Case: "EasyReturn Solutions – AI-Driven Reverse Logistics Transformation"

EasyReturn Solutions is a European leader in electronics reverse logistics, handling returns, refurbishment, and recycling for major retailers across 15 countries. They process 100’000+ devices annually with a manual, labor-intensive system causing:

Current Pain Points:

- Processing time: 25 minutes/device (manual inspection)
- Error rate: 22% misclassification (costing 3M annually)
- Technician burnout: 35% annual turnover
- Data waste: No systematic learning from returns data
- Sustainability waste: 40% of recyclable materials improperly sorted

Strategic Context

The EasyReturn Solutions CEO has launched "Project AI Mirror" with a 1M budget allocation for digital transformation. The directive: "Apply AI to transform our reverse logistics from cost center to profit center while advancing our sustainability goals."

Exam Task: Design an AI Solution Using Integrated Methodology

1. Project Statement (2 points)

2. Business Value Delivery Planning (3 points)

Example of good response:

Process KPIs: Classification time (25min -> 8min), Accuracy (78% -> 95%)
Business KPIs: Refurbishment yield (+20%), Cost per device (-40%)
Measurement: at the end of MVP, at the end of Pilot, Real-time dashboard when in Production…

3. Project Phases & Activities (4 points)

Example of good response:

PHASE 1: Discovery (2 weeks)
• Design Thinking workshops -> User journey maps, pain points, assumptions
• Data assessment -> Inventory 200K unlabeled images, identify gaps

PHASE 2: MVP (8 weeks)
• Data labeling (4 weeks) -> 10K labeled images
• Model development (4 weeks) -> CNN + XGBoost
• Frontend interface -> Tablet app for technicians

PHASE 3: Pilot (8 weeks)
• Business case analysis and validation -> ROI calculation for full scale
• Rollout to one site -> Measure adoption, refine the workflow

PHASE 4: Production (12 weeks)
• MLOps implementation -> Monitoring, retraining pipeline
• Full rollout -> All 15 warehouses, integration with SAP

4. Design Thinking Outcomes (3 points)

Example of good response: "Technicians need support to assess the damage to avoid errors and slow processing. Our AI solution will provide visual highlighting of defects with confidence scores, integrating seamlessly into existing workflow."

5. Data Assessment & Preparation (3 points)

Example of good response:

Available: 200K device photos (unlabeled), return forms (text), basic specs
Missing: Damage labels, quality ratings, refurbishment outcomes
Plan: Label 10K images via crowd platform (cost 8K, 4 weeks)
Storage: Cloud storage with data catalog for versioning

6. Data Annotation (3 points)

Example of good response:

- Annotation: Use Label Studio and / or crowdsourcing to label 10K images with detailed guidelines (scratch <1cm, dent depth, location)
- Quality: 2-person review shows mistakes for not more than 10% samples of labeled images
- Refresh: Monthly model retraining with new labeled data

7. Technical AI Solution (7 points)

Example of good response:

- CNN Yolo for image classification
- XGBoost for tabular data
- LLM for return reason analysis (open-source vs proprietary through cloud)

8. Integration & Prerequisites (2 points)

Example of good response:

- Front-end: Tablet app with camera integration, real-time preview
- Back-end: REST API integrating with SAP for device tracking

9. Team Composition (3 points)

Example of good response:

MVP TEAM (8 weeks):
• Product Owner & Business Analyst - Full time
• Data Scientist - Full time
• Designer (Front-end interface) - Part time (2 weeks)
• MLOps Engineer (API, deployment) – Part time
• Scrum Master (Project Manager) - Part time

PILOT TEAM:
• Prompt Engineer – Full time for 2 weeks
• Data Annotators – Full time for 4 weeks
• Software Engineer – Full time for 4 weeks
• Data Scientist - Full time

PRODUCTION TEAM:
• …

10. Business Case Analysis (5 points)

Example of good response:

COSTS:
• Data labeling: 8’000
• Development (6 months): 200’000 (2 FTEs)
• Infrastructure: 5’000/year x 5 years
• TOTAL: 233’000

BUSINESS VALUE:
• Labor savings: 750’000 (20 technicians × 17min × 50/hr)
• Error reduction: 500’000 (22% → 5% errors)
• TOTAL: 1’250’000/year

INTANGIBLE: Brand reputation, employee retention, data asset

11. Impact & Strategic Outlook (5 points)

Example of good response:

The solution will transforms EasyReturn from logistics contractor to circular economy technology partner with full lifecycle transparency. The new business model will include: 1) 'Device Health Score' as service to retailers (predictive returns), 2) Data insights marketplace (anonymized trends to manufacturers), 3) ….

12. Bonus

Describe the use of Agentic AI for this use case (5 points)

Example of good response:

Using Agentic AI framework to deploy specialized agents for an Agent Team:

1. Visual Recognition Agent (CNN)
   - Task: Analyze device photos for damage
   - Specialization: Scratch detection, liquid damage indicators
   - Output: Damage confidence scores + visual evidence

2. Technical Specs Agent (LLM + RAG with Vector DB)
   - Task: Lookup into the product manuals for the known failures and repair information
   - Specialization: Historical repair data, component lifespan
   - Output: Likely functional issues + reparation instructions

3. Return Pattern Agent (LLM for fraud detection)
   - Task: Analyze return reasons for fraud patterns
   - Specialization: Behavioral patterns, customer history
   - Output: Fraud risk score + flag suspicious returns

I recommend using Agentic AI, as this approach will deliver x% higher accuracy, approximately 100K (or how much?) of additional savings, automate the (which?) processes and provide the audit needed for compliance. The agent specialization matches the problem's complexity across visual, technical, and behavioral dimensions and provides integration that no single AI model can do effectively.