Project Management: A Methodology for Success

Project management's ultimate measurement is the successful integration of new technology into the culture of the organization. The first and most crucial step in any implementation is the specification and subsequent selection of the equipment or technology. It is important to make the "right" choice—one where the technology provides value-added services to the users so it helps them do their jobs better now and in the future. Making a "wrong" choice can severely impact even the best-managed implementation (and project managers' careers). There is simply no margin for error—so getting it right the first time is not merely an option, it is a prerequisite for success.

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THIS ARTICLE will first review why projects fail, then highlight the project management process used by McInnes Steel to specify, choose, and implement MRP II software, which was "right" for them. Insights and experiences also will be shared to assist others in their project management activities.

WHY PROJECTS FAIL

Virtually all project managers at one point in their careers experience project failure. Project failure is the inability to deliver the desired effects from new technology on time and within budget. The Center for Project Management recently published the seven deadly sins of project failure:

1. Mistaking Half-Baked Ideas for Viable Projects

Each project must be adequately defined based on the needs of the company. Specifications should be developed in all but the

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simplest projects. I have found this to be the most common element of project failure.

Many companies skip the specification process and "window shop" for technology. The result is the purchase of technology without a clearly defined need. Often the decision to purchase is based solely on the performance claims of the manufacturer.

2. Dictating Unrealistic Project Deadlines

An excellent way to demoralize the spirit of the project team is to develop unrealistic milestone dates. As a project manager, special care must be taken when developing the project plan so that each chunk is attainable within a reasonable time frame.

3. Assigning Underskilled Project Managers to Highly Complex Projects

Project managers must possess a well-rounded skill set to succeed. They must have a thorough understanding of the process involved with the project. They must be a coach and motivator as well as an excellent communicator. Project management is not for the fainthearted. Don't put someone in charge of a project simply because you don't have any other place in the organization for them.

4. Not Ensuring Solid Business Sponsorship

Lack of executive-level commitment is another common element of project failure. Executive sponsorship becomes extremely critical on projects that affect the culture of the organization. MRP II, networking software, and data collection projects are three examples of culture shock projects.

5. Failing to Break Projects into Chunks

Companies that use a shotgun approach to implementing technology often fail for this reason. A project manager must develop a plan that breaks up a project into chunks of deliverables complete with deadlines and assigned accountability.

6. Failing to Develop a Robust Project Process Architecture

Project management is a process. Omitting key pieces of the process or having no clearly defined process will often result in substandard results or even failure.

7. Not Establishing a Comprehensive Project Portfolio

Project managers must develop a comprehensive project plan, one that spans from conception through implementation, maintenance, and beyond. Every effort must be made to anticipate all outcomes. It's usually the unanticipated element that delivers the career-damaging blow to a project manager.

CASE STUDY: MCINNES STEEL COMPANY

McInnes Steel Company is a premier open-die forging facility headquartered in Corry, Pennsylvania. The company was

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founded in 1895 and employs 240 people. The company manufactures components for a broad range of worldwide industries including power generation equipment, energy and propulsion, and the aerospace and defense industry. The firm is owned by Centrum Industries of Toledo, Ohio.

The company fits the traditional discrete job shop. Each forging mold is made to order where the raw material (steel ingots or billets) is scheduled through machine and work centers. Once complete, the components are tested, crated, and shipped to the customer.

In 1994, executive management of McInnes recognized the need to upgrade the corporation's planning and delivery systems. On-time delivery was identified as a strategic opportunity for improvement. An individual with extensive experience with manufacturing systems was hired late in 1994 and was chartered with evaluating the corporation's systems. A study revealed a need to consolidate the many "islands of automation" at the facilities. The study recommended that new software be specified. APICS certification training was begun immediately as preparation for implementation. In December 1994, the president of McInnes Steel chartered the formation of McInnes' Manufacturing Planning Team (MPT). The team's purpose was to detail the informational needs of all departments at McInnes and translate those needs into a specification list to be used for the purchase of state-of-the-art manufacturing software.

