

IPRO 320  
Planning the Implementation of a New  
Enterprise Resource Planning Software Platform

Midterm Report

Sponsor: Arrow Gear

Instructor: William Maurer

Teaching Assistant: Amol Gunale

Team Members:

Josef Velten

Rahul Tayal

Anthony Carfang

Adam Bain

Samuel Solomon

Khoa Le

Manu Pushpanath

Sourabh Sethi

Hong-Kwon Kim

March 23, 2007

## Midterm Summary

Much has been accomplished with IPRO 320 for the first half of the semester. With our main objective of improving processes and work flow for Arrow Gear throughout use of their Infor Visual Enterprise Resource Planning Software, the IPRO team started off knowing very little about either gear manufacturing or ERP systems. Within this first half of the semester, online research has allowed for some improved knowledge of both gear manufacturing and the Visual ERP system, though the best learning was through many trips to Arrow Gear.

The very first visit was mostly introductory, where the team met Frank Delano, the controller, and Jim Park, the IT manager, along with several other employees. The team was given a tour of the plant to see first-hand the operations and processes through which gears are manufactured. Through additional visits, the team became acquainted with both the current and new versions of Visual ERP (versions 6.3.8 and 6.5.2) through hands-on use and on-site training provided by Infor. Multiple interviews with several employees unleashed a wealth of information about issues both with the software and with the company processes. After reviewing the long list of these problems, the team was able to determine which problems are solved by upgrading the Visual ERP system to its newest version. The team came up with possible actions to resolve the remaining issues, both through added functionality from Infor Visual and from modifying some of Arrow Gear's internal processes.

There have been a few hindrances along the way of the team's current progress; however both are minor in terms of affecting the schedule. The first hindrance is that being able to fully develop our solution by modifying Visual ERP software, as that would violate the software licenses. Being able to develop such specific solutions as that would entail is now out of the IPRO's scope, and instead we will only be able to bring specific issues to the attention of Infor so that they may develop solutions. The other hindrance the team has encountered is the difficulty to uncover one specific issue. It is very clear, based on the plant atmosphere, that Arrow Gear has a problem with scrapped parts and scrap material. However, employees and managers have remained very quiet about any details of their issue with scrap. While we work for solutions towards the issues we currently understand, we still hope to unearth the issue of scrap at Arrow Gear. The team's determination to this will certainly be valuable, allowing Arrow Gear to deal with and resolve what is clearly one of their larger issues.

As the second half of the semester begins, the many issues will be brought to light to Arrow Gear in a round-table discussion, and the potential solutions will be discussed and developed. Additional investigation into the functionality of Visual ERP 6.5.2 might allow the discovery of additional solutions as well as potential problems that will still need to be resolved. IPRO 320 will continue communicating with Arrow Gear to discover solutions that will increase the company's work flow and performance.

## **Modifications to Original Project Plan**

The team's original objectives of improving processes and work flow for Arrow Gear through the use of their Visual ERP system is still accurate.

The individual responsibilities are still relatively accurate. As we had previously split off into handling separate departments of Arrow Gear, we are each still focusing on the issues of the separate areas. Though, communicating throughout the semester, we have all shared knowledge with each other with enough detail so that each is well-versed in several, if not all, areas.

There have, however, been some minor changes. Frank Delano saw no need to look at all at their financial department for improvements, as most of the need is with engineering and manufacturing processes. As we have discovered issues, another main category for responsibility is simply the interface for Visual ERP. This new category is being handled together by Adam and Sourabh.

There have been very few modifications to our original project plan schedule. We have been on time for every task so far, and in fact are currently about a week ahead of schedule. However, some of the remaining activities have actually become out of our scope, specifically: customizing and configuring the software specifically for Arrow Gear's needs, installing and integrating the software, and mapping out employee training. Configuring the software is the role of Infor, and we do not have sufficient privileges or access to Infor's software to properly configure or customize it for Arrow Gear. Similarly, installation is handled by Infor and monitored by Arrow Gear. Mapping out the employee training is something we can make some recommendations for, but ultimately since training is dependant on employee schedules, it is set up and scheduled by both Arrow Gear and Infor. Training is also provided by Infor, or a specialist client of Infor, whom are much thoroughly knowledgeable with the software. Again, to the training, we could add some comments and bring up resolutions to specific issues.

## **Future Remaining Tasks**

Aside from the changes mentioned above, the remaining tasks on our original project plan schedule stay the same. We will spend the rest of the time working on several things. As mentioned in our original project plan schedule, we will follow up with Arrow Gear about the issues we've found, as well as discussing solutions to those problems. Not only will we discuss the problems with the managers of Arrow Gear, but also follow up with employees about the potential solutions, getting more feedback and making sure the issues are resolved. Deliverables for Arrow Gear will include a presentation about the issues we've discovered along with resolutions, an improved and more detailed process flowchart, and a list of issues that still need to be resolved in one way or another. IPRO deliverables include documentation of our work at Arrow Gear, along with exhibits and presentations for IPRO Day.

