

IPRO  
306

# PROJECT PLAN

## IMPROVING GLOBAL SUPPLY CHAIN MANAGEMENT

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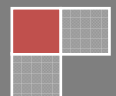
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## I. Abstract

IPRO 306 team is tasked with assisting a major plumbing manufacturer, Sloan Valve, in improving the global chain supply as well as the overall effectiveness and efficacy of their equipment and processes. Sloan Valve has three projects with IPRO 306 will be involved, and they range in three different fields of the manufacturer. The projects which IPRO 306 will be involved are:

- Overall Equipment Efficiency (OEE)
- Cost Matrix
- Green Supply Chain

The Cost matrix project group seeks to develop a tool that can capture and compare the different costs the company incurs when buying parts overseas vs. domestic. Sloan's idea is to start selling their products in other parts of the world at competitive price. Some of these markets are very competitive when it comes to price. So if Sloan buys materials domestically may not be able to offer competitive pricing worldwide. By creating a cost matrix tool, the company will be able to compare costs of raw material ordered abroad versus locally and wisely decide what the best choice to pursue is.

The Second project is Overall Equipment Efficiency (herein after as OEE) which will be a continuation of last semester Lean Implementation project. OEE is designed to eliminate any downtime of a machine. Through a tracking process, OEE will help eliminate downtime and efficiently determine what is causing this down time. The goal of the project is to further make the OEE process more efficient in addition to creating and perfecting a tracking system which will be able to analyze and create reports from the data that will be input into the system.

The third project is the Green Supply Chain. Currently, there is no industry standard for being "green." The goal of this project is to establish a definition of "green," and create a cost effective, consumer appealing, way to introduce this into the Sloan Valve supply chain. After defining "green," team members will examine and create a strategy detailing ways in which Sloan Valve can implement green initiatives into the Sloan Valve supply chain.

The purpose of this document is to give a detailed overview of the project, as it is currently defined through our meetings and charters provided by Sloan Valve. This document will provide critical information about the project involving the team and its assets, team goals, conflict resolutions and more. In addition it will also provide a brief background on Sloan Valve, along with a discussion of issues facing both the company and the IPRO team. A methodology of the project will be discussed as well as key deliverables and a work breakdown structure of the project.

## II. Team Information

The IPRO 306 roster, along with each individual's strengths, skills, and expectation can be found in appendices A & B.

### ***Team Purpose***

IPRO 306 is a team of students brought together to gain practical and professional experience working with industry leading global supplier. The team will play an important role in helping the company gain efficiencies through the strategic use of technology and process improvements as well as becoming in sync with current trends of being as environmentally friendly, "green", as possible in its global supply chain which extends around the world.

### ***Team Objectives***

- Meet or exceed the expectations of Sloan Valve and Mr. Caltagirone
- Create and design a tool to perform Cost Matrix
- Design and implement a green initiative that is both cost effective and appealing to consumers
- Implement an efficient method to track machine downtime
- Create a system which eliminated the amount of downtime and increases the OEE percentage throughout Sloan's manufacturing plants
- Work effectively as a team, with passion and honesty, to achieve our outlined goals

## ***Team Logo***



## **III. Background**

### ***History***

Sloan Valve is a 104 year old privately held manufacturer and global distributor of commercial valves and plumbing fixtures. The company was built on the invention of the Flushometer, a type of high efficiency, low maintenance valve that was a far departure from the valves that flooded the marketplace. However, through the perseverance of the inventor and founder, William E. Sloan, the Flushometer eventually became the standard in commercial construction. Over the years, Sloan has kept the innovative and determined spirit of its founder and has realized continuous growth through strategic acquisition and new product development.

Currently, the Sloan Valve network contains 8 different facilities: 4 manufacturing, 3 in the US and 1 in China, 1 foundry that supplies all of the castings for manufacturing, and 3 distribution centers (DC). The Franklin Park location serves as the corporate headquarters, as well as, a primary manufacturer and replenishes the distribution centers. Sloan currently employs over 500 people and has estimated annual sales over \$50 million.

