ISEN 665:-Management of Engineering Systems

Decomposition and Evaluation of Enterprise Group at Lockheed Martin Corporation

Submitted By:-

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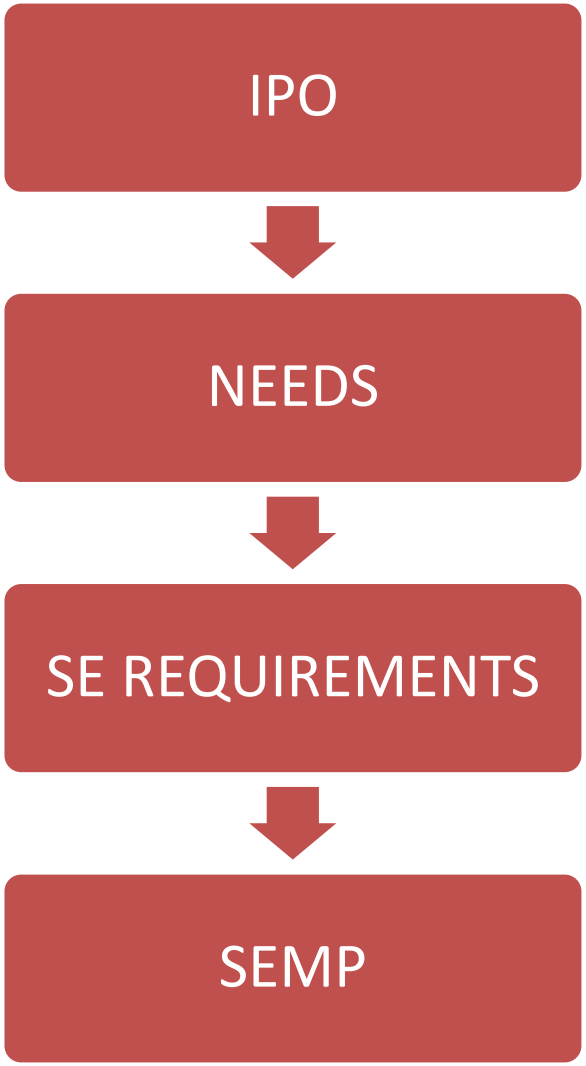
NARD

Customer Requirements

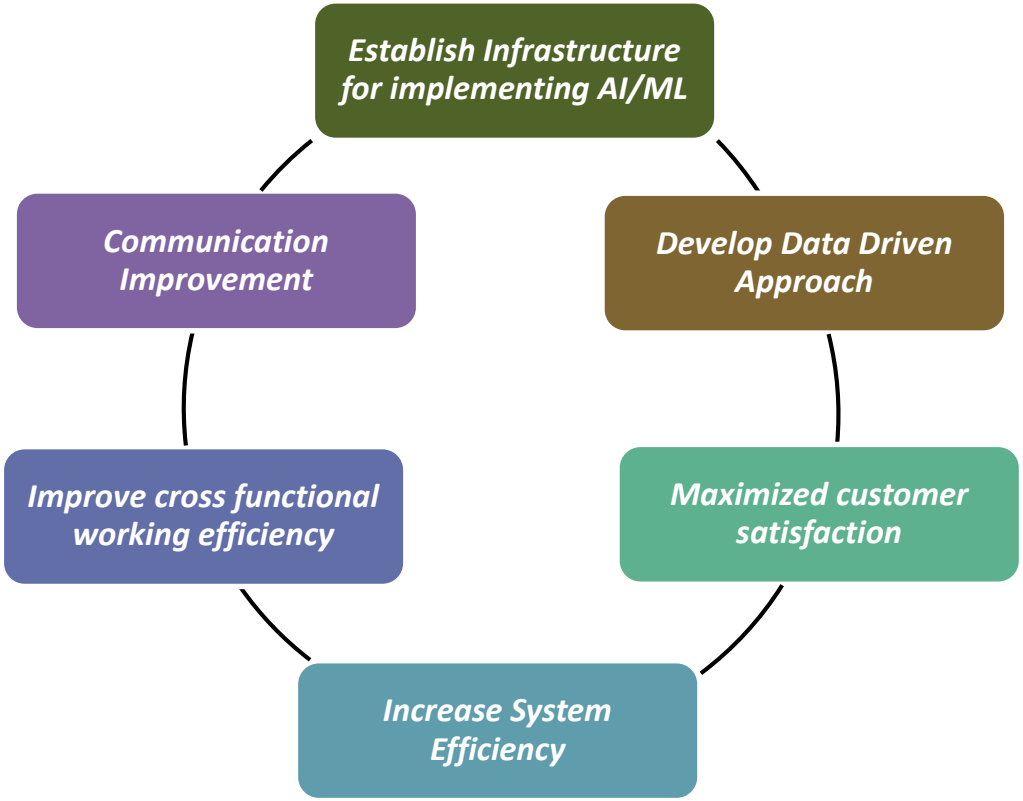
- Attenuate variety
- Customer preferences
- Customer data privacy
- Customer value

