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# Cargill Final Report

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# EXECUTIVE SUMMARY

## Purpose

This report addresses the operational inefficiencies experienced at Cargill's East Savage Grain Elevator during peak harvest seasons, resulting in delays, dissatisfied stakeholders, and reduced profitability. The study evaluates the feasibility of implementing the Grain Elevator Efficiency Management System (GEMS), a cutting-edge solution to streamline processes and enhance operational performance.

## Key Assessments

### 1. Comparative Analysis of SDLC Phases:

- Cargill's tailored SDLC methodology, the Project Delivery Process, was compared with traditional SDLC frameworks. The analysis revealed Cargill's streamlined approach prioritizes risk reduction and strategic alignment early on while maintaining comprehensive design and implementation phases.

### 2. Feasibility Analysis:

- **Technical:** Existing infrastructure supports GEMS with minimal upgrades, leveraging proven technologies to ensure seamless integration.
- **Economic:** Anticipated benefits include reduced operational costs, increased throughput, and enhanced customer satisfaction, outweighing the costs of implementation.
- **Organizational:** Familiarity with digital systems ensures smooth adoption by staff and stakeholders.

### 3. Requirements:

- **Functional:** Automation of crop sampling and grading, digital queue management system, and real-time data integration.
- **Non-Functional:** Scalability, flexibility, and user-friendly interfaces.

### 4. Risk Analysis:

Identified risks such as ERP integration challenges, resistance to new systems, and resource allocation were mitigated through phased rollouts, training programs, and backup strategies.

### 5. Pilot Deployment Strategy:

- Pilot deployment at the East Savage facility ensures controlled testing and refinement of GEMS features before scaling, minimizing risks and enabling a smoother company-wide rollout.

### 6. Change Management:

- Strategies such as stakeholder workshops, prototyping, and customized training programs for employees and drivers ensure organizational readiness and support the system's long-term success.

## Recommendations

1. Implement GEMS in a phased manner, beginning with a pilot at the East Savage facility.
2. Invest in comprehensive training and change management initiatives to ensure stakeholder buy-in and minimize resistance.
3. Use insights from the pilot deployment to refine and optimize the system before scaling to other facilities.

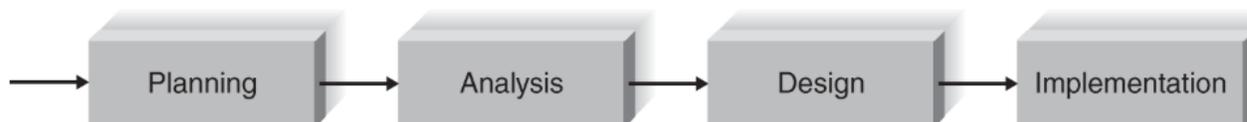
## Conclusion

By addressing key operational bottlenecks through GEMS, Cargill is positioned to enhance grain elevator efficiency, improve stakeholder satisfaction, and sustain its competitive edge. A structured implementation strategy, coupled with robust risk management and change management plans, ensures the long-term success of this initiative.

## Part I

### Enhancing Operational Efficiency at Cargill's Grain Elevators

The plant of Cargill's East Savage Grain Elevator experiences a number of significant operational inefficiencies during the time of harvest. These translate to delays, dissatisfied customers, and lost profitability. The analysis is aimed at examining the potential to streamline the process by deploying a new Grain Elevator Efficiency Management System, GEMS. This write-up presents an overview of Cargill's current Systems Development Lifecycle versus the traditional SDLC phases, outlines the proposed system request for GEMS, and provides a pretty thorough feasibility analysis in support of the success of this project.



### Comparing and Contrasting Cargill's SDLC with Traditional SDLC

Cargill has its own waterfall-style SDLC methodology called the Project Delivery Process. This process, though comprehensive, is tailored to the company's operational and business needs. Below is an in-depth comparison of Cargill's SDLC phases with the traditional SDLC approach.