## ***Current Issues***

More and more companies are turning towards its supply chain to gain efficiencies or create a competitive advantage while still being environmentally friendly; Sloan Valve is no different. Because of the age of the entire company and the technology used is still operated manually, there are issues in regarding the supply chain. Sloan has decided to make their chain supply greener but there are a few issues which exist within the company. Sloan doesn't have a definition of "green" and this is part of a bigger issue worldwide as people have different perceptions of what green is and how is that applied. Sloan's global supply chain and distribution department wants a "Green" supply chain but the ground facts are that it does not have a strategy to implement such measures and it is not quantified. Sloan is faced with the current trends as customers want to align with an acceptable environmentally company.

The same location is also the biggest Sloan manufacturing plant of all its locations. It is equip with a lot of equipment which require care and attention by its operators. Workers need to take breaks and need to give a lot of time to equipment since they are manually operated. There is down time for all equipment but this amount of down time is not tracked efficiently. Currently, Sloan's Overall Equipment Efficiency (OEE) tracking is done by hand, having operators complete a sheet determining the amount of time the equipment was operated and how much downtime was part of this operation and what were the causes. Sloan manually enters data into sheets into excel spreadsheet and calculated to get OEE percentages. A centralized system was started but it has no formal procedures on how OEE is recorded or evaluated at SVC. In addition records are not refined/defined and give limited history of equipment and or components. Current process logs can not be confirmed as valid.

There are also no costing measures for this plant. Sloan can't capture and compare the different costs the company incurs when buying parts oversees vs. domestic. Sloan's needs to start selling their products in other parts of the world at competitive price. Some of these markets are very competitive when it comes to price. Sloan needs a tool which would be able to calculate different prices and help keep an edge on global market.

## ***Technology and Historical Considerations***

Currently, Sloan uses an ERP solution from SAP that includes a Material Management (MM) module. This module provides basic inventory functions, such as receipt of goods and the issuance of goods. This software essential can be used for many segments of manufacturing and its management.

SAP offers many great features to its suite of software for Management which at times could make the system more complex. The current system is not utilized to the maximum due to financial considerations as well as practical reasons such as

accounting matters. Cost Matrix solutions could possibly be implemented into SAP solutions.

Sloan currently employs many green initiatives including the clean water filters for water reusability, its packaging and more. Since the trend of being as green as possible, the company has not been successful at developing a green supply chain as could not come up with a strategy and could not quantify the benefits to Sloan. Just recently it implemented a definition of green which describes what green is and how their suppliers are green and to what level.

Overall Equipment Efficiency is very important to Sloan as it is the core of production and as a manufacturing company wants to have all its equipment running at all times. All staff is entitled to breaks and lunches. Equipment requires maintenance and they break as well. Each of these takes times and that results in downtime for the equipment. Having coherent breaks and lunches may help on downtime but a centralized database is the best solution for any company to address a wider problem.

### ***Ethical and Societal Considerations***

While there appears to be no obvious ethical issues, something for consideration is that with many efficiency efforts, one outcome can be a reduction in workforce. If processes are optimized, then there is a real possibility that the number of workers required will reduce. Often times, there are no other jobs available and workers are let go. While this may be an ideal situation for the company due to the savings realized, it can have an effect others if they know their work will result in the dismissal of others, especially in turbulent economic times. A difficult realization is that companies exist to make profit and maximize stakeholder benefit.

## **IV. Team Value Statement**

### ***Desired Behavior***

- Treat Sloan Valve as the customer. Strive to exceed their expectations
- Produce to the best of our ability, utilizing our natural talents and developed skills
- Ask questions when something is unclear
- Respect the ideas of the team members and encourage an open dialogue
- Sustain a professional attitude in all team interactions

- Accept suggesting from others and receive
- Any criticism on work performed should be received as constructive criticism

### ***Conflict Resolution***

IPRO 306 will follow the “A-E-I-O-U” model of conflict resolution. We will attempt to communicate all concerns to the group and seek alternative resolutions. By separating the person from the problem, we hope to keep civility and focus solely on the problem at hand.