SE Requirements

- Streamline business processes
- Allocate and assign roles
- Compliance
- Implement R&D leads
- Learning and growth



Technical Objectives to be achieved



Strategic Map & Balance Scorecard

Theme: Technological Advancement

Strategy Map		Balanced Scorecard	Action Plan
Perspective	**Strategic Objectives**	**Performance Measures**	**Initiatives**
Customer Perspective	• Data driven decision making • Customer intimacy/ level of customization • Variety engineering, quality • Innovation	• Customer satisfaction measures through surveys, competition study • Level of data driven decision making • Quality measures in variation, six sigma levels.	Implement the new technology such as artificial intelligence
Internal Perspective	• Identify target areas for implementation • Build data architecture • Data governance • Risk tolerance	• Target areas where artificial intelligence or data driven decision making is applied. • Tools and facilities contributing to capacity • Risk analysis	Build or procure infrastructure required
Learning And Growth Perspective	• Cutting edge research • Confidentiality and Compliance mechanisms • Adequate data investment • Explore new deep learning tools, certifications	• Number of employees trained or promoted in-house. • Compliance ratings • Number of new deep learning, AI tools explored	Train and close skills gap in human resources
Financial Perspective	• Return on investment analysis • Reduction in risk • Customer satisfaction	• ROI, PP, etc. • Quantitative risk analysis	Cost-benefit analysis

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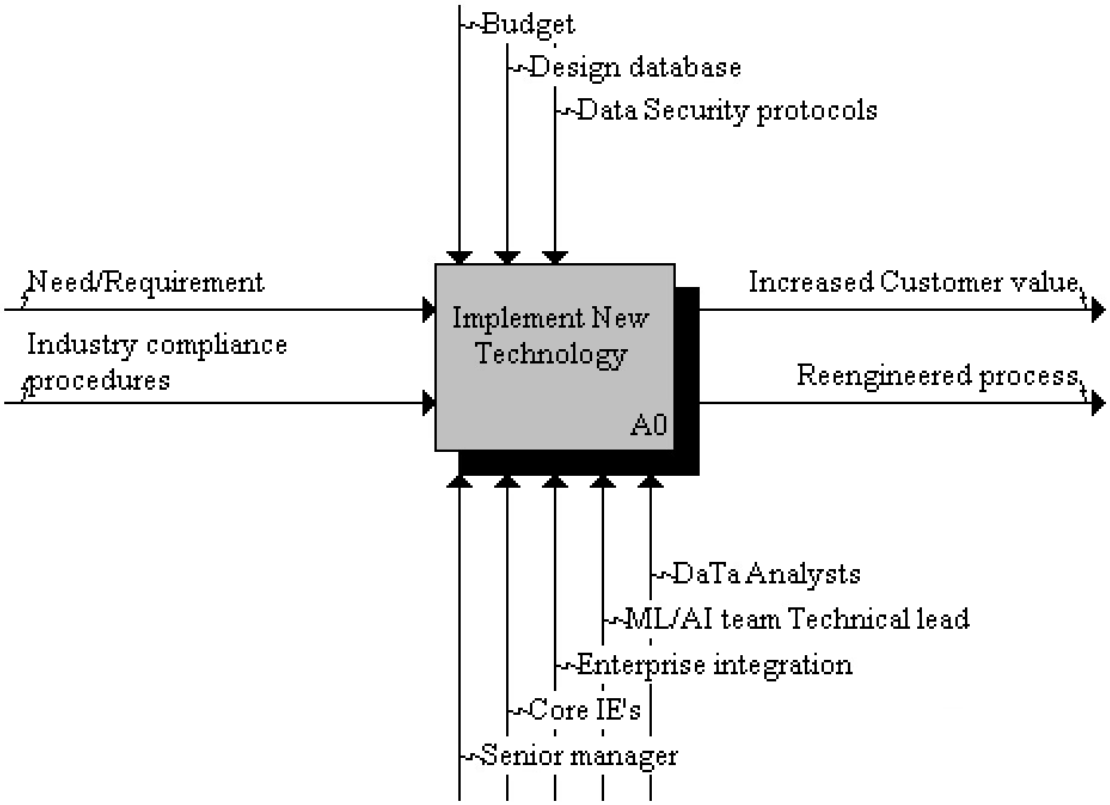
Budget
Design database
Data Security protocols
Need/Requirement
Industry compliance procedures
Implement New Technology
A0
Increased Customer value
Reengineered process
DaTa Analysts
ML/AI team Technical lead
Enterprise integration
Core IE's
Senior manager

