

Technology and Business Innovations to Improve Operations



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I. Abstract

The IPRO 306 team is tasked with assisting a major plumbing manufacturer, Sloan Valve, in utilizing current technology to create efficiencies within its current operations. Due to the scope of the project and the desire of the team to produce the greatest impact on Sloan Valve, IPRO 306 will be involved with 2 projects during the fall of 2009.

The first project will be to aid the Global Sourcing team better manage its current “Procure to Pay” process. This will involve working within its ERP system to analyze and validate the master supplier data, identify areas for improvement, synchronize the master material data with current vendor list and work closely with commodity managers to assign correct codes. In addition, the team will develop a process to optimize data and eliminate discrepancies that may cause inaccurate supplier data and finally to suggest changes necessary in the SAP protocol to avoid future conflict.

The second project will be assisting in the development of a new warehouse management module within Sloan Valve’s ERP solution. The team will work with Sloan’s key stakeholders to review the current warehouse layout, make recommendations for improvements, and then develop a storage plan and picking strategy for all of Sloan’s finished goods. These decisions will then be translated into the Warehouse Management module of SAP which will then be setup to handle the new requirements.

The purpose of this document is to give a detailed overview of the project, as it is currently defined. It will review the critical team information, such as member skills and expectations, as well as the overall goal of the team. This document will also provide a brief background of Sloan Valve, along with a discussion of issues facing both the company and the project team. Finally, the project methodology will be reviewed, including a listing of key deliverables, major milestones, and a thorough work breakdown structure.

II. Team Information

The IPRO 306 roster, along with each individual's strengths, skills, and expectations, 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 play an instrumental role in helping the company gain efficiencies through the strategic use of technology and process improvements.

Team Objectives

- Meet or exceed the expectations of Sloan Valve and Mr. Caltagirone
- Eliminate procurement and production inventory shortages caused by inaccurate supplier data.
- Create a process to manage and update supplier data that greatly reduces the likelihood of inaccurate data.
- Increase the organization and performance of the warehouse through the preparation of a Warehouse Management (WM) module in the Sloan ERP solution
- Establish policies and procedures so the WM is ready for implementation
- Work effectively as a team, with passion and honesty, to achieve our outlined goals and maximize the benefits of this program.

III. Background

History

Sloan Valve is a 103 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 replenisher of 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; Sloan Valve is no different. Recently, the company has decided to redesign its Headquarters and primary manufacturing facility to meet the always increasing demands of its supply chain. In particular, management at Sloan Valve has determined that the manufacturing requirements and the distribution requirements require separate processes. It intends to increase the number of orders it ships per day, as well as, develop streamlined processes that are more aligned with a distribution center than a manufacturer.

The Franklin Park location serves as both a manufacturing facility, as well as, a DC, and at times, these two operations can work against each other. Often times the inventory management requirements are very different from a manufacturing facility, which needs to not only manage finished goods, but also raw materials and work-in-process. Often times, a manufacturer's warehouse layout is designed in a such a way to maximize the benefits to production, such as raw materials being stored next to the applicable machine.

DCs, on the other hand, need to manage the flow of product in and out of the facility. They are typically not manufacturing anything, but simply filling and shipping orders in the most efficient manner possible. Often times, the warehouse is designed in a way to maximize the order fulfillment process, such as grouping items based on affinities.

In addition to the reorganization of the warehouse, Sloan Valve has decided to address issues with procurement that have been affecting its service level. Currently, there are over 17,000 supplier records in their SAP system and much of this data is inaccurate, whether it is duplicate information, obsolete information or just missing data in general. This "bad" data can

lead to several supply chain issues, such as delayed ordering, or just simply ordering the wrong product. This in turn causes delays for Sloan's customers. Without an effective process to manage the supplier data, these issues will not be resolved.

Technology & Historical Considerations

Currently, Sloan uses an ERP solution from SAP that includes a simple Inventory Management (IM) module. This module provides basic inventory functions, such as receipt of goods and the issuance of goods. Essentially it provides a macro level view of inventory focusing simply on stock levels, valuations, etc... However, with the move to a distribution center style of management, the current system does not offer the advanced features to support these changes. In order to implement the types of processes that Sloan is requesting, a more robust solution is required.