At this stage, the project's objectives were clear: specify, purchase, and implement MRP II software within budget and on time while achieving the desired benefits of such a change. To achieve these objectives, the project manager developed and used the following project process architecture.

Step 1. The MPT

The MPT was hand picked by the executive committee of McInnes and empowered to accomplish the task of software specification. It was to ensure that the selection was right for the needs of McInnes. A directive was given that the project team must do a thorough and exhaustive job with the specification and software selection. The projected deadline for developing the specification, selection of the package, and finalizing negotiations was 7 months. The committee was made up of the materials manager, who also sat as the committee chair, and a representative of each functional department within the Corry facility: cost analyst, manager of sales, internal sales manager, materials manager, plant manager, information systems manager, and quality assurance manager. The individuals were chosen based on prior experience, current systems knowledge, and a willingness to work together as a team. The chairman of the MPT was required to provide an update to the executive committee at the weekly management meeting on the committee's progress. Also, formal notification was sent to all employees from the president explaining the committee's purpose with a request to provide cooperation to the team as needed.

Step 2. Establish Ground Rules

Once formed, the committee went to work laying down the ground rules by which it would operate. It was agreed that the team

would meet weekly at a set time and location. A conference room was selected that was out of mainstream activity. All phone calls were held. Ultimately, meetings were held on Saturdays because of numerous scheduling conflicts and disruptions caused by daily manufacturing activity.

Step 3. Perform Self-Assessment

The next step was to decide and agree on the format to use for the specification document the MPT agreed to refer to as the information requirements checklist. There was very little reference material available for the team to use as a template; however, a reference book was found that proved to be a valuable guide for designing specification questions. Much of the process still had to be designed from ground zero. It was agreed to split the specification document into informational functions. Within each function would be a detailed listing of potential informational needs for the company. Each informational need was listed as a question. The committee would then individually rank the question based on its importance to the company. The ranking used was:

3 = High—required. A package deficient here would likely not be chosen.

2 = Medium—should have. The package should be functional in this area but would not initially be dropped from the long or short list if deficient.

1 = Low—would be nice. Not a critical area of need for McInnes.

After each question was ranked, the MPT met to review how and why each individual ranked the needs the way he or she did. A consensus was reached on each item before accepting it into what was identified as McInnes' Informational Requirements Checklist. The team identified 17 modules or areas of informational needs.

Step 4. Develop Long List

When the self-assessment was complete, the committee then developed a comprehensive "long list" of software manufacturers. At this stage, all manufacturers were considered. Additional sources used were the APICS monthly magazine, an MRP buyer's guide, and polling member companies—including some of the competition. The initial "long list" contained 12 software suppliers.

Step 5. Narrow to Short List

After the long list was built, the list was then narrowed down to the top four. Narrowing criteria at this stage included cost, industry-specific applications, operating system, financial stability, number of installations, and hardware platforms required. In fact, some of the companies on the long list went out of business before the short list was finalized. Some simply did not respond to our specification. A modified version of the informational requirements checklist was sent to each supplier with a request to rank the performance of their software to each item on the list. The informational requirements checklist was the same one used for the assessment (Step 3), less the assessment results. Each supplier was asked to use the following ranking system to indicate their product's capabilities:

3 = Fully Available. The system will fully meet the information needs of the particular item.

2 = Partially Available. Data are there but not the function.

1 = Not Available. Planned in the future.

Reasonable deadlines were given and after a grace period suppliers who did not respond were dropped.