Phase	Cargill SDLC	Course SDLC	Comparison
<b>Explore Phase vs. System Planning Phase</b>	<b>Converts project ideas into a business case by aligning objectives with strategy and identifying risks. Deliverables: Project Charter, Feasibility Analysis.</b>	<b>Focuses on identifying business problems, defining objectives, and conducting feasibility studies.</b>	<b>Both aim for strategic alignment, but Cargill emphasizes reducing risks early, ensuring only feasible projects proceed.</b>
<b>Develop Phase vs. System Analysis and Design Phases</b>	<b>Refines business requirements and documents solutions. Deliverables: Requirements or Use Case Documents.</b>	<b>Analysis focuses on gathering requirements and input, while design creates system architecture and prototypes.</b>	<b>Cargill combines analysis and design for streamlined development, whereas traditional SDLC separates them.</b>
<b>Plan Phase vs. System Implementation Planning</b>	<b>Focuses on detailed implementation and execution planning, validating financial assumptions. Deliverables: Functional and Technical Design Specifications.</b>	<b>Prepares detailed design specifications and plans for user training, data migration, and testing.</b>	<b>Both focus on readiness, but Cargill adds financial validation as a key element during this phase.</b>
<b>Implement Phase vs. System Implementation and Maintenance</b>	<b>Ensures project objectives are met and the solution is operationally ready. Includes system handover and user adoption.</b>	<b>Includes deployment, user training, and post-deployment support. Maintenance is treated as a separate phase in traditional SDLC.</b>	<b>Traditional SDLC explicitly separates maintenance, while Cargill incorporates user adoption and operational readiness within implementation.</b>

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## **Proposed System Request for GEMS**

To address operational inefficiencies, the Grain Elevator Efficiency Management System (GEMS) is proposed as a solution to streamline grain elevator operations during the critical harvest season. Below is a detailed system request.

### **System Name:**

Grain Elevator Efficiency Management System (GEMS)

### **Description of What the System Does:**

GEMS is an end-to-end process optimization platform designed to transform the way grain elevators work. The system integrates digital scheduling, real-time process monitoring, and automated analysis to minimize bottlenecks and maximize throughput. Key features include the following:

1. a digital queue management system for prioritizing and routing incoming trucks;
2. automated grain sampling and grading tools that speed up the analysis process;
3. real-time updates through a mobile app for drivers reduce uncertainty and idle time.
4. A single, integrated console for plant operators to track activities and take proactive measures for control.
5. Comprehensive data analytics support actionable insights for continuous improvement.

### **Sponsor:**

Joe Mosher, Corporate Process Improvement Team

### **Business Need:**

Cargill's grain elevator operations face several challenges:

- Harvest truck queues can be many hours long, resulting in driver dissatisfaction and idle farm equipment.
- Manual sampling and grading processes are very time-consuming, hence delaying operations.
- Competitors offering quicker service could steal market share. GEMS addresses these challenges by offering faster service, reducing waiting times, and improving the general efficiency of operations.

## **Business Requirements:**

1. Implement a real-time, digital scheduling system for trucks to minimize wait times.
  2. Integrate automatic sampling appliances to enhance grain grading, providing speed and accuracy.
  3. Design a mobile-friendly application for drivers that provides them with real-time updates.
  4. Improve operational safety through standardization of processes and reduction of human error.
  5. Offer all-inclusive analytics on throughput, efficiency, and customer satisfaction.
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## **Feasibility Analysis for GEMS**

To ensure the successful deployment of GEMS, a thorough feasibility analysis is essential, covering operational, technical, economic, and schedule feasibility.

### **Operational Feasibility:**

Cargill's workforce is familiar with digital systems, and thus the transition to GEMS is relatively smooth. The system aligns with operational goals in enhancing efficiency, improving service quality, and ensuring safety. Besides, the modular nature of GEMS provides the ability to deploy it in phases, which further reduces disruption during implementation.

### **Technical Feasibility:**

Cargill's current infrastructure will support GEMS well, with minimal upgrades required. The integration with Cargill's present sampling and weighing equipment is easily achieved with the help of generally available technologies like automated sensors and cloud-based platforms. The employment of proven technologies reduces risks and speeds up implementation.

