

Product Requirement Document (PRD)

Product: MaivenPoint Examena
Feature: Question Management and Review (New Feature Request)
Prepared for: ANZCVS (Australian and New Zealand College of Veterinary Scientists)
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1. Background & Context

ANZCVS, as a certification organization, must adhere to **strict question management rules and processes** to maintain the **global recognizability, credibility, and fairness** of its certifications. Compared to colleges or universities, certification bodies such as PMI (Project Management Institute) adopt **stricter review standards**, because certification exams:

- Have **industry-wide impact** and serve as benchmarks.
- Carry **high stakes for professional careers**.
- Must meet **legal, compliance, and accreditation requirements**.

Currently, ANZCVS partly uses **SharePoint** for question management, but limitations exist in scalability, structured tagging, psychometric analysis, and examiner/student analytics. **Examina** aims to provide a **purpose-built, certification-grade question management system**.

2. Objectives

- Centralize and standardize question management in a scalable platform.
 - Provide **multi-dimensional tagging** for efficient search and exam assembly.
 - Implement **rigorous review and version control** workflows.
 - Deliver **analytics for examiners** (question performance, coverage analysis).
 - Deliver **analytics for students** (strengths, weaknesses, learning recommendations).
 - Address **SharePoint pain-points** while ensuring flexibility for certification organizations.
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3. Rationale for Strict Question Management

1. Industry Standards & Consistency

- Global recognition requires consistent, reliable exams across all regions.
- Exams set **industry benchmarks** and must be standardized.

2. Professional Credibility

- Certification value depends on credibility and brand reputation.
- Poor question quality undermines trust and recognition.

3. Standardization & Fairness

- Exams are taken by thousands across time zones → require uniformity.
- Review eliminates bias, ambiguity, and unfairness.

4. Legal & Compliance

- Exams must comply with **regulatory requirements** and accreditation standards.
- Security and integrity of exam content are mandatory.

5. High Stakes

- Certifications directly impact professional careers.
- Poorly designed questions can invalidate exam outcomes.

6. Psychometric Analysis

- Questions must be validated for **reliability and statistical accuracy**.
 - Continuous improvement is supported by performance data.
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4. Core Features & Requirements

4.1 Question Tag Management

- Multi–aspect tags:
 - Usage (practice/exam), Category, Difficulty
 - Discipline (e.g., veterinary medicine area)
 - Species (e.g., canine, feline, equine)
 - Body System (e.g., respiratory, cardiovascular)
 - Media tags (images, diagrams)
- Structured hierarchy: `Subject → Topic → Subtopic`.
- Advanced search/filter for exam assembly.

4.2 Question Review Process

- Multi–stage workflow with **external SMEs (Subject Matter Experts)**.
- Versioning and full **audit trail**.
- Approval hierarchy: Draft → SME Review → Committee Approval → Published.
- Role–based access control (examiners, reviewers, admins).

4.3 Reporting & Analytics — Examiners

- Question performance by tag (difficulty, discrimination).
- Coverage analysis (by discipline/species).
- Exportable reports (CSV, Excel, PDF).

4.4 Reporting & Analytics — Students

- Results by discipline/species (radar/bar charts).
- Strengths & weaknesses with improvement recommendations.
- Exportable learning report.

4.5 Versioning & Audit Trail

- Complete version history with side–by–side comparison.

- Option to roll back (admin-controlled).
 - Automatic version labeling (v1.0, v1.1, etc.).
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5. Interaction Details

Feature 1: Question Tag Management

- **Entry Point:** Question Bank → select a question → Question Detail → Tags.
 - **Flow:**
 1. Click "Add Tag".
 2. Hierarchical selector opens (Discipline → Species → Body System → Difficulty).
 3. Select from library or create new (admin approval required).
 4. Tags appear on question detail sidebar.
 - **System Response:**
 - Auto-save tags.
 - Validate against conflicts (e.g., mutually exclusive tags).
 - **Permissions:**
 - Examiner: add/remove standard tags.
 - Admin: manage global tag structure.
 - Student: not visible.
 - **Edge Cases:**
 - Large tag library → support search.
 - Unsaved exit → warning modal.
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Feature 2: Question Review Process

- **Entry Point:** Question Detail → Review Tab OR Review Dashboard → “Pending Reviews”.
- **Flow:**
 1. Reviewer opens question (latest version).
 2. Reviewer actions: Approve / Reject / Comment (@mention supported).
 3. Status change logged in audit trail.
 4. Next reviewer notified.
- **System Response:**
 - Approve → moves to next stage.
 - Reject → returns to Draft, author notified.
 - Report export available (PDF/Excel).
- **Permissions:**
 - SME: review within assigned bank.
 - Examiner: publish/withdraw.
 - Admin: override permissions.

- **Edge Cases:**
 - Reviewer delay → automatic reminder.
 - Multiple reviewers → configurable rule (majority approval or lead examiner).
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Feature 3: Reporting & Analytics — Examiners

- **Entry Point:** Dashboard → Analytics OR Question Bank → Question → Performance.
 - **Flow:**
 1. Select filters (time range, discipline, species, exam).
 2. Charts render (bar, pie, heatmap).
 3. Drill down to individual question performance.
 4. Export results.
 - **System Response:**
 - Low discrimination index flagged in red.
 - Insufficient coverage alerts (e.g., "Cardiology: only 40% coverage").
 - **Permissions:**
 - Examiner/Admin: full access.
 - Reviewer: limited to reviewed questions.
 - Students: not visible.
 - **Edge Cases:**
 - Large dataset → pagination or lazy loading.
 - Missing data → "No data available".
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Feature 4: Reporting & Analytics — Students

- **Entry Point:** Student Portal → My Exam Results.
- **Flow:**
 1. Select exam → open results.
 2. View: overall score, per-discipline/species distribution (radar/bar).
 3. Click tag → see related weaknesses + recommended study resources.
- **System Response:**
 - Auto-generate summary (e.g., "Cardiology: 65% — needs improvement").
 - Exportable learning report.
- **Permissions:**
 - Student: only personal results.
 - Examiner: only authorized access.
- **Edge Cases:**
 - Pending grading → "Results processing".
 - No questions under tag → hide category.

Feature 5: Versioning & Audit Trail

- **Entry Point:** Question Detail → Version History.
 - **Flow:**
 1. Open version list (time, editor, status).
 2. Compare versions (diff view).
 3. Rollback option (admin confirmation required).
 - **System Response:**
 - Automatic version numbering (v1.0, v1.1, v2.0).
 - Rollback creates new version instead of overwriting.
 - **Permissions:**
 - Examiner/Admin: rollback, delete versions.
 - Reviewer: view only.
 - **Edge Cases:**
 - Image questions: thumbnail diff preview.
 - Large version history → filtering by time/editor.
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6. Concerns & Open Questions

1. **Tag Customization:** Should Examena allow custom tagging schemas for different organizations?
 2. **SharePoint Migration:** What exact pain-points (usability, analytics, psychometrics, integration) justify replacing SharePoint?
 3. **Course vs. Discipline:** How to align academic course structures with certification disciplines?
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7. Success Metrics

- **Efficiency:** 30% faster exam assembly via tag-based search.
 - **Quality:** 20% reduction in SME review rejection rate.
 - **Reliability:** 0 unreviewed questions published.
 - **Satisfaction:** >80% positive feedback from examiners/reviewers.
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8. Future Enhancements (Phase 2+)

- AI-assisted review (ambiguity/bias detection).
- NLP-based auto-tagging for text/images.
- Advanced psychometric dashboards (IRT, discrimination index).
- Integration with remote proctoring for full exam lifecycle.