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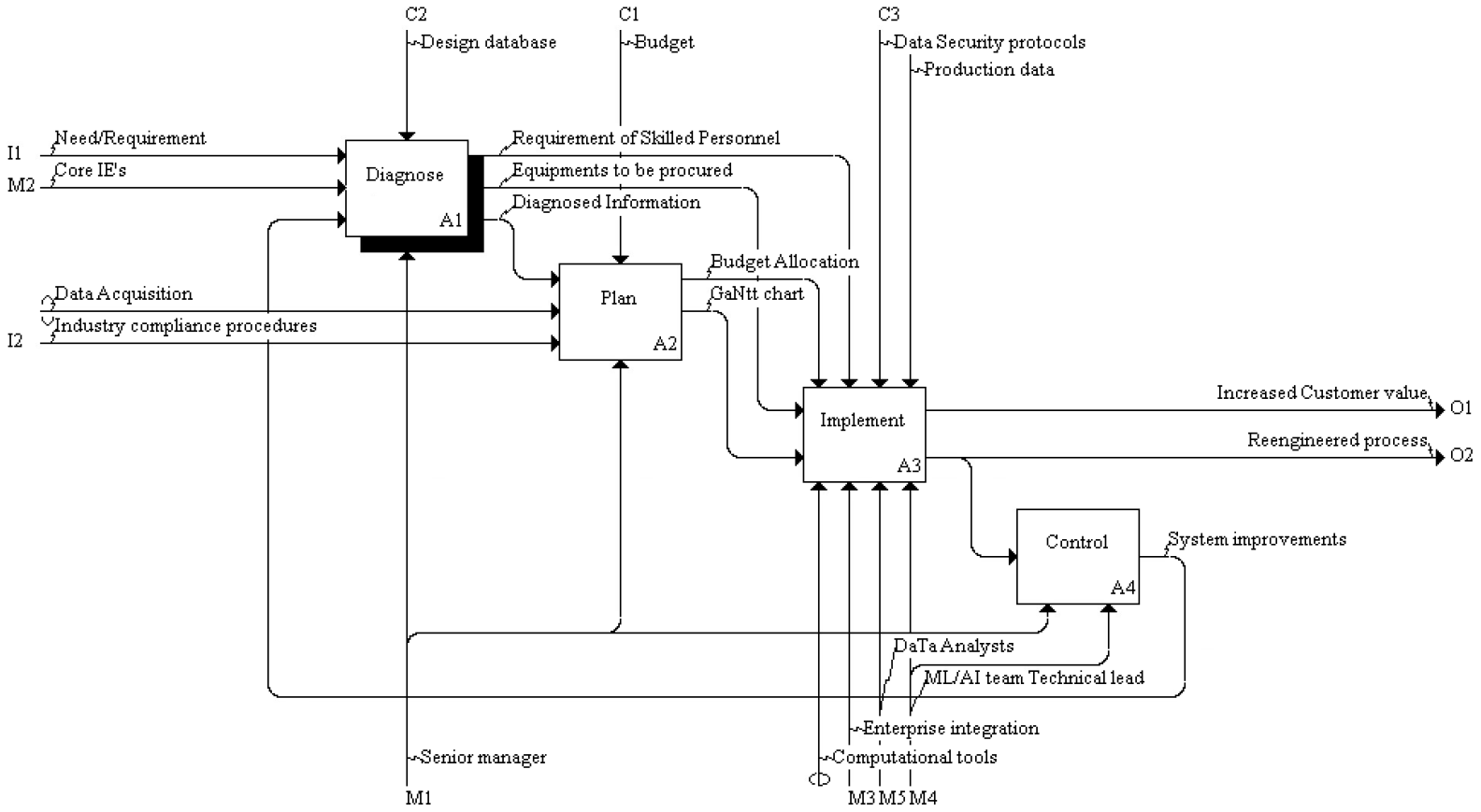
C2
Design database
C1
Budget
C3
Data Security protocols
Production data
I1
Need/Requirement
M2
Core IE's
Diagnose
A1
Requirement of Skilled Personnel
Equipments to be procured
Diagnosed Information
Budget Allocation
GaNtt chart
Data Acquisition
I2
Industry compliance procedures
Plan
A2
Implement
A3
Increased Customer value
O1
Reengineered process
O2
Control
A4
System improvements
DaTa Analysts
ML/AI team Technical lead
Enterprise integration
Senior manager
M1
Computational tools
M3 M5 M4