In addition to the IM module, SAP also offers a Warehouse Management (WM) module that can be used in conjunction with the IM module. It adds another layer of complexity to the IM module and allows for a more detailed layout of the warehouse, along with advanced put-away and picking strategies. These types of strategies are commonly employed in DC operations and should provide Sloan with the operational support it requires to accomplish its current goals.

Data integrity issues are also very commonplace for companies that utilize ERP systems. This is often the result when the software implementations are not executed correctly or procedures are not properly defined and implemented. Since these are common issues, database administrators have been introduced to Master Data Management, which attempts to employ best practices to help deal with data integrity issues.

And while these particular problems may be new to Sloan Valve, it is a commonplace in industry. SAP is considered the industry leader of ERP software and its software is employed by thousands of companies worldwide. It is very common for companies to "outgrow" their current solutions, or run on inaccurate data. There are countless companies that offer consulting services that would be provide effective solutions for Sloan Valve.

Ethical & 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 Values 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

Conflict Resolution

I PRO 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-identify your desired scenario
- O-utcomes expected to be made to the group
- U-nderstanding by the group is done on a mature level

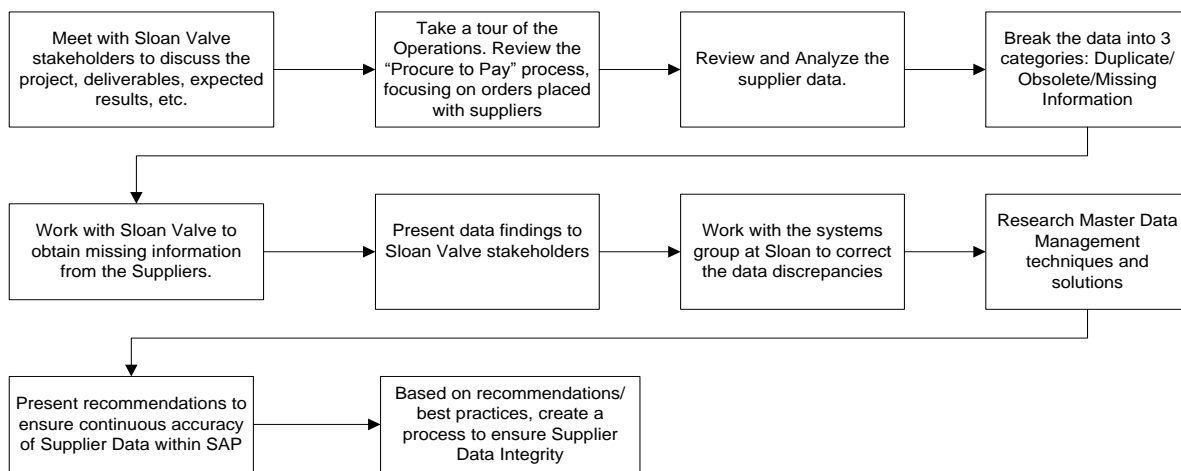
V. Work Breakdown Structure

Problem Solving Process

In order to best serve the project sponsor, the teams have elected to work on site once a week at Sloan Valve. The Supplier Data team will meet with Sloan Valve every Tuesday during the semester, and the Warehouse team will meet with Sloan on Fridays. In addition, the team will convene every Thursday for a status review and to discuss any issues present.