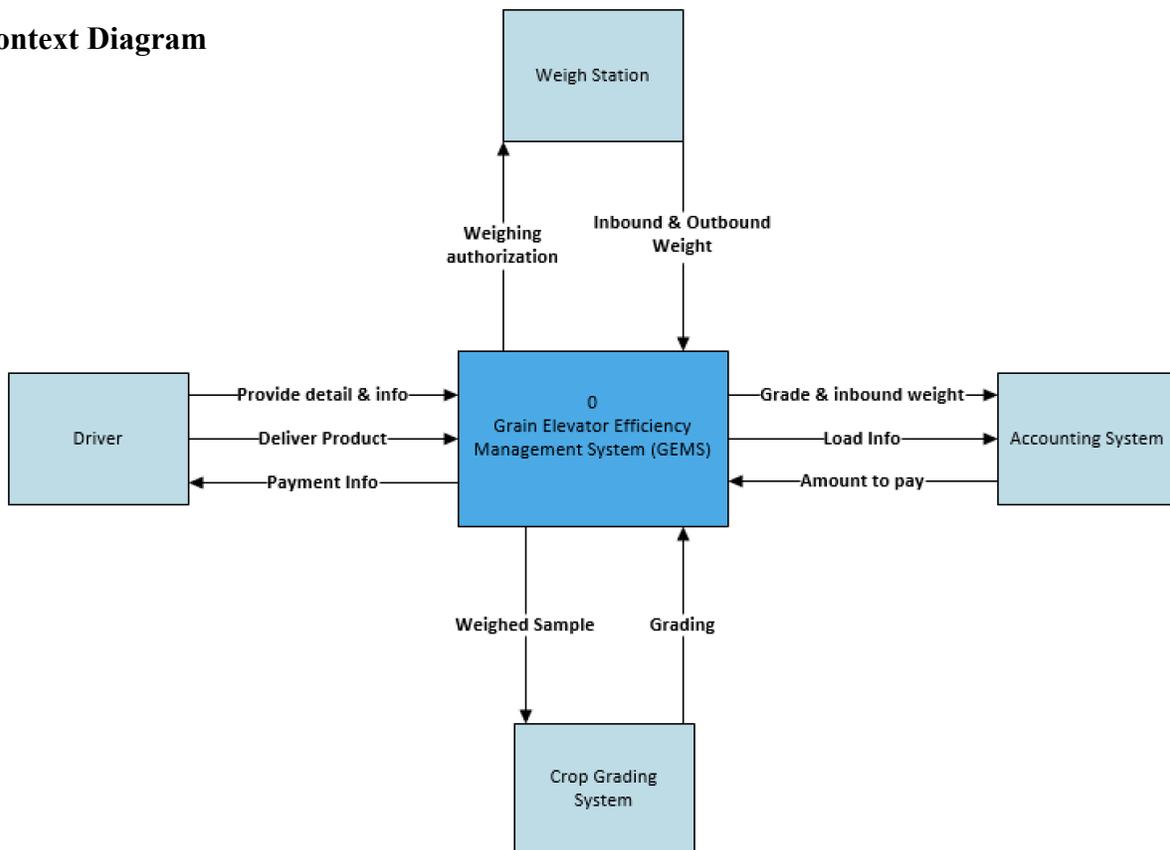
**Economic Feasibility:**

	Tangible	Intangible
Benefits	Increased throughput, reduced truck idle times, lower operational costs, and enhanced grain quality through precise sampling.	Improved customer satisfaction, competitive advantage, and strengthened brand reputation.
Costs	Expenses for software development, hardware upgrades, employee training, and ongoing maintenance.	Potential resistance from employees and short-term inefficiencies during rollout.

**Schedule Feasibility:**

GEMS can be deployed in phases, with a pilot during the off-season at the Savage site. Full deployment in all facilities of Cargill would then be done, using insights from the pilot to further refine the system. In this way, the timelines remain manageable, and improvements are done iteratively.

**Context Diagram**



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## **Conclusion**

The GEMS implementation is a transformational opportunity for Cargill to resolve inefficiencies and improve operations performance. Integrating automation, real-time updates, and analytics, GEMS addresses strategic objectives of Cargill in the direction of improved service quality, safety, and profitability. A phased deployment strategy supported by comprehensive feasibility analysis will ensure the scalability and effectiveness of the system. Investment in GEMS will establish Cargill as a leader in grain elevator efficiency and guarantee a long-term competitive advantage in the agriculture industry.

## **Part II**

### **Comprehensive Analysis: Addressing Requirements, Risks, Pilot Deployment, and Change Management at Cargill's East Savage Facility**

#### **Introduction**

The Savage East facility is part of the core agricultural business of Cargill and is considered critical in grain processing and transportation during harvest time. However, inefficiency in the operations of grain elevators, especially during peak seasons, leads to significant delays, operational bottlenecks, and dissatisfied stakeholders, both farmers and truck drivers. Such inefficiencies not only compromise customer satisfaction but also threaten profitability and competitiveness in the market.

To address these challenges, Cargill is considering the implementation of the Grain Elevator Efficiency Management System, a holistic package that will automate processes, promote efficiency in operations, and further enhance the experience of employees and stakeholders. This write-up analyzes particular system requirements, critiques certain identified risks, evaluates the merit of a pilot deployment strategy, and suggests robust change management strategies to ensure the success of the project.

## **Q1: Requirements**

Based on the interview with Matt Stommes, six specific requirements have been identified to address the inefficiencies at Cargill's East Savage facility. First functional requirement is to implement an Automated Crop Sampling and Grading System. This system will provide seamless navigation of the analysis of moisture content, foreign matter, and hull damage through real-time calculation of grades and provide real-time integration to Lynx ERP for seamless payment processing. The second functional requirement is a Digital Queue Management System that enables the driver to schedule their arrival times, receive queue position updates, and get assigned unloading stations through their mobile or web interface.

