**Environmental Health Unit (EHU) Digital Transformation Project Proposal**

**Executive Summary**

The Environmental Health Unit (EHU) is transitioning from a paper-based system to a comprehensive digital platform to improve efficiency, data management, and public health outcomes. This project involves phased implementation to minimize disruptions and ensure a smooth transition. Key benefits include reduced operational costs, enhanced data accuracy, and improved responsiveness to public health issues. Based on the scope and complexity of the proposed solution, an estimated project timeline has been developed to guide each stage of the project from initiation to full deployment and testing.

**Project Phases and Timeline**

The project timeline, outlined below, estimates 11-15 months until full completion. Each phase includes specific objectives, deliverables, and periods to guide the transition.

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| **Phase** | **Duration** | **Objectives** | **Key Deliverables** |
| 1. Project Planning & Requirement Gathering | 1-2 months | Identify requirements for modules, assess risks, and establish project requirements. | Project plan, risk assessment, finalized requirements |
| 2. System Design & Architecture | 2 months | Develop system architecture, select technologies, and design user interface. | System mockups, data architecture diagrams |
| 3. Development of Core Modules | 4-6 months | Build and evaluate core modules (Complaint Management, Inspection, and Inventory Management). | Module prototypes, functional tests, stakeholder reviews |
| 4. Integration & Testing | 2-3 months | Integrate modules, test for seamless data flow and system reliability. | Functional and user acceptance tests, performance tests |
| 5. Training & Deployment | 1 month | Train EHU staff, deploy system on a limited basis, address minor issues. | Training materials, limited system deployment |
| 6. Full Rollout & Support | 1-2 months | Full deployment, support phase to address unforeseen issues. | Full system rollout, ongoing support, transition review |

**Total Estimated Completion Time:** 11-15 months

The completion time may vary based on unforeseen challenges or additional requirements that emerge. This estimated timeline considers buffer periods to manage risks and unexpected project needs, ensuring that the EHU’s critical services remain unaffected during the transition.

**Estimated Cost for the Project and Total Cost of Ownership (TCO)**

The Total Cost of Ownership (TCO) for the EHU digital transformation project is calculated over a five-year period, covering initial development and ongoing operational expenses.

1. **Initial Development Costs**

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| **Cost Component** | **Amount** |
| Requirement Gathering & Planning | $33,340 |
| System Design and Architecture | $50,000 |
| Module Development | $133,330 |
| Testing and Quality Assurance | $33,330 |
| Deployment & Training | $25,000 |
| Project Management & Contingencies | $25,000 |
| **Total Initial Development Cost** | **$300,000** |

1. **Annual Operational Costs**

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| **Cost Component** | **Annual Amount** |
| Ongoing Maintenance & Support | $11,400 |
| Cloud/Server Hosting Fees | $5,700 |
| Training and Continuous Improvements | $2,900 |
| **Total Annual Operational Costs** | **$20,000** |

1. **Total Cost of Ownership (5-Year Period)**

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| **Calculation** | **Total Amount** |
| Initial Development Cost + (Annual Operational Costs x 5 years) = | $400,000 |

$300,000 + ($20,000 x 5)

**Cost-Benefit Analysis**

The proposed system offers both quantifiable and qualitative benefits, as outlined below:

1. **Reduced Operational Costs**: Digital records reduce costs associated with paper-based storage and administrative labor, saving an estimated $33,000 annually.
2. **Increased Efficiency**: A streamlined digital workflow increases productivity by an estimated value of $38,000 enhancing EHU’s response times and public health interventions.
3. **Inventory Management Savings**: Automated inventory tracking saves approximately $29,000 annually by reducing stockouts and over-ordering.
4. **Enhanced Public Health Outcomes**: Faster and more targeted responses lead to better health outcomes, a significant but non-quantifiable benefit.

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| **Benefit** | **Estimated Annual Value** |
| Operational Cost Savings | $33,000 |
| Efficiency Gains | $38,000 |
| Inventory Management Savings | $29,000 |
| **Total Estimated Annual Benefits** | $100,000 |

**Financial Analysis**

**Payback Period**

The payback period is calculated as the time required to recoup the initial development cost based on annual savings.

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| **Calculation** |  |
| Initial Development Cost / Net Annual Cash Flow  Net Annual Cash Flow = $100,000-$20,000 = $80,000 |  |
| = $300,000 / $80,000 = 3.75 years or 3 years and 9 months |  |

**Net Present Value (NPV)**

Assuming a 5% discount rate over five years, the NPV calculation assesses the present value of future benefits compared to initial and operational costs.

NPV = - Initial Investment + Σ (Annual Benefit / (1 + Discount Rate) ^t) - (Annual Operational Cost / (1 + Discount Rate) ^t)

Using these values:

* Initial Investment: $300,00
* Annual Benefit: $100,000
* Annual Operational Cost: $20,000

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| **Calculation** | **Estimated NPV** |
| NPV over 5 years | $46,358 |

After calculating, the NPV over 5 years would approximate to $46,358, indicating a positive return and justifying the investment.

**Return on Investment (ROI)**

The ROI calculation provides the percentage return over five years.

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| **Calculation** | **Result** |
| ((Total Benefits - Total Cost of Ownership) / Total Cost of Ownership) x 100  (($500,000 - $400,000) / $400,000) x 100 | 25% over 5 years |
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The ROI of 25% over five years demonstrates a solid return, indicating that EHU would experience long-term financial and operational benefits.

**Risk Assessment**

A risk assessment outlines potential challenges and proposed mitigation strategies for each.

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| **Risk** | **Probability** | **Impact** | **Mitigation Strategy** |
| Data Migration Issues | Medium | High | Conduct thorough testing before full deployment. |
| System Downtime During Transition | Medium | Medium | Implement transition phases with fallback options. |
| User Resistance to Change | High | Medium | Provide comprehensive training and support. |
| Budget Overruns | Medium | High | Maintain contingency funds and track costs. |

**Anticipated Benefits from Deployment of the New System**

1. **Operational Efficiency**: Automated record-keeping and data retrieval reduce time spent on documentation, allowing officers to focus on inspections and case management.
2. **Improved Public Health Response**: Geospatial insights help EHU quickly identify and address health threats, reducing potential crises.
3. **Cost Savings**: Automation and reduced paper usage, lower operational expenses and reduce the need for physical storage.
4. **Inventory Management Optimization**: Real-time tracking and alerts prevent stockouts and over-ordering, ensuring prompt responses to field requirements.
5. **Better Data Accuracy and Consistency**: The centralized digital system minimizes data loss, promoting reliable information across EHU.
6. **Enhanced Training and Certification**: A centralized repository for training resources ensures that EHU staff maintain up-to-date health knowledge and certifications.
7. **Improved Decision-Making**: Centralized data and geospatial tools enable data-driven decisions, supporting targeted resource allocation.

**Conclusion and Recommendation for Approval**

The proposed EHU digital transformation offers strong financial and operational benefits, including a 3 year and 9-month payback period, a 25% ROI over five years, and positive NPV. These figures indicate the project’s financial viability and alignment with EHU’s mission to ensure public health protection through efficiency, accuracy, and responsiveness. The anticipated improvements in public health response, data accuracy, and operational efficiency present a compelling case for immediate approval.