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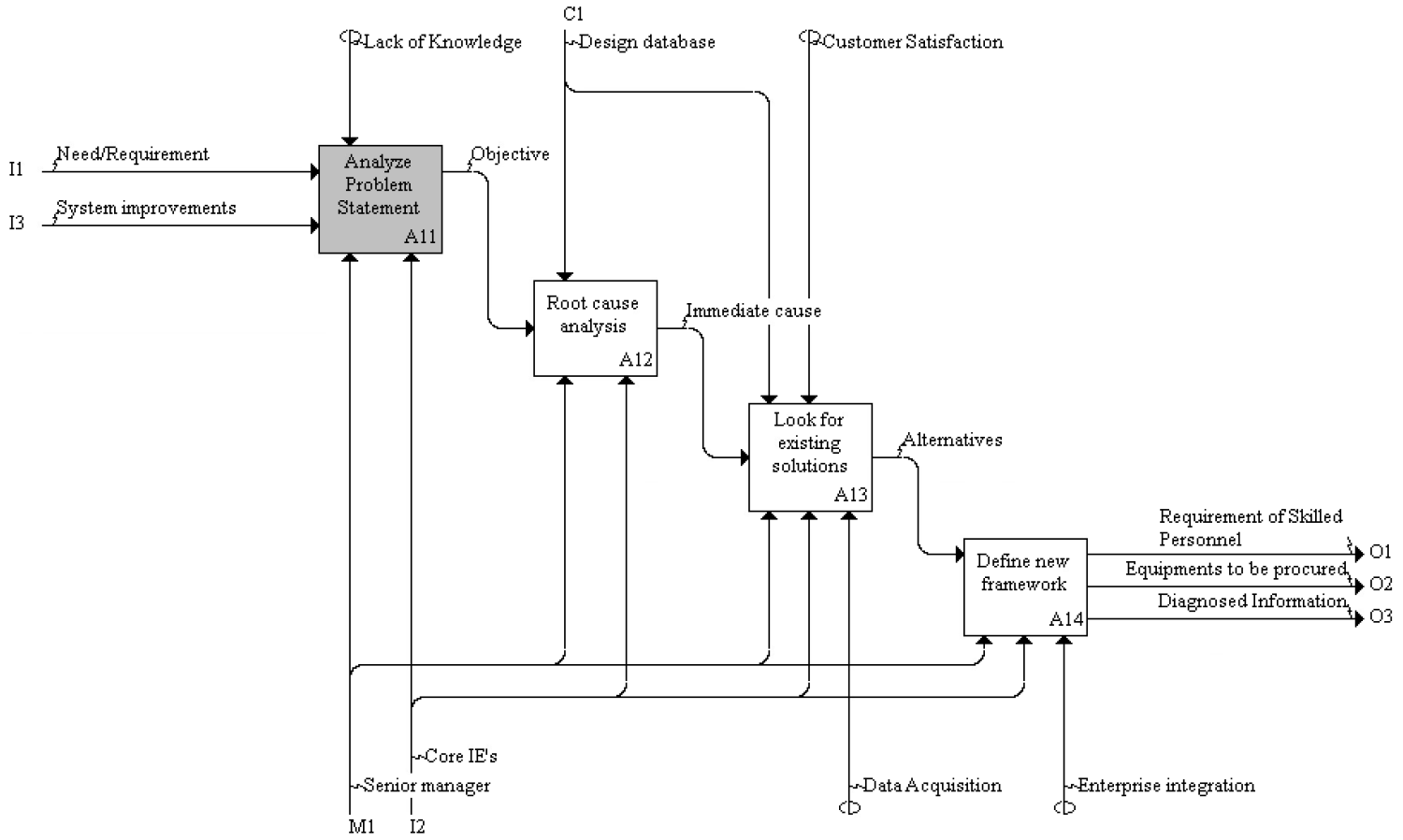
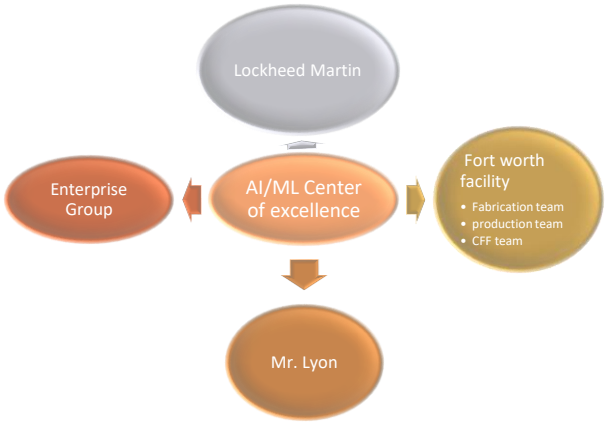
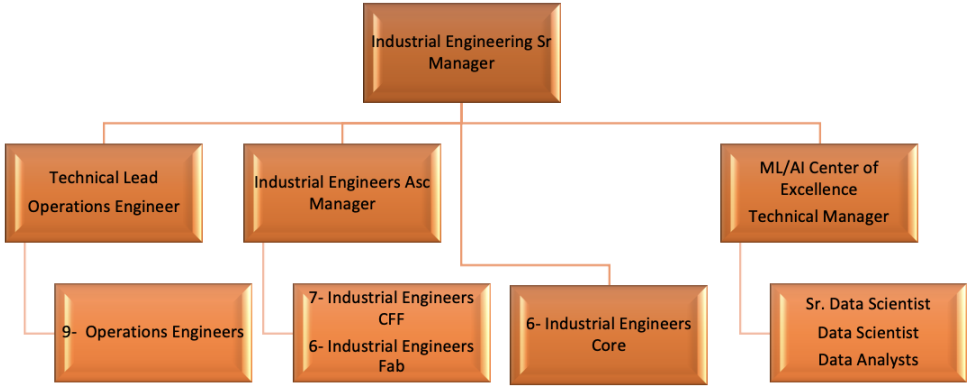