## Details of On-Site Activity at Arrow Gear

### January 26 – Entire Team

- ◆ Met controller Frank Delano and IT Manager Jim Park, and other employees
- ◆ Toured facilities of Arrow Gear to observe processes of gear manufacturing
- ◆ Discussed objectives and goals to come out of this IPRO

### February 9 – Entire Team

- ◆ Split off into groups and conducted interviews with individual departments, including Shop Floor, Inventory, Engineering, Quality Assurance, and Customer Service
- ◆ Discovered a long list of issues with both software and company processes
- ◆ Started using Infor Visual ERP 6.3.8

### February 13 – Anthony Carfang, Sam Solomon

- ◆ Attended meeting that introduced Infor Visual's Gage Tracker module
- ◆ Discussed problems with current gage tracking process, improvements with Visual's module, and problems still to be resolved with Visual's module

### March 2 – Entire Team

- ◆ Started using Infor Visual ERP 6.5.2
- ◆ Discussed Arrow Gear's process flow chart with Jim Park to discover bottlenecks and room for improvement
- ◆ Conducted additional interviews with employees from Scheduling and Manufacturing to discuss more problems

### March 6 – Hong Kim, Anthony Carfang, Sam Solomon, Sourabh Sethi

- ◆ Attended overview of new Visual software, version 6.5.2

### March 9 –Manu Pushpanath, Khoa Le

- ◆ Attended demo of new Visual Materials Management, Purchasing and Inventory packages

This marks the end of the first half of the semester, where we have collected a sufficient amount of information to identify issues and potential solutions. Though still looking for additional issues, future visits will be focused on bringing these issues to attention of the managers of Arrow Gear, and working on potential solutions.

### March 23 – Entire Team

- ◆ Round table discussion of problems with Jim Park and others
  - Over 35 significant problems and areas for improvement are categorized into interface issues, software functionality issues, and internal process issues and brought to Arrow Gear's attention.
- ◆ Potential solutions are discussed
  - 6 of the major issues are resolved by upgrading software, with several more partially resolved

- Some may be resolved with better training of employees with software
- Others may be resolved by improving internal processes at Arrow Gear
- Some problems can only be solved by Infor improving software functionality of Visual ERP

## Major Issues Discovered

Some of the major issues include inefficient interfaces within Visual ERP, a lack of communication between modules of the software, a lack of logging events and changes, and no way for Arrow Gear to successfully estimate times for processes to accurately schedule jobs.

There are many complaints about the interface of Visual ERP. In order to see any significant amount of data needed about a gear, an employee must look at many different forms and windows within the software, which involves a lot of jumping around. Additionally, when searching for a work order and then a specific part within the work order (as well as many other situations), it is necessary for an employee to jump between windows to copy and paste information in order to accurately search for it or populate data fields. There are many additional interface issues that were complained from many company departments. The interfaces just don't seem very streamlined or intuitive, and that can easily lead to a slow down of the company's overall efficiency. Some of these are addressed in the new version of Visual ERP, while others still need solutions.

One big fault of Visual ERP 6.3.8 is the lack of communication between Manufacturing and Quality Assurance modules of the software. This poor communication exists because the Quality Assurance module was added later as an afterthought. It can cause many headaches and hassles. For example, when examining a work-order for a part, say a quantity of 100, suppose QA rejects 5 of them. Once rejected in Visual QA, the rejected parts in Manufacturing, should become invalid, but they aren't. So QA must manually check off the 95 good ones when going to the next phase, and when they bring up the list of parts to select for the order, they have to go through the entire list of all of those parts (say 500 or more) and manually find the 95 good serial numbers for the work order and check them. What Arrow Gear would like the system to do is, first, automatically invalidate the 5 in the order and go to the next step automatically with the remaining good parts; and second, when searching from a specific work order for a parts list, it should only bring up the parts from the work order. As this issue currently causes a waste in time, it also leaves processes prone to error. As Infor was well aware of this lack of communication, this should certainly be resolved with version 6.5.2, though the IPRO team still needs to look further into the new version to be sure.

With any good database, all changes are generally logged. When data is added, deleted or modified, preferences changed, or anything else involving the database, an entry is generally created in a log. Infor's Visual 6.3.8 does not contain any significant data history or logging system. Having one would allow for better recovery in case of

accidental data modification, or track better how tasks are assigned to other employees, and much more.

Schedule estimates are currently the largest of problems; shipping orders late has almost become the standard at Arrow Gear. Currently, there is no module or process for tracking metrics. This means that Arrow Gear does not track how long any individual process takes. Schedule estimates are relatively random at the moment, and also very incorrect. Some sort of metrics tracking mechanism within Visual would be a fantastic way for Arrow Gear to get a handle on schedule estimations, leading to shipping orders on time.

There is a long list of specific issues that fall into one of several categories. The ones listed above are the key issues to be resolved. This IPRO plans to make sure that Arrow Gear is aware of and able to resolve a significant portion of all issues, but especially all key issues. Resolving these issues will definitely improve the efficiency of Arrow Gear's processes and work flow, allowing them to meet orders on time while also taking on more orders.