Some other major non-functional requirements are the need to ensure Scalability and Flexibility in the system design to handle fluctuating volumes during peak harvest seasons, but also be adaptable to the requirements of deployment at other facilities. Another key non-functional requirement relates to Ease of Use: intuitive user interfaces requiring minimal training for employees at the plant, whose normal experience is limited. Other requirements are Real-Time Data Integration, which will provide an interface for seamless data flow between the sampling equipment, weighing stations, and Lynx, and additional communication tools to advise drivers of grades, queuing position, and payment status. These put together alleviate bottlenecks in its processes and improve overall facility efficiency and process transparency.

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## **Q2: Critique of Risks**

Several of the identified risks in the case study have been elaborated on and analyzed. The first risk is the prioritization of changes to Lynx, Cargill's ERP system. Misaligned updates may disrupt the processing of payments, leading to delays and frustration among farmers. In this regard, a phase-by-phase approach should be implemented, whereby only critical updates are released, and a team is assigned to oversee the changes. The second risk is the BA resource allocation, as understaffing during critical phases may lead to incomplete requirements gathering. This can be mitigated by training more BAs and having backup personnel ready for peak project demands.

The second major risk is related to the financial interface between Lynx and other systems like FoxPro or MS Visual Studio.NET. If the integration is poor, there could be discrepancies in the calculation of various types of payments. To outsource this risk, this integration should be outsourced to a reputable ERP vendor. The fourth risk is related to readiness of equipment and infrastructure. Delays in procurement or installation of necessary equipment may delay the project. To hedge against this, Cargill should start purchasing early, consider expedited shipping, and prepare for partial deployment of the system in case of urgency. Another new risk that may be considered is resistance to the digital queue management system by drivers who are unfamiliar or unwilling to adapt to it. This may continue the manual process and operational

inefficiencies. These include training sessions for drivers, incentives for early adopters, and maintaining fallback manual systems during the transition.

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### **Q3: Pilot Deployment vs. Simultaneous Rollout**

This brings the following advantages to Cargill: pilot deployment strategy, especially regarding the East Savage facility, ensures controlled conditions for focused testing and debugging, hence reducing risk in system upscale. Insights from this will help refine features, sort out unexpected challenges, and make it easy for users. This would ensure that any mistakes or disruptions remain confined to one site, minimizing the risk of large-scale operational issues. In addition, a pilot gives employees and drivers time to adapt to the new system, making the transition smoother.

However, the disadvantages of a pilot deployment include extended timelines due to the need for a sequential rather than simultaneous rollout. Resource duplication may also increase short-term costs, with personnel needing to support both pilot testing and broader implementation efforts. Conversely, a simultaneous rollout will ensure faster system-wide benefits and leverage economies of scale but carries higher risks. Failures in a simultaneous rollout could disrupt operations in all facilities, and a large-scale deployment is logistically difficult to coordinate. Because the integration of GEMS with existing systems is complex and employees have different skill levels, a pilot deployment is advisable. This will ensure a controlled transition with minimal risks and will provide a sound foundation for a successful company-wide implementation.

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### **Q4: Change Management and Organizational Readiness Strategies**

Effective change management is one of the critical success factors for implementing GEMS at Cargill. In the Plan Phase, stakeholders should be engaged through workshops to align them with the project objectives and air their concerns. This could also involve the identification of change champions among plant employees and drivers to further drive buy-in and communicate. Collaborative workshops in the Analyze Phase will elicit detailed user requirements so that the system reflects real-world needs for employees and drivers. Regular project updates can be a means of building trust, reducing resistance to the new system.

During the Design Phase, prototyping and gathering feedback from the stakeholders on refining the system is crucial. Customized training programs for employees and drivers will be required at this stage to give them the necessary knowledge of using the system. Finally, during the Implement Phase, a phased rollout approach is recommended. On-site support teams should be provided in the initial implementation period to help them sort out any technical problems and

gain confidence among the users. Continuous monitoring and iterative improvements through feedback will ensure smooth transitioning. These strategies will improve organizational readiness and reduce resistance, paving the way for the long-term success of the system.

## **Conclusion**

Critical challenges at Cargill's East Savage facility range from long truck waiting times to a lack of consistent operational processes during harvest seasons. The proposed GEMS system will handle these inefficiencies by automating key processes, reducing bottlenecks, and providing better visibility. A pilot deployment strategy ensures controlled testing with minimal risk and lays a sound foundation for scaling up. With detailed requirements coupled with robust risk mitigation strategies and comprehensive change management plans, Cargill was better placed to transform its grain elevator operations. A phased implementation that is thoughtful will enable Cargill to increase efficiency in addition to improving stakeholder relationships and sustaining its position within the agricultural industry's competitive landscape.

# Part III

## ERD