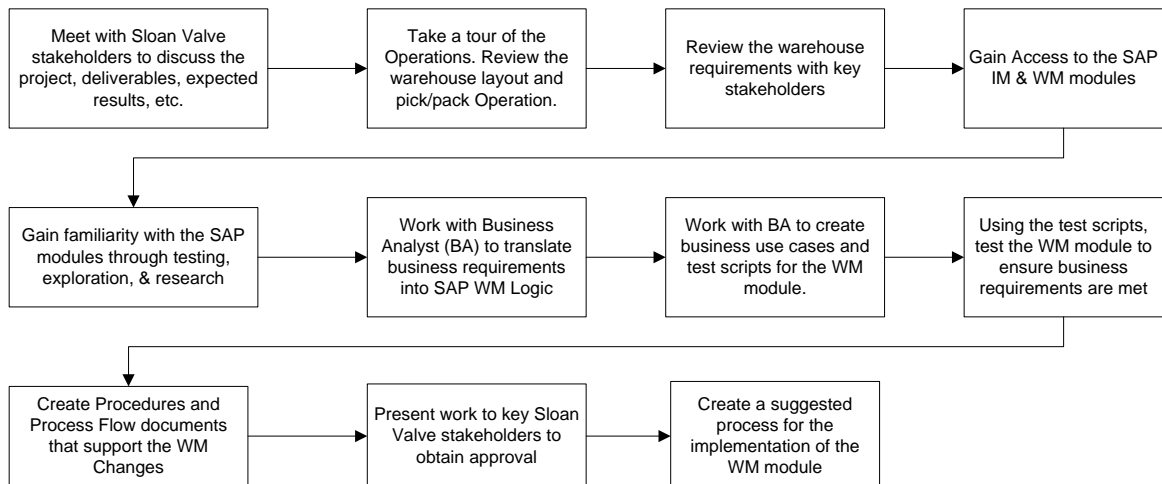
Supplier Data Optimization Project

Below is a generic process for the Supplier Data Optimization project. At this time, we do not know the current state of the supplier data. The state of the data will determine how much or how little work will need to be done.



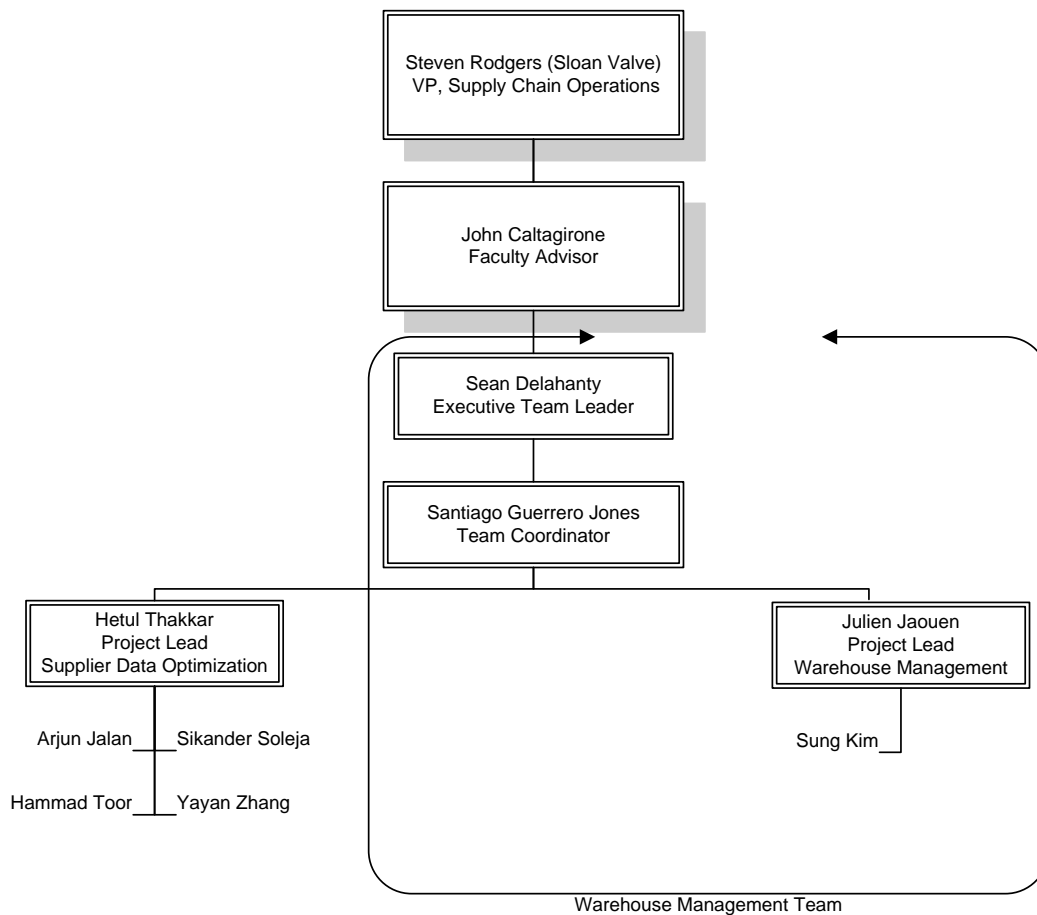
Warehouse Management Project

Below is a generic process for the Warehouse Management project. Assuming no significant changes in scope, this process should be completed within the IPRO time frame. The project assumes that there will be work for the client that must be done between each weekly meeting.