- A-ssume others mean well
- E-xpress one’s feelings
- I-dentify your desired scenario
- O-utcomes expected to be made to the group
- U-nderstanding by the group is done on a mature level

## **V. WORK BREAKDOWN STRUCTURE**

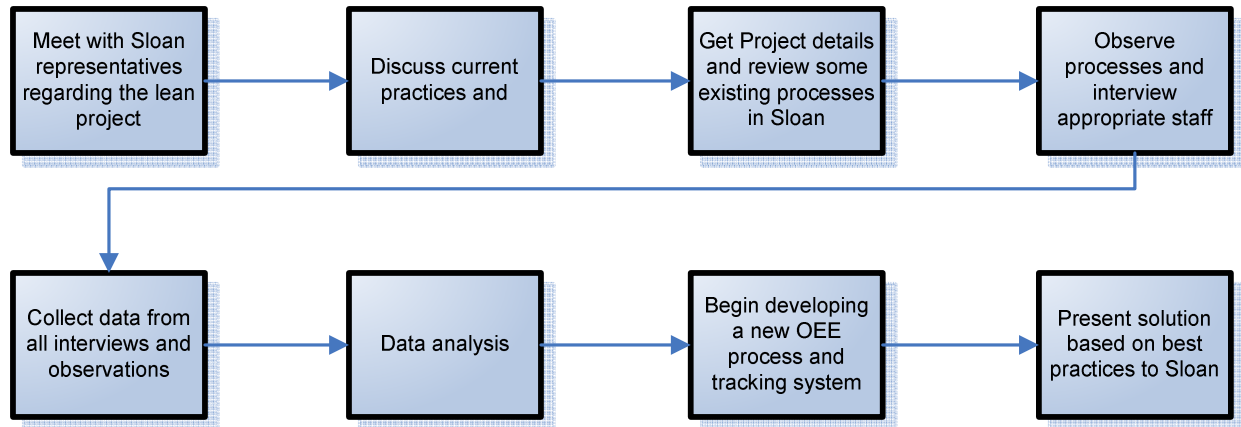
### ***Problem Solving Process***

In order to best serve the project sponsor, the teams have decided to work on site at least once a week as long as the team sees it fit to meet at Sloan Valve. The team will also meet with the Project manager and other teams when seen fit and when there needs to be a review of procedures or deliverables. Each team will have a debriefing every week within their designated teams.

### **Overall Equipment Efficiency (OEE)**

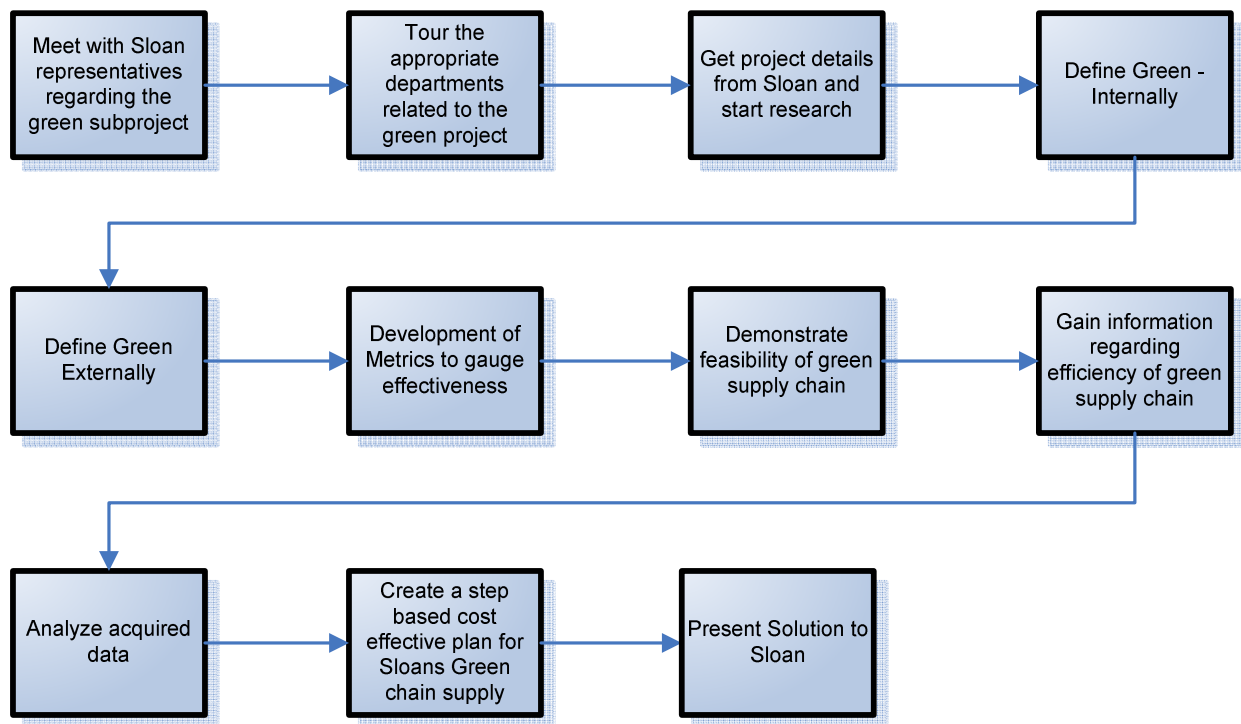
Below is a generic process for the OEE project. The team will observe and interview appropriate staff to gain information and data so it will be able to successful develop an Overall Equipment Efficiency (OEE) tracking system.