C1
Lack of Knowledge
Design database
Customer Satisfaction
I1
Need/Requirement
I3
System improvements
Analyze Problem Statement
A11
Objective
Root cause analysis
A12
Immediate cause
Look for existing solutions
A13
Alternatives
Define new framework
A14
Requirement of Skilled Personnel
O1
Equipments to be procured
O2
Diagnosed Information
O3
Core IE's
Senior manager
M1
I2
Data Acquisition
Enterprise integration

SEMP

Stakeholders involved



New team structure

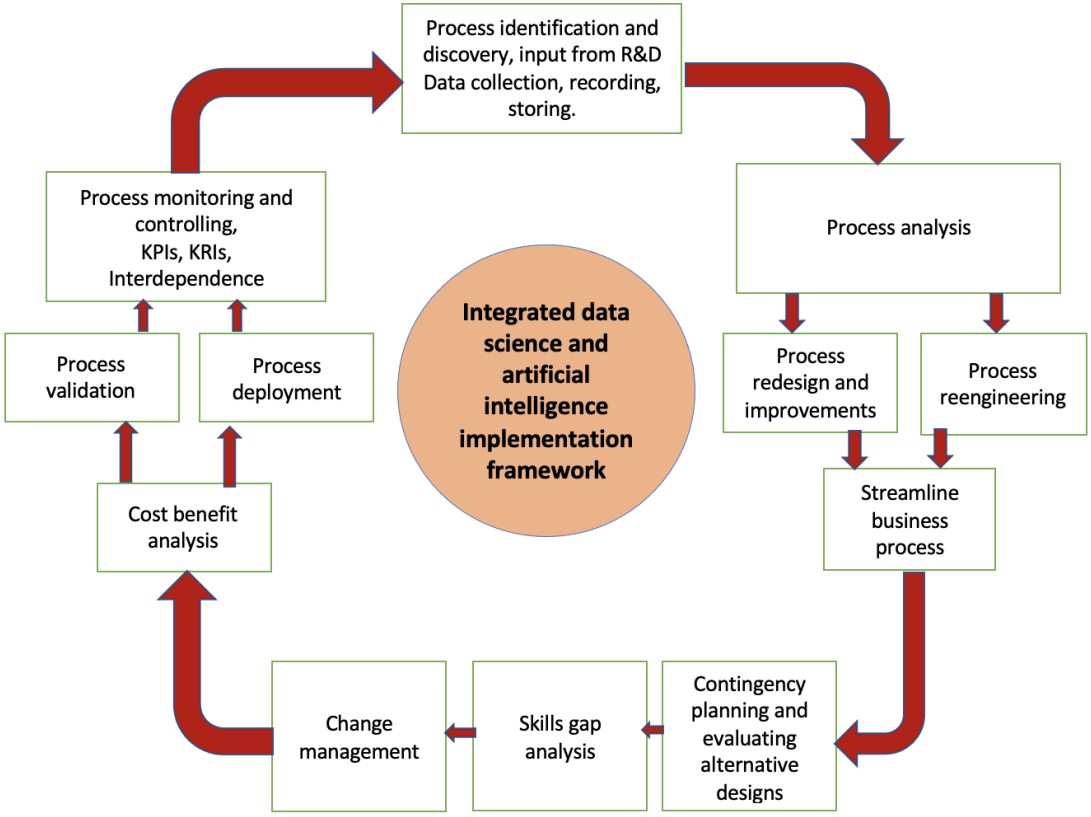


SEMP

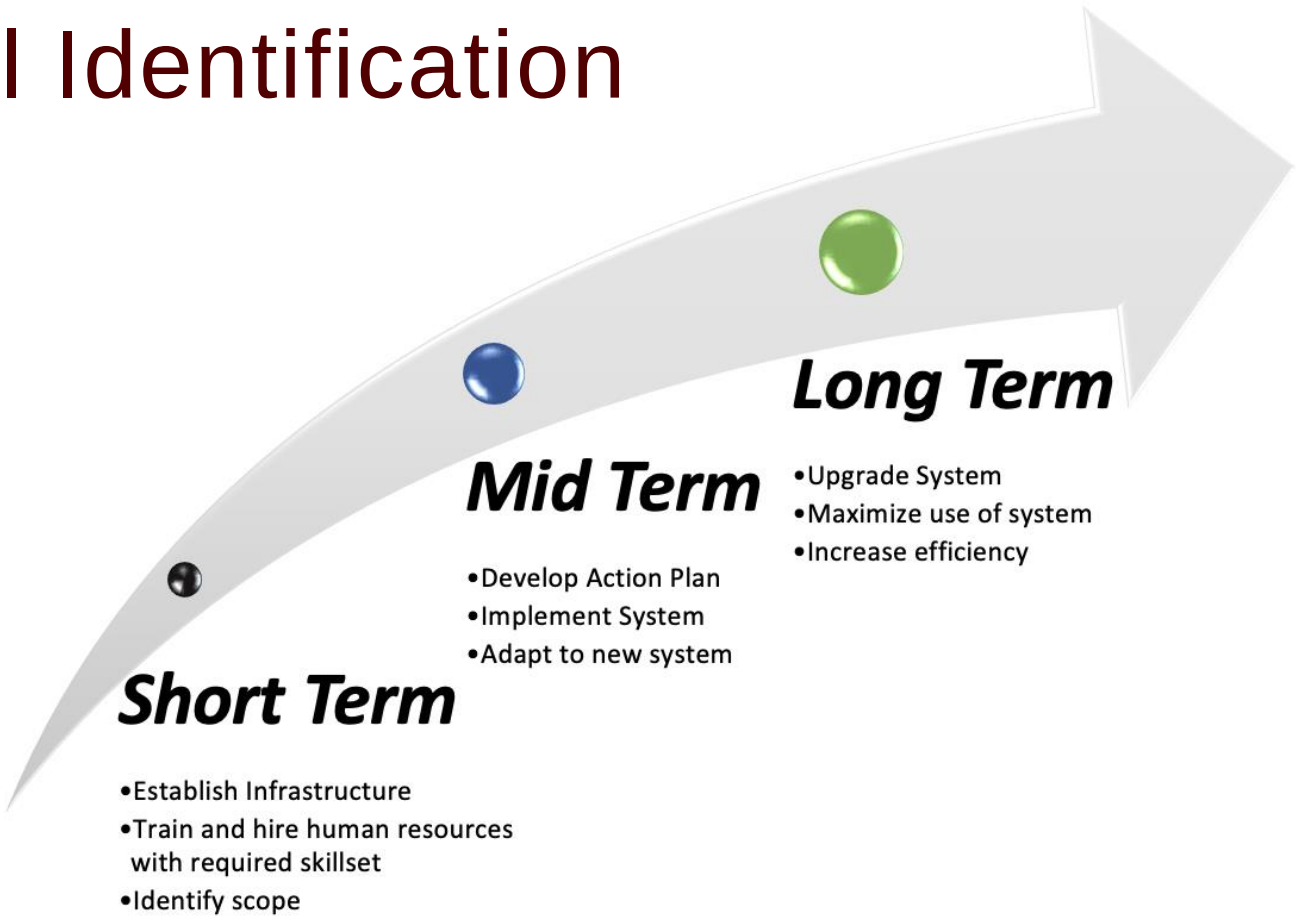
	Data Consolidation and structure	Data Value Extraction	Insights transfer and implementation	Results communication and key decisions
Mechanism	Production and design data Centralized data warehouse	Data value extraction meetings	Actionable insights application	KPI measurement and Key
Human resources	Trained and awaken data-suppliers including data engineers, production designers	Departments key stakeholders such as process owner, production manager, senior data scientist	Department key stakeholders and corresponding departments such as data analysts, data scientists and software developers	Department key stakeholders
Tasks	Understand number of application areas in the production pipeline. Understand what data each application area needs Create or use a tool accessible to organization	Extract actionable insights for further exploitation by managing cross-departments co-ordination during value extraction meetings and by respecting four conditions:	An efficient action items document A communicative leader in each department Extract actions to take for each insight Select project management approach	Define and monitor KPIs collectively Rethink KPIs to show results, block certitudes and avoid distress Link KPI to global business objective such as leading the