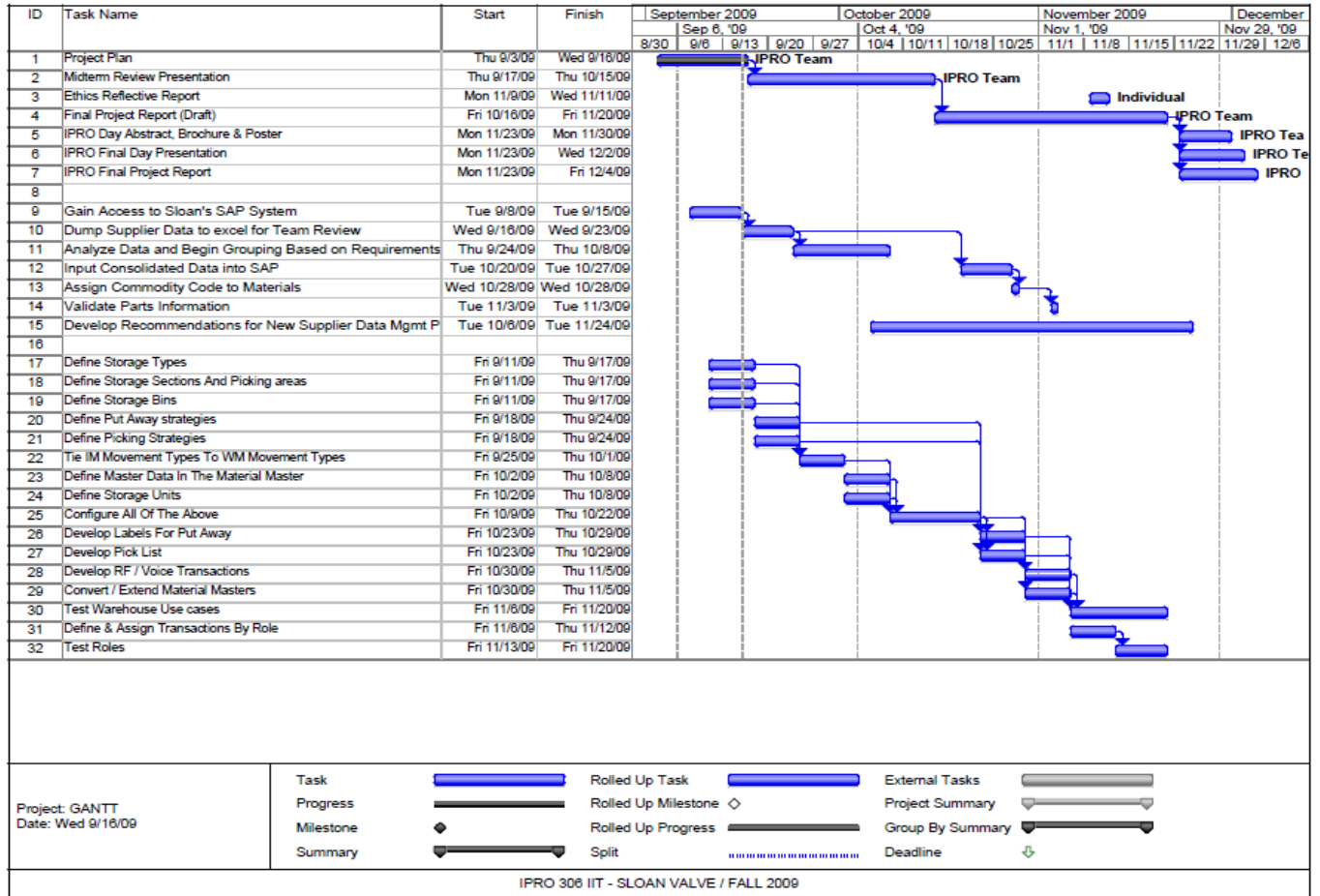
Team Structure

Due to the scope of the project, we have broken into two teams. The team led by Hetul will attack the Supplier Data Optimization project, and the team led by Julien will tackle the Warehouse Management project. Both Sean and Santiago will act as both the overall project leads, with Santiago leading the weekly student meetings and Sean acting as the intermediary to Sloan and Mr. Caltagirone. In addition to their leadership tasks, they will also be staff resources on the Warehouse Management project.



Gantt Chart

Gantt Chart IPRO 306 - FALL 2009



VI. Expected Results

Below are the expected results per Sloan Valve. In order to achieve our team goal of meeting or exceeding the Sloan Valve expectations, we will strive to deliver these results.

The goal of the Supplier Data Optimization team is to eliminate procurement and production shortages caused by inaccurate data. By streamlining the processes and removing these discrepancies from the current data, their past due orders should decrease and their perfect order performance will increase, thus providing a higher level of efficiency for the sourcing department.

The goal of the Warehouse Management team is to increase the organization and performance of Sloan Valve's Center Distribution Center warehouse by utilizing the SAP Warehouse Management module to put-a-way, store, and pick and pack finished goods. In addition, policies and procedures need to be developed in order for the Warehouse Management module to be fully implemented into the facility.

Supplier Data Optimization Deliverables:

1. SAP Info Records cleanup. Current supplier information will be free from duplicate, obsolete or missing information
2. Info Record management process: Create a process within SAP that will catch supplier data integrity issues at the source, and clean the data before it is entered as master supplier data.

Warehouse Management Deliverables:

1. Clean SAP system data: Up to date product information, free from errors or missing information.
2. Develop reports to have items stored in optimized locations: Define put-away strategies and have those instructions translated into a report for the warehouse personnel.
3. Prepare CDC for bar code automation processing: The warehouse locations will be properly named and bar codes will be fixed to the different locations.