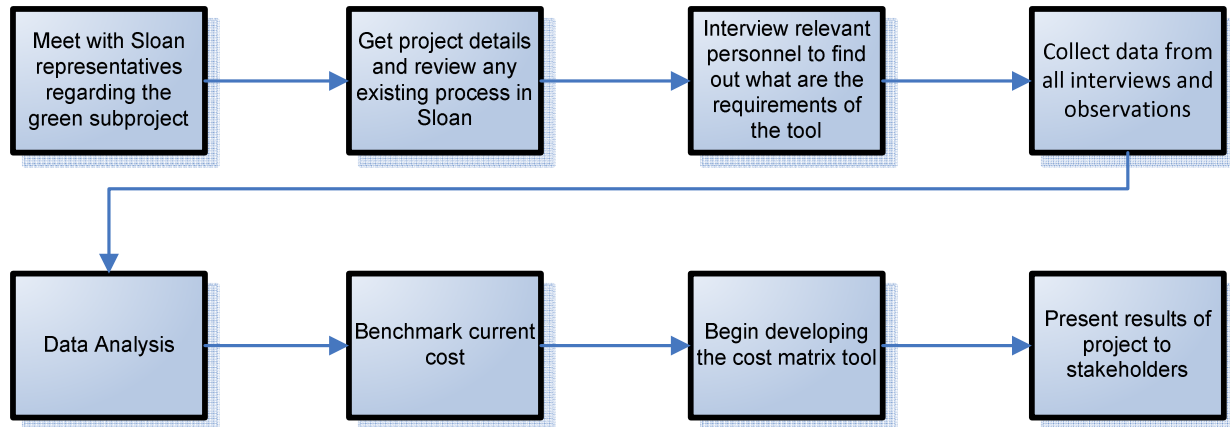
### Green Supply Chain

Below is a generic process for the Green Supply Chain project. The team will observe and gather information and data from supply chain department so it will be able to successful develop a step based cost effective plan.



