforce training.

9. High-Level Phases and Milestones

Phase 1: Initiation & Planning (Month 1)

- Stakeholder meetings
- Scope definition
- Risk assessment

Phase 2: AI Model Development (Months 2-3)

- AI training & data collection
- System calibration

Phase 3: Implementation (Month 4)

- Hardware/software deployment
- AI system integration

Phase 4: Testing & Optimization (Month 5)

- System validation
- Performance evaluation

Phase 5: Full Deployment (Month 6)

- Final rollout
- Staff training & monitoring
- Post-implementation review and process improvement plan

10. Project Management and Integration Plan

- Agile Sprint Implementation: AI training follows Agile sprints for iterative improvements.
- Change Control Procedures: Major changes require sponsor approval.
- Weekly Stakeholder Meetings for progress updates.
- Monthly Reports on milestones, risks, and deliverables.
- Real-time AI performance tracking via Salesforce CRM.

11. Initial List of Project Risks and Responses

Risk	Likelihood	Impact	Mitigation Strategy
Integration Failure	High	Critical	Conduct pilot testing and allocate IT support.
Employee Resistance	Medium	Moderate	Provide structured training and change management.
AI Performance Issues	Medium	High	Continuous model refinement using production data.
Inaccurate Defect Detection	Medium	High	Train AI models with diverse defect datasets.
Cost Overruns	Medium	High	Define clear budget constraints and monitor costs.
Regulatory Compliance Issues	Low	High	Ensure AI meets industry quality and safety standards.

12. Risk (Appetite and Threshold)

- Risk Appetite: Moderate – The project team is open to calculated risks that drive efficiency and improve quality control.
- Risk Threshold: Low – Any risk that significantly impacts product quality or disrupts production is considered unacceptable and requires immediate mitigation.

13. Quality Management

To ensure the success of the Neurala VIA implementation, Floyd Furniture will measure quality based on the following key metrics:

- Performance: AI inspection accuracy should maintain a defect detection rate of at least 98%.
- Conformity: AI models must align with predefined defect standards and quality thresholds.
- Reliability: The AI inspection system should function with minimal downtime and high operational efficiency.
- Resiliency: The AI system should be adaptable to variations in manufacturing conditions without performance degradation.
- Satisfaction: Customer satisfaction should improve due to fewer defective products being shipped.
- Uniformity: Inspection results should remain consistent across different shifts and production lines.
- Efficiency: Reduction in manual inspection time and rework rates should be documented.
- Sustainability: AI-powered inspection should contribute to reduced material waste and improved resource utilization.

14. Change Management

To ensure smooth adoption of AI with minimal disruptions, the following change management strategies will be implemented:

- Structured Evaluation and Approval Processes: A formalized framework for assessing, approving, and implementing changes with clear accountability.
- Phased AI Adoption: Initial parallel testing of manual and AI-based inspections before full deployment to mitigate resistance.
- Stakeholder Engagement: Regular collaboration with manufacturing, quality control, and IT teams to address concerns and gather input.
- Employee Training and Support: Comprehensive AI onboarding, workshops, and real-time support to ease transition and ensure proficiency.
- Performance Monitoring and Feedback Loop: Continuous evaluation of AI accuracy and efficiency, with iterative improvements based on user feedback.
- Clear Communication Channels: Transparent communication regarding project milestones, impact, and benefits to facilitate workforce acceptance.

15. Communication Plan

To maintain effective stakeholder engagement and transparency, the following communication strategies will be implemented:

- Regular Meetings:
    - Weekly Check-ins: Progress updates and issue tracking with core project teams.
    - Monthly Performance Reports: Key findings, risks, and project health updates shared with stakeholders.
    - Ad-hoc Meetings: Addressing urgent issues and unforeseen challenges.
- Collaboration Tools:
    - Slack and email for real-time communication.
    - Project management software (e.g., Jira, Asana) for tracking milestones and deliverables.
    - Document repositories for centralized access to training materials and reports.
- Feedback Mechanisms:
    - Open forums and structured surveys to collect feedback from employees and stakeholders.
    - Regular updates and Q&A sessions to clarify concerns and address suggestions.

16. Procurement Plan

A structured procurement plan will be used to ensure efficient acquisition of necessary components, categorized into three procurement methods:

- Request for Proposal (RFP): Used for software and service solutions where multiple factors (price, service level, compatibility) must be considered.
- Request for Quote (RFQ): Used for commodity items, such as hardware components, where pricing and delivery terms are the primary criteria.
- Request for Information (RFI): Used for market research to explore available solutions before issuing formal procurement requests.

Item	**Procurement Type**	**Vendor**	**Description**
Neurala VIA Software	RFP	Neurala Inc.	AI-powered visual inspection software for automated defect detection.
GigE Cameras	RFQ	Approved Suppliers	High-resolution cameras for capturing production images.
AI Training Services	RFI	AI Consulting Firms	Expert-led training sessions for Floyd Furniture employees to enhance AI adoption.

17. Approval Signatures

Role	Name	Signature	Date
Project Sponsor	Ashley Bishay	_____	_____
Project Manager	Michael D'Amore	_____	_____
Key Stakeholder	Rachael Brown	_____	_____