4. Presentation to stakeholders showing accomplishments. A combination of presentation and demo of the SAP software handling the proposed changes.
5. Formalize a process to roll out SAP warehouse management to other Sloan Warehouse Facilities.
6. Written procedures and process flow documents for the process

Potential Obstacles to Project Success

With any project, there are always issues that may arise. This project has a myriad of different obstacles that could impede our progress. Generally speaking, the biggest challenges this group will face will revolve around communication and project scope.

With regards to project scope, with so much process and documentation needed as deliverables, there is a possibility that it is too much to fit into the time frame. This is dependent on the number of documents and the amount of detail needed to comply with corporate standards.

Communication will be another issue for the team, especially due to the fact that the team is working on 2 separate projects on 2 separate days of the week. The weekly on campus meetings will be imperative to develop group cohesion and to discuss any challenges the groups might be facing. The project leads will have to be diligent in communicating with their team and ensure that Sloan is made aware of any issues that require its attention.

VII. Budget

Activity	Cost	Description
Transportation	\$300	10 Round Trips to the company on Tuesdays/Fridays. Assumes a 30 mile round trip x 10 visits x 2 cars @ .50 cents/mile
Food	\$450	Lunch at the company. Assumes 9 people x 10 days @ \$5/meal
Printing / Supplies	\$60	Finishing costs for brochures/posters/final IPRO deliverables
Totals	\$810	

VIII. Designation of Roles

iGroups Moderator: Sean Delahanty. He will be responsible for ensuring that the IPRO deliverables are completed on time and properly uploaded to the iGroups website. Will be tasked to ensure that major milestones are added to the iGroups site and that necessary information is delivered to the team.

Agenda Maker: Santiago Guerrero Jones will prepare the agenda for the weekly student meeting. The project leads will work in conjunction with Sloan Valve to prepare the weekly on-site agendas.

Minutes Taker: Hammad Toor will be responsible for preparing the minutes from the weekly student meeting. Each sub team will also have a rotating minute taker to record the events of the weekly on-site meetings.