### Cost Matrix

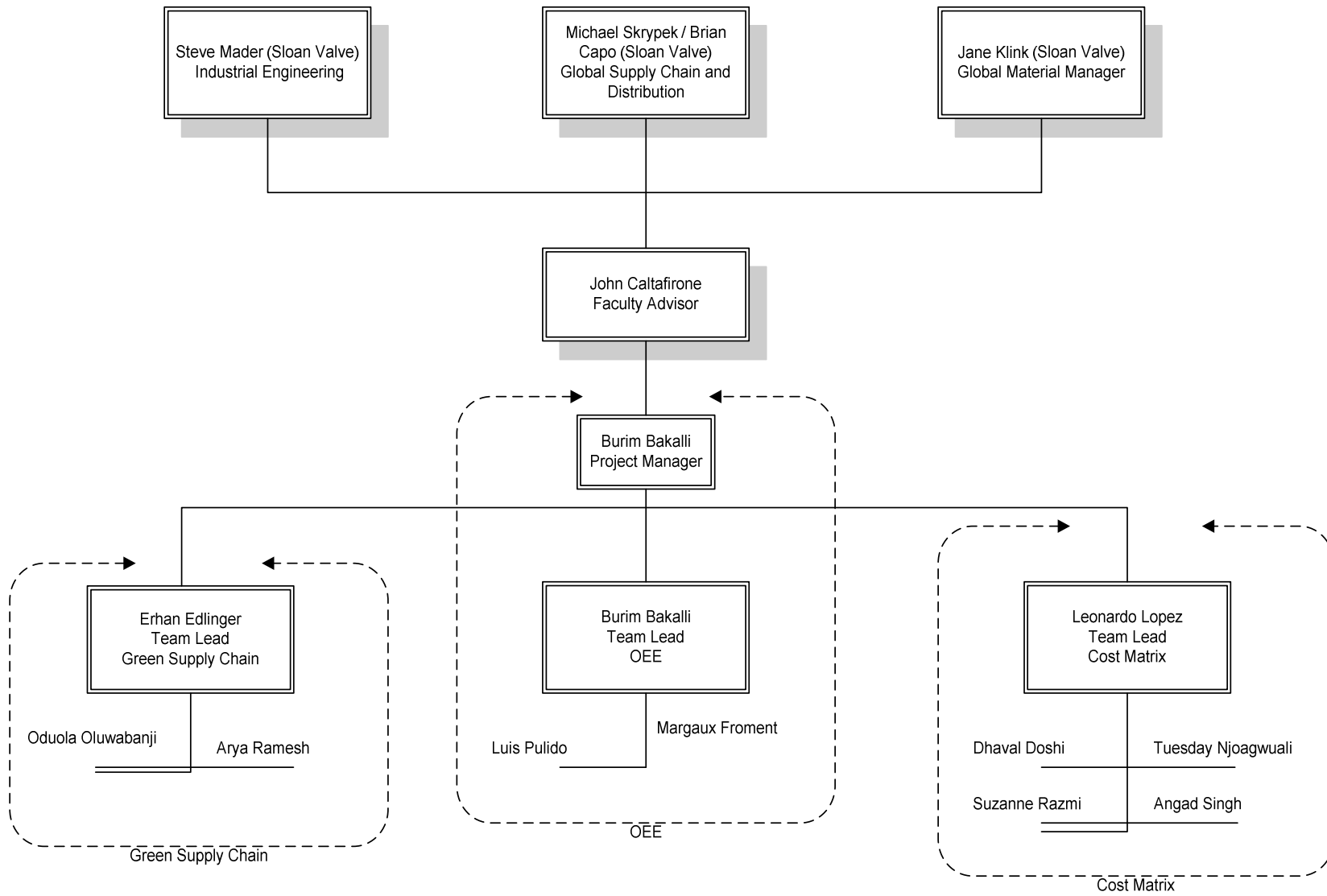
Below is a generic process for the Cost Matrix project. The team will gather data and interview appropriate staff to be able to construct the tool appropriately.