Data To Business Model

SEMP


Process identification and discovery, input from R&D Data collection, recording, storing.
Process analysis
Process redesign and improvements
Process reengineering
Streamline business process
Contingency planning and evaluating alternative designs
Skills gap analysis
Change management
Cost benefit analysis
Process validation
Process deployment
Process monitoring and controlling, KPIs, KRIs, Interdependence
Integrated data science and artificial intelligence implementation framework

Goal Identification



AOA

Criteria	*As-Is Model*	*Proposed To-Be Model*
Return on investment	Good, less cost	Higher, more cost
Customer value	Good	Improved
Innovation	Standard process	Improved
Cross-functional	Limited	Higher
Data security	World-class	World class, more load
Change management	Not needed, well established process and team structure	Needed to balance process reengineering
Quality	High quality owing to continuous improvement	High quality owing to intelligently automated and consistent process

Recommendation and Further plan

- Leverage the Data scientists from enterprise integration team to work alongside the Simio team members who have prior knowledge of ML/AI to analyze the scope and areas of implementing this new technology.
- An initial action plan would be to provide training to the team members on the new skills and tools required in ML/AI and meanwhile to recruit new data analysts/scientists who will be working in the new team.
- A technical manager, with extensive knowledge and experience in the field of data science should be appointed to lead the novel team.
- Build and procure infrastructure (both software, hardware, and the data).
- Set up goals and targets based on number of successfully implemented projects using AI/ML. Continue to grow the team to meet the increasing demand while considering cost analysis.
- Conduct change management techniques to balance the reengineering of processes carried out in implementing new technology.

Road Map to Implementation

Phase	Activities	Time (Weeks)
Initiate	Establish Infrastructure	12
	Train and develop skillset	14
	Identify scope	12
Develop	Develop Action Plan	20
	Implement System	20
	Adapt to new system	20
Advance	Upgrade System	15
	Maximize use of system	14
	Increase efficiency	18
		145

In a Project, Silence isn't Golden
It is Deadly