Teaching Case

The Project Tracking Project

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Abstract

The Project Tracking Project (PTP) was a technology project initially undertaken by the Custom Materials (CM) division of Pinkerton Publishing. Pinkerton Publishing was an industry leader in the higher-education publishing market. Due to a changing business environment, Pinkerton established a Custom Materials division in 1998. The Custom Materials group in essence was able to create custom textbooks from material contained in their internal database, significantly increasing their value proposition to their customers. After 10 years of growth, CM had outgrown its project management system. This case explores multiple issues across various business topics but is primarily intended as an IT Development Project Case. The case was written for use in an IT capstone course (Course 2010.7 in the ACM/AIS Model Curriculum) or for the graduate IT course in an MBA program. The case could also add value to an undergraduate project or project management course (2010.4) or the introductory IS course (2010.1).

1. INTRODUCTION

Jack MacConnell flipped on his office light. Here he was, 7:30 on another Saturday morning, coming into the office. Jack had lost count of how many weekends in a row he had come in. Ten? Twenty? The sad thing was, he actually enjoyed coming in. He certainly didn't want to work weekends, but the office was quiet on Saturdays, and it was the only time he could sort through all the project requirements without somebody interrupting and telling him why some requirements were important and others weren't.

For the past two years, Jack had worked on the Project Tracking Project (PTP) for the Custom Materials (CM) division of Pinkerton Publishing.

Pinkerton, a leading higher-education publisher, started a Custom Materials division in 1998. This group utilized existing Pinkerton content to create learning materials specific to individual professor and course needs at universities across the United States.

After 10 years of steady and at times explosive growth, CM had outgrown its project management system. As the technical project manager charged with maintaining the current system, Jack was given the responsibility of managing the development of a new system. It was a project he was initially excited about, seeing it as a challenge and a compliment to be chosen.

Bridgeline: The Need for a New System

After being established in the late 1990s, CM grew quickly to $200 million in annual revenue. As a key strategy in addressing market trends, CM was charged with doubling revenue to $400 million within the next 5 years (see App 1 and 2). In order to achieve this growth, CM would need more efficient processes and project management. The system currently being used, Bridgeline, was no longer capable of meeting the needs of the business.

Using Bridgeline, a sales person would meet with a professor to determine specific course needs. They would then build a "project" in Bridgeline, CM's project management system. Each project represented a custom product. Once the business closed, sales would send the project to finance for approval.

Upon approval, finance would send it back to sales. Sales would then send the project in Bridgeline to production. Production would then extract what was needed for printing and send those details to a third-party vendor to manufacture the custom product. All communication with the vendor was outside of Bridgeline. Project status was tracked through a spreadsheet emailed from the vendor weekly.

When a custom product (a book) shipped from the vendor, production would change the status in Bridgeline to "shipped", then to "received" when it was received and passed inspection. When the vendor invoiced Pinkerton the status was changed to "billed" and upon payment of the invoice the status was changed in Bridgeline to "billed." All tracking for these transactions was through emails or manually inserted notes in Bridgeline. There was limited, if any, reporting capabilities in Bridgeline. Pinkerton did not have insight into how many projects were in process at a given time or where each project was in the process beyond the status discussed above.

Adding to the complexity, Pinkerton was also working with new types of projects. Digital projects, which Bridgeline was not designed to handle, and more complicated projects requiring additional work and costs. For example, if an instructor wanted to use chapters 2, 4, 6, and 8 from a book; Pinkerton would create a book with only those chapter and would renumber the chapters (including tables, figures, and references) so they read 1, 2, 3, and 4. The features to handle these requests were bolted on to Bridgeline, i.e. other software was used to do that work and it had to communicate with Bridgeline. As the number of projects grew, over 20,000 in 2004 alone, and more features were added; Bridgeline performance slowed to a crawl and often crashed. Worse yet, Bridgeline was a client-based system, meaning when software updates needed to be applied, each user had to download and install new versions; which took more and more time to do with every new version.

By spring 2005, Pinkerton decided to build a new project management system for the Custom Materials division. Jack MacConnell, the Technical Project Manager who was responsible for the day-to-day management of Bridgeline, was tapped to lead the project.