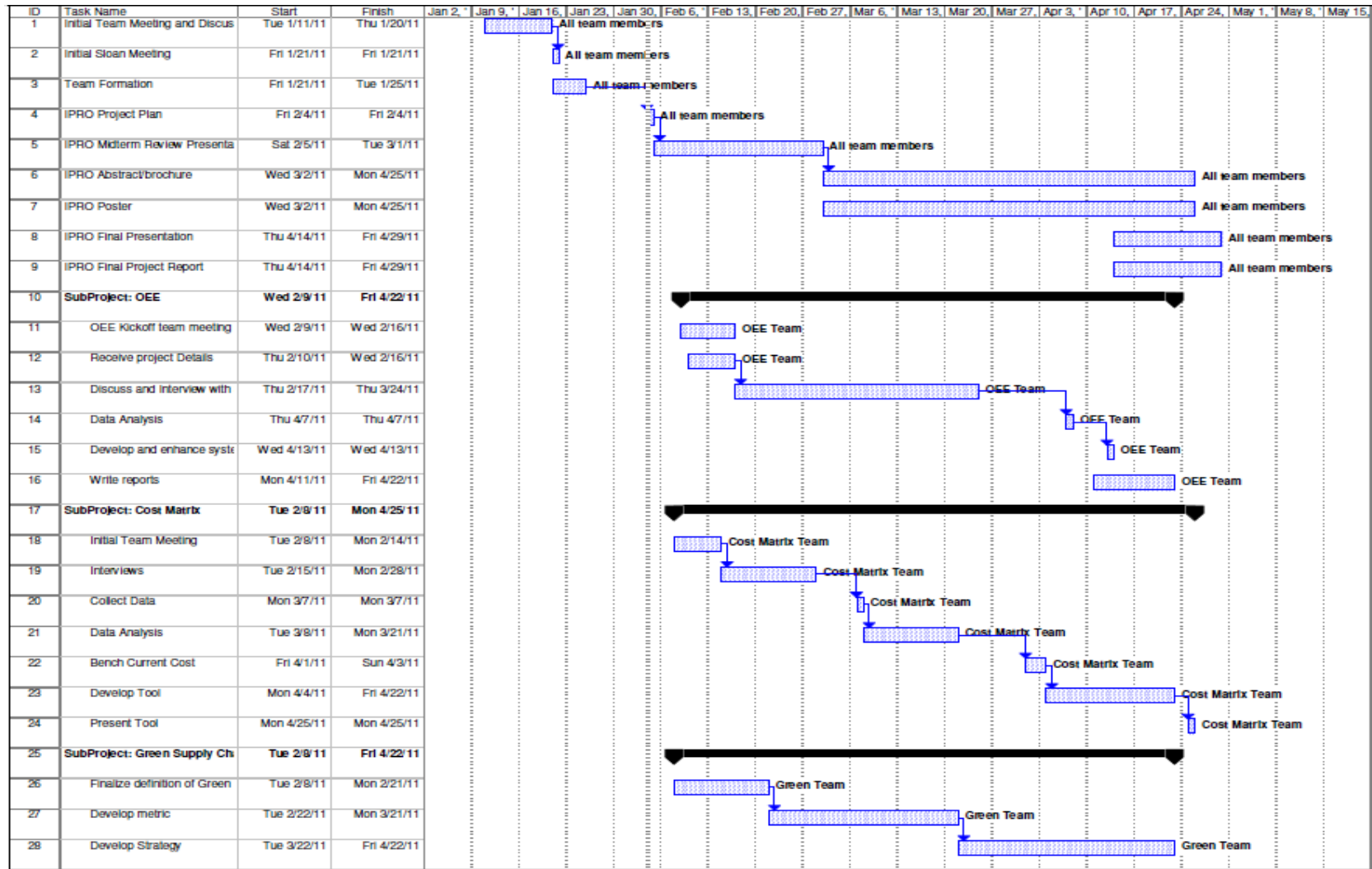
### ***Team Structure***

Due to the large scope of the project, we have divided our teams into three subgroups. The teams led by Leonardo Lopez will lead the Cost Matrix project, and the team lead by Erhan Edlinger will tackle the Green Supply Chain project. Burim Bakalli is the overall project manager and will be the designated person to coordinate the project and be responsible in correspondence with Mr. John Caltagirone, while all project leaders are designated to lead the team as well as keep communications open with Sloan management. In addition to being a Project Manager, Burim will also be a staff member and Team Leader of the OEE team inputting his skills into making this project successful.

Team structure chart is presenter below:



### Gantt chart



## VI. Expected Results

It is expected that decrease of expenses due to reinforcement and reorganizing of process line. Establishing the new set of inventory statuses, Sloan Valve can use space of inventory efficiently. It makes shipping process faster and more conveniently. After getting reputation as an environmentally friendly company, Sloan Valve can appeal to consumer being good position.