IX. Appendix A

IPRO 306 - Roster		
Team Member	Major	Contact Info
Delahanty, Sean	MITO	██████████ delasean@gmail.com
Guerrero Jones, Santiago	MITO	██████████ guerrerojones@hotmail.com
Jalan, Arjun	Mechanical Engineering	██████████ ajalan@iit.edu
Jaouen, Julien	MITO	██████████ jjaouen@iit.edu
Ju Kim, Sung	Mechanical Engineering	██████████ skim91@iit.edu
Soleja, Sikander A.	Mechanical Engineering	██████████ ssoleja@iit.edu
Thakkar, Hetul	MITO	██████████ Hthakka5@iit.edu
Toor, Hammad	MITO	██████████ htoor@iit.edu toor84@gmail.com
Zhang, Yayan	INTM	██████████ carrieyayan@gmail.com

X. Appendix B

Team Information - Skill Set and Expectation List				
Team Member	Strengths	Weaknesses	Knowledge / Skills to Develop	Expectations For the Project
Sean Delahanty	Communication, Process Mapping, Technology & Process Implementation, Inventory Management, Business Intelligence / Reporting Mechanisms, Light Project Management.	Not familiar with any formal methodologies or management strategies, i.e. Six Sigma, Lean Manufacturing, etc.	Exposure to new WMS technologies, Improved organizational and project management skills	Strengthened Project Management Skills, Exposure to SC best practices and new technologies, Develop networking contacts, Exceed the expectations of Sloan Valve
Santiago Guerrero Jones	Experience on quality control, logistics and Lean - Six Sigma projects implementation, mostly on metal-mechanic industry. Skills on MS Office (Excel & Project), AutoCAD and Statistical Analysis Software (Minitab).	Code and programming	Exposure to IT implementation Projects.	Strengthened Team work skills, Acquire solid bases on WMS Implementation, Develop Contacts and future references.
Arjun Jalan	MS Office, Analytical Problem solving and math, Some design experience in Solidworks and AutoCAD, Report Writing, Basic knowledge of programming in C++ and Java.	Lack knowledge of general business and management strategies other management aspects,	Understanding SAP & ERP systems and how important they are in order to maintain a complete up-to-date inventory of the company's orders. Exposure to industrial management.	The team coordination and communication is imperative in order for the project to successful. Develop a good rapport with Sloan, and hopefully do a good work in the project as an individual and as a part of the team.
Julien Jaouen	Project Management, Key Performance Indicators, Inventory Management, Communication, Quality. Good knowledge of Word, PowerPoint and Excel (but not VBA code) and familiar with Access (but not code)	Code and programming	SAP knowledge, Warehouse Management in the "real life"	Achieve an English speaking project in an actual company, develop contacts and future references.
Sung Ju Kim	problem solving techniques, any math related stuff, working well with computer, knowledge of Unix system,	public speaking	Exposure to Industrial management system	Strengthened knowledge of Group Project Management skills and Enhanced

	experience in publishing website			working experience with company
Sikander A. Soleja	weekly reports, team management skills, any design stuff related to Mechanical Eng., have done an IPRO before and a senior design class which would be really helpful in terms of teamwork and creativeness.	programming	To learn and to implement SAP, ERP and the industrial management system.	To gain experience by working with and for an actual and a large scale company.
Hetul Thakkar	Extensive Knowledge of Global Supply chain & Logistics , Export/Import incoterms & documentation, International business laws and procedures, data monitoring & report analysis. Preparing for Licensed Custom Broker's Exam	Programming	Exposure to SAP and work closely with vendor management System	Team building and management, learn SAP
Hammad Toor	Developing reports, team management and project management skills, internship with FMCG in their production, quality control and logistics department. Proficient in Microsoft Office Suite.	programming	Exposure to SAP environment especially in Sourcing and Purchasing module. Microsoft Project 2007	learn corporate jargon, SAP functionality and to strengthen skills to work closely in Teams
Yayan Zhang	Proficient in MS office. Familiar with PHOTOSHOP, PRO/E, ILLUSTRATOR, CORELDRAW. Internship in Beijing PB Packaging Products Co.,Ltd(quality control, logistic)	programming	SAP system, data collecting and analysis	Gain working experience, understand SAP system