Now, two years later, Jack was no longer excited. The PTP system was supposed to be rolled out at the Pinkerton national sales meeting next week. Jack wasn't confident the system would be up and running. He knew there would be bugs, but at this point he was just hoping the system would be live. And if it did go live in time, what reaction would he get from each functional group? Jack looked at the stack of requirements from each group, trying to decide where to start in determining what was finished and what wasn't. Maybe if he could get at least one group done by noon, he could sneak home and have some of last night's left-over crème brulee.

2. INDUSTRY AND COMPANY BACKGROUND

The higher-education textbook industry was originally a regional and disparate industry, with many different publishers serving specific disciplines or regions. Over time, mergers and acquisitions led to consolidation in the industry,

with three major players followed by a handful of smaller players. By the late 1990s, the textbook industry reached $10 billion in annual revenue.

Pinkerton was the number two publisher, with over $2 billion in annual sales. Although a majority of Pinkerton's business was in the post-secondary United States market, Pinkerton had over 5,000 employees world-wide with significant international and K-12 business. While Pinkerton as a company was over 100 years old, much of its growth had been achieved through acquisition. Although this allowed for fast growth and easier entrance into new markets, integrating newly acquired companies was often problematic.

Each company maintained their distinct products, processes, and systems. This led to the company competing against itself for business; and systems that did not communicate with each other. Key information in one part of the company was often inaccessible to other parts of the company.

Despite the growth, Pinkerton faced many challenges in the market. The most notable challenge was a combination of pricing pressures and alternative sources of content. Traditionally, a Pinkerton sales representative would sell their products to professors. The representative would meet with the professor, determine the professor's needs, and then slot in a Pinkerton product. The professor decided what book to use in his course, and then had the local bookstore order it. The professor told students what the required materials were, and students would go to the bookstore to purchase the book. Pinkerton would sell to the professor, but it was the student that actually purchased Pinkerton products.

However, as prices rose, students began to push back against this model. Alternative sources for materials came up, including used books and free material on the internet, as well as illegal distribution on the internet. Students also began sharing books, purchasing from their friends, or not buying books at all. Pinkerton began tracking "sell-through", the actual sales compared to enrollment for a course.

On average, if Pinkerton won a 100 unit adoption, Pinkerton would only see approximately 30 units sold. As unit sales declined, major players in the industry, including Pinkerton, responded by raising prices. As units continued to decline, revenue held steady as prices continued to rise. However, unit sales were declining fast enough that revenue would not keep up for long. Also, the industry was facing a public relations issue as students complained about paying high prices for books, particularly when they only used part of the book. Professors heard student complaints, and began encouraging students to find the materials however they could.

Pinkerton established the Custom Materials division (CM) as part of a strategy in combatting declining sales. Through CM, Pinkerton could create materials designed to meet a specific instructor's or course's need. For example, an average Chemistry book has approximately 30 chapters. However, this is a lot of material to cover in a semester. If a professor only covered the first 20 chapters, Pinkerton could create a book with just those first 20 chapters. Other professors may use two books in a course, but only use select chapters from each book. Again, Pinkerton could create a book combining just those select chapters from each book. The Custom Materials group was its own little division with Pinkerton, with each custom functional group reporting up to a Custom President. This included sales, finance, production, technology.

Customization was one way to address declining sales, as the custom book was generally cheaper and only had content that was actually used in the course. A positive for the company was the custom book had a unique ISBN and the content was specific to that course. A unique ISBN eliminated the used book market for the course and made it more difficult for students to find illegal sources. With Custom books, Pinkerton saw better "sell-through". For a 100 unit adoption, off-the-shelf books would only see approximately 30 units sold, while Custom books would see approximately 70 sold.

3. THE PROJECT TRACKING PROJECT

At the beginning of the PTP, as a first step, Jack met with representatives for each CM functional group to gather their feedback on Bridgeline and requirements for PTP. Shortly after kicking off the project, Jack was surprised to learn the CM division was being eliminated as a separate group within Pinkerton. Instead of reporting to a CM President, each functional group would now report into the larger function within Pinkerton. CM sales now reported to Pinkerton sales; and so on. With this change, the CM

President position was eliminated. Although this shake-up concerned Jack, he forged ahead with meeting with each group.

4. FUNCTIONAL GROUP NEEDS

Jack started the project by establishing a cross-functional team with a representative from each group. He also met with several other people from each group, asking them what the ultimate goal of the new system should be. Much to Jack's surprise, he received very different answers from each group.