It is OEE team's goal to continue and further develop the OEE process started last semester which had in mind to enhance the methods of collection of data within the different departments of Sloan Valve. OEE team will create a process for collection of OEE data that is both functional and operator friendly. The system will be a computerized, comprehensive method of collecting data for all the various efficiency variables being measured, and find a way to easily implement this at every level each department so as to make the OEE process simpler.

The overall goals of the Green Team are to make Sloan's supply chain greener. The team this semester hopes to finalize the definition of "green" as it applies to Sloan, merging both the views of the IPRO team and the Sloan management. We will then begin the creation of a plan to cost effectively help Sloan and its partners convert their existing supply chains into "green" supply chains utilizing the agreed upon definition. The team will, as part of the creation of the plan, show the Sloan management the benefits of operating a "green" supply chain and how they could use it to make their products more appealing to more people.

The goal for the cost matrix group is to create a basic tool that would help Sloan easily decide, based on cost, what is the best source of raw material. The team will analyze anything of their current system which is available to do such matrix costing, and develop something that will be utilized by Sloan in any level they wish to use. This would include any usage of SAP and giving advice to Sloan to implement this tool.

### ***OEE Deliverables***

- Process Instructions
- Data Collection programming to store and retrieve information.

### ***Green Supply Chain Deliverables***

- Finalized definition of "green" encompassing the views of the IPRO Team and Sloan's management.

- Develop a cost effective strategy utilizing the agreed upon definition of “green” to convert Sloan’s existing supply chain into a “green” supply chain.
- Capture and present metrics to quantify the benefits of having a “green” supply chain to Sloan’s management.

### ***Cost Matrix Deliverables***

- Costing tool
- Metrics
- Communication plan
- Training/use
- Implementation plan

### ***Potential Obstacles to Project Success***

With any team project, there is always room for errors and obstacles as the team is split between three projects and they are conducted separately on separate time. Overall challenges will be present on the area revolving communication as a team and with the customer.

Communications will be difficult to be conducted between the teams as the team is working on three projects in a parallel level with different scopes and their own timelines. Each team meets on different days and this presents a problem to have a unified discussions on any challenges presented within the group or with the client. The overall project leader and the subproject leader must be diligent in communicating with the teams to ensure that Sloan is made aware of any issues that require attention. Due to the nature of Sloan and their busy schedule, the teams could be slowed down as there could be delays or even cancellations of meetings.

## VII. Budget

Activity	Cost	Description
Transportation	\$400	Traveling expenses to and from Sloan Valve for about \$0.50/mile
Printing/ Supplies	\$100	Finishing costs for brochures/posters/final IPRO deliverables
<b>Total</b>	<b>\$500</b>	

## VIII. Designation of Roles

This semester, IPRO 306 was split into 3 sub-groups working on the three main projects assigned by Sloan Valve. Each sub-group has a designated Team Leader. An overall IPRO 306 Team Leader was assigned to maintain organization of IPRO deliverables. Each subproject leader is responsible in coordinating and assigning the appropriate person per team as a Minute Taker. In addition, each team leader is responsible for creating Agendas, and being a time keeper of each meeting. The assignments are as follows:

**Burim Bakalli – Project Manager** – Burim will be responsible for ensuring that the IPRO deliverables are completed on timely manner and uploaded to the IIT iGroups website on time. He will also be tasked to put all pieces of the project together while ensuring that major milestones are added to the iGroups website and that necessary information is delivered to the teams. As a Project Manager, Burim will be playing a key role in keeping the team together and coordinating with the subproject team leaders to complete necessary deliverables associated with IPRO and Sloan Valve.

**Burim Bakalli – Overall Equipment Efficiency (OEE) Team Leader** – Burim as a subproject team leader will be responsible to guide the OEE team to effectively complete work and maintain an on-time schedule in accordance with the Work Plan. The team leader will also be responsible to communicate with the Project Manager and providing updates and information about the process of the subproject and its overall progress. Team leader is responsible as an Agenda Maker, and a time keeper.

**Leonardo Lopez – Cost Matrix Team Leader** – Leonardo will be responsible to guide the Lean team in the process of performing Cost Matrix Team. He will also make sure that the team is doing its work properly and completing its work on time in line with the work plan developed by the team. The team leader will also be responsible to

communicate with the Project Manager and providing updates and information about the process of the subproject and its overall progress. Team leader is responsible as an Agenda Maker, and a time keeper.

**Erhan Edlinger – Green Supply Chain Team Leader** – Erhan as a subproject team leader will be responsible to guide the Green team to effectively complete work and maintain an on-time schedule in harmony with the Work Plan. The team leader will also be responsible to communicate with the Project Manager and providing updates and information about the process of the subproject and its overall progress of the project. Team leader is responsible as an Agenda Maker, and a time keeper.



## APPENDIX A

Team Member	Major	E-mail
Burim Bakalli	Information Technology Management – Database Management	bbakalli@iit.edu
Dhaval Doshi	Industrial Technology and Management – Industrial Logistics	ddoshi4@iit.edu
Erhan Edlinger	Computer Science	eedlinger@iit.edu
Margaux Jeanne Froment	Industrial Technology and Management	mfroment@iit.edu
Hannah Greenfield		hgreenf1@iit.edu
Leonardo Lopez	Computer Information Systems	lopeleo@iit.edu
Tuesday Njoagwuali	Aerospace/Mechanical Engineering	tnjoagwu@iit.edu
Oluwabanji Oduola	Industrial Technology and Management - Logistics	ooduola@iit.edu
Luis Pulido	Architecture	lpulido1@iit.edu
Arya Ramesh	Industrial Technology and Management	aramesh@iit.edu
Suzanne Razmi Heshat Abad	Industrial Technology and Management of Operation	srazmihe@iit.edu
Angad Singh	Mechanical Engineer	asingh63@iit.edu

## APPENDIX B

Team Member	Sub Project	Strength	Weakness	Expectations
Burim Bakalli	OEE	Databases, critical thinking, process elimination, information technology related topics	Inventory management, process, and procedures	Better understanding of how lean works, as well as the best way to implement it in the business world
Dhaval Doshi	Cost Matrix	Process Optimization, logical reasoning, purchasing experience	Communication skills, programming	Complete our coursework with real-world experience and get a basic understanding of some costing tools
Erhan Edlinger	Green Supply Chain	Computer Related topics, data analysis	Time management, lack of experience	I am excited at the opportunity to work hand in hand with the people at Sloan and I hope to gain valuable experience that I can apply to jobs I acquire in the future.
Margaux Jeanne Froment	OEE	My dynamism and ability to communicate efficiently	I overreact, also too impulsive	Learn more from real operations in this company and learn from coming up with solutions

Hannah Greenfield				
Leonardo Lopez	Cost Matrix	Experience in supply management group for 10 years. Basic programming experience.	Time available during the week.	Complement my work and knowledge with the group and obtain some leadership experience.
Tuesday Njoagwuali	Cost Matrix	Great Communication skill, multi-tasking	None	Learn new exciting things.
Oluwabanji Oduola	Green Supply Chain	Currently doing a lot of research in green supply chain.	Reading and writing.	To learn what green supply chain is and be able to apply this knowledge in Manufacturing industries.
Luis Pulido	OEE	Good leadership and problem solving skills.	Not good being behind a desk	Help complete this project while acquiring skills and helping my team through this process.
Arya Ramesh	Green Supply Chain	Good communication skills, can work well in groups. A lot of determination.	Lack of experience	Learn more about global supply chain. In addition, direct implementation of eco-friendly and going green aspects.

Suzanne Razmi Heshat Abad	Cost Matrix	Organized, Committed, communicative	The amount of time during the week, lack of experience	To gain knowledge about supply chain.
Angad Singh	Cost Matrix	I have proven analytical and problem solving skills that I gained from my previous job experiences. I have ability to multi task and work effectively in fast paced environment. Have Hands on Experience with the underfill, surface mounting, assembly and testing procedures.	I can get impatient when other people do not work as hard as I do.	To have an experience working with a real company. Also, to discuss with teammates how to improve the condition which we want to make better