Finance
The finance team saw PTP as a chance to have a great reporting tool and improve the approval process. Leslie Wilson, the Lead Financial Analyst, had an extremely close eye on the margins and profitability of every project. She wanted to have an even closer eye on project margins and have stop-points where the project could not move forward if it did not meet certain standard margin requirements. Leslie knew sales was always trying to sneak one by her. As the Lead Financial Analyst, she had seen questionable projects come through; where, although Pinkerton won the business, she did not believe it was profitable.

Wilson also saw the bonuses sales people received, and thought it was unfair sales people received big bonuses for business that did not meet certain standards. Pinkerton was putting a heavy emphasis on high-margins and profitable business, which was much preferred over volume. Wilson knew she had a lot of power in the organization at this time, and knew she could use PTP to develop a system with several checks and hurdles for a project to clear before being approved. If the project didn't meet these requirements, it would have to be manually approved by Wilson. She saw this as her chance to put a strict system in place with the ability to manage to high standards and perhaps someday earn a bonus herself.

Sales
The sales team at Pinkerton Publishing consisted of 350 outside sales staff and the core product was higher education course materials. Before the days of customized products, sales were easy. If Pinkerton marketed a textbook and a school or professor thought the material fit their course, it was an easy sale. But in the 1990's people became more accustomed to customized solutions for what they were looking for, especially professors. With a customized product line Pinkerton's sales team now had a tool that gave them value over some of the other competitors that were only selling "off the shelf" products. With the differentiation of products, Pinkerton could offer products that saw steady growth.

With the steady growth in sales came plenty of headaches due to the highly customized product, which was a relatively new experience for Pinkerton. Since all customized products were made to order, each product was essentially a small "project" in itself and the tracking system that was used was ready for an update.

In a new project management system, sales were concerned with how to quote their customers. Pricing was an important part of the sales process. If it was inaccurate or delayed, it caused disruptions in the sales cycle. Upon receiving an order, lead time and order accuracy was a major necessity for the sales team to give the customer a good expectation of delivery. With any delay or inaccuracy for an order, customer service and sales were bogged down. It was extremely frustrating if answers for the customers could not be easily obtained.

Production
The Production group saw the new system as a communication tool. Oscar Vasquez, head of manufacturing, wanted a lot of required fields to ensure his team had all the information they needed from sales. His people were tired of having to go back to sales for additional details. A nice, template system with required fields would be a big plus. If the information was not complete, the project should be rejected back to sales, rather than production having to ask sales for the information. Vasquez made it clear it was because of this back and forth on details that caused several high-priority projects to be delivered incorrectly last delivery season. It was certainly not due to any errors introduced by his people.

Vasquez also wanted vendors to have access to the system so production could send the project directly to the vendor within the system, eliminating a need to pull information out and then exchange email with the vendors. It would also help to track which vendors had projects assigned to them and where they were in the process, so Vasquez could reassign work as needed. As far as Vasquez was concerned, the more automated the process became, the better. However, he realized, if it was too automated; it could put production jobs at risk,

including his own. Production needed a role, but ideally PTP would manage everything and track every action. This would demonstrate that the previous year's problems were sale's or finance's fault, and no due to production.

Technology

The technology group was responsible for maintaining Bridgeline and building the new system. They didn't have specific needs as to what the system did, but did want to get away from the hassle of a client-based system. Easier maintenance in general and a system built for growth (scalability) would make their lives easier in the long run. The technology group needed the other groups to tell them what features were required. This group only had three people – the manager, Jack, and Sarah Grandin. Sarah was a peer to Jack, was relatively new in this role, and did not have a technical or project management background. The constant work needed to maintain Bridgeline was a burden on the small group. They had other projects they wanted to move forward, but a vast majority of their time was spent trouble-shooting Bridgeline. Technology's priorities in the project were to get PTP built on time, within budget, and to meet the users' requirements.

5. DEVELOPMENT

The PTP had been underway for two years and was constantly getting slowed down by project changes. Each of the three functional groups (sales, finance, and production) had unique requests for the PTP software. With only a small team and limited experience in building a system from the ground up, Jack had run into many issues and delays throughout the development of PTP (see timeline in Exhibit 3). Jack self-performed the analysis of each function to determine the requirements of sales, finance, and production. The basic model had been created considering the needs of each group, but Jack quickly realized he would need an outside vendor to help develop the PTP software.

In an effort to expedite the process, Jack hired Moz Software Services to help develop the new PTP system. Moz had worked with Pinkerton for many years and had developed the old Bridgeline system. They were a natural fit and had a relationship that was well established. Moz had assured Jack that the project was well within their capabilities and would be done with the budget given by Pinkerton. With a quality vendor at this finger-tips, Jack did not see a need for an extensive bidding process. Jack awarded the development contract to Moz and Jack would oversee its management and coordinate between the three functions of sales, finance, and production. Jack saw IT's role in the project as simply providing what the functional groups wanted. Jack's famous quote was, "I don't *care* what you want. I just need to *know* what you want."

Moz decided, in an effort to make a cohesive program that would work for all three functional groups and communicate with each other, to develop PTP using a central database with different application modules for each functional unit. They would develop "wireframes" in which each group could see the module as it was being built via a screen shot of what the actual program windows would look like once complete. These wireframes were sent to Jack who would meet with sales, finance, and production to get each group's stamp of approval. Once approved, Moz would begin writing the code for the application to make it functional beyond the screen shot.

An issue quickly arose around the wireframes and getting the divisions to sign off on the functions built into them. Jack tried to keep each business unit responsible for their own modules, but because of the various connections between the functions; there was a need for each function to use the other's module.

For example, some components of the sales module would need to be viewed by finance to ensure margins were being met. This would cause delays because wireframes that would be approved by sales would be changed days later by finance to add the information they needed to the wireframe. This also led to delays in returning the wireframes to Moz, which caused Jack to miss several key target dates he had established on the project.

With all of the changes and demands for new functionality, Moz spent 90% of their scheduled time altering the wireframes to appease all parties. They didn't actually build a functional system. Jack tried to run a milestone diagnostic test in March of 2006 to test the current functions that were built by Moz. The system was not at all functional and was nothing but a series of pretty screen shots. No programs had actually been written by Moz and only screen shots were developed. Jack was furious and after some serious consideration let Moz know the contract would be terminated due to lack of performance.

Pinkerton needed the project to be live as soon as possible in order to avoid the failure of the antiquated Bridgeline program. With little time to spare, Jack quickly found and hired a much more renowned developer, FRP, to take over for Moz. FRP took the original screen shots and began working on code to create modules to work with a project management platform they (FRP) already have. FRP was very realistic about the time requirements of this type of project and provided project updates regularly.

However, the functional groups continued to add their own requirements to other functional groups' modules. This constant changing to modules caused numerous delays and increased pressure on Jack. The PTP began to be scrutinized by executive management who were looking for results. Jack was given a firm deadline, the summer sales meeting in which employees company-wide were flown in for a week-long conference. Jack wasn't sure if he could meet the date, but his career was on the line, so he knew he must act quickly.

6. CONCLUSION

Jack needed to figure out how to get this project together. It was already late, and there were still conflicts as to what features need to be included, or which features were more important than others. The system was supposed to be live for training at the sales meeting, but there would definitely be parts that didn't work yet. Should he train on half a system? Or push it back again? The system was already the butt of jokes and another delay would be a public relations killer, not to mention threaten his career.

Rolling out a half-baked system would be a mess, too. Jack also knew he was going to get complaints even if the system did work, as he couldn't be everything to everyone. There was the outstanding issue of legacy data, too. If that information could not be pulled over, sales would have to manually input all the data for reorders of existing projects. This would be very time consuming and would likely introduce errors.

In addition to the sales meeting time pressure, Bridgeline was on its last legs. It was estimated it could only support enough projects to last three more months. If Bridgeline completely collapsed, everything would come to a halt. Sales could not sell, production could not produce, and finance couldn't run their reports. All the legacy data could be completely lost. Perhaps most importantly, Pinkerton would not be able to provide products to its customers. Not only would it be impossible to grow the CM business to $400 million, but the CM division would actually *lose* $200 million! Jack looked back at the stack of papers on his desk and sighed. Last night's crème brulee seemed further away than ever.

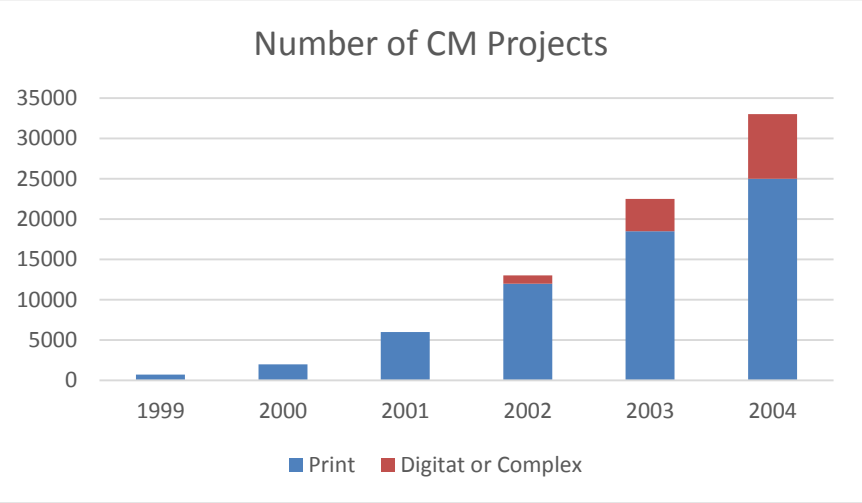
7. DISCUSSION QUESTIONS

1. What advice would you give to Jack? What specific actions would you recommend at this point in time?

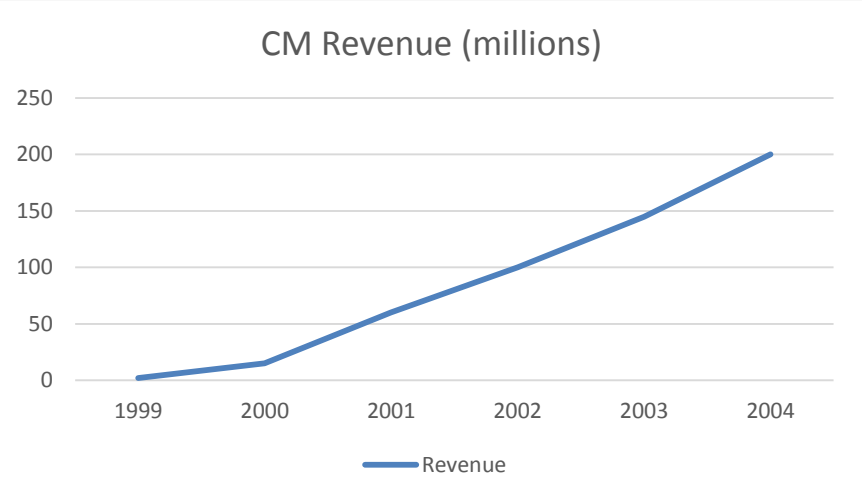
2. What could have been done at the beginning of the project to avoid some of the problems encountered?

3. How would you describe the importance of information systems to the custom book publishing business? To organizations in general?

APPENDIX 1: PROJECT GROWTH



APPENDIX 2: PROJECT GROWTH



APPENDIX 3: TIMELINE

Target Release: August 2006

Spring 2005- Need for new system identified

Summer 2005- Requirements gathering; Technology talked to each group individually as to what the system was actually for and what they needed; each group documented their current workflows, pain points, and expected future workflow needs

Fall 2005- Outside vendor (Moz) hired to actually build system; much of the summer work is repeated as the outside vendor needed to understand the business/needs

January 2006- First wireframes screen shots delivered; mixed reviews as there isn't much to see
Through spring 2006- lots of wireframes, but project doesn't seem to be going anywhere

June 2006- Original vendor let go; contract with FRP; repeat requirements gathering/review again; new delivery date August 2007

July 2006- new wireframes; looks nice, but no functionality yet. The FRP platform for PTP is available, but no functional modules exist.

August 2006- Original Completion Date

Spring 2007- Wireframes and some live apps are beginning to appear on PTP.

June 2007- Announced system won't be ready for August; new date is mid-September, in time for a large Custom sales meeting

September 2007- Custom sales meeting; limited functionality demo with promises of "more to come soon". Release date announced as late-October.

October 2007- Release date pushed to January

January 2008- Release date pushed to August 2008 to avoid transition during main spring selling season

August 2008- Present day at the time of the case, system is supposed to be live to allow for training at summer sales meeting