Step 6. Evaluate Responses

The remaining responses were then compared to the self-assessment using several qualitative and quantitative techniques. The information systems manager evaluated the packages first by comparing their rating on a question to the McInnes need. If they met or exceeded McInnes' need, they were given credit for meeting the requirement. A percent of fit was determined by dividing the number of "hits" by the total number of questions. This was done for each module, then summarized for the package as a whole. This provided a percent of fit ratio based on what the suppliers said their product would do. The second technique used another percent of fit ratio where each supplier's product was rated based solely on whether it met the company's must-have (3 rating) requirement. Each deficiency was scrutinized individually and compared to its competitor's capabilities. One-day demos providing an overview of the product were held on-site at McInnes to verify product capabilities. After extensive comparisons of the tradeoffs between packages, the list was narrowed down to two suppliers.

Step 7. Set Up Demos

Several on-site and offsite demonstrations were set up with each remaining contender. Although the MPT was involved with the initial demos, the in-depth demos involved the ultimate users of the product. The final demos were done on-site at McInnes. These demos were in-depth and split over several days, allowing potential users the opportunity to come and go as portions of their functional areas were covered. This was an extremely important phase in the project because user buy-in occurred during this demonstration process.

Step 8. Negotiate and Buy

The specification process took six and a half months to complete. After it was complete, the tedious task of negotiation began. Within several weeks, language and economic issues were resolved and a software package was purchased. At the beginning of the project, the committee believed that it would be lucky to find a product that fit 70% of its informational needs. Instead, a package was found that had a 98% fit—a fit that would never have been made without using this process.

Step 9. Develop Implementation Plan

Preparing to implement new technology such as machinery—or in the McInnes case, an MRP II system—requires the development of an implementation portion of the project plan. The purpose of this portion of the project plan was to break down the implementation portion of the project into manageable chunks, assign responsibility to get each step done, and establish a time frame for these tasks. This plan also served other purposes. The McInnes project manager used project management software to organize and manage the many steps associated with the implementation. The plan was easily arranged into a report that was supplied weekly to the executive committee. The plan also was distributed to the members of the MPT during their weekly review meeting. The plan served as a focal point for the project. Bottlenecks and

delays were discussed openly and most were resolved long before they affected milestone dates.

Step 10. Training

The McInnes MRP project touched all individuals in the company. Yet most had little, if any, exposure to the MRP technology. The project team identified training as a critical element for success. Training began immediately and ran simultaneously with the implementation. A training room was built to accommodate this need.

McInnes training took two forms. The first focused on basic system training for all users. The second involved simulating or piloting the technology under various business conditions. This second phase involved the project team. After the system was configured under each business condition, the results were incorporated into the basic system training. Training logs were maintained and a system put into place to ensure that all users would receive adequate training. It was not uncommon for many trainees to repeat elements of basic system training.

Many companies find that it's easy to purchase technology but then discover that they do not possess the skills in-house to configure, implement, and use it. Training often goes a long way to ensure that the skills are in place to support the successful cutover to new technology.

Step 11. Cutover and Integration

Seven months after implementation began, McInnes cut over to the new system using the "Big Bang" (that is, total) cutover strategy. Cutover to new technology involves deciding on which strategy to use. The three basic types are:

- Big Bang—This type of cutover involves a complete, one-time total start-up or cutover to the new technology. This approach yields the quickest time to benefit and consumes the least amount of human resources (compared to the other strategies). The downside is that the results are usually traumatic on an organization. Risks can be significant.
- Step—The step approach involves implementing project plan chunks in steps. This approach is ideal for large, complex projects. Although this approach allows for a high degree of focus, the time to benefit is lengthened.
- Parallel—The parallel approach is ideal for small or high-risk ventures. Of the three, it is the safest, yet it requires a large amount of resources because two or more systems need to be supported until cutover occurs.

The McInnes project team decided on a Big Bang cutover because the need for the benefits from an updated business system had become so great that it justified the many risks associated with this strategy.

Step 12. Integration into Corporate Culture

Projects don't end the minute you flip the switch. Often the headaches just begin. The amount and seriousness of the cutover problems project managers have is usually a good measurement of the type of job done by them on steps 1 through 11. The better the job, the sooner things settle down.

It's human nature for people to resist change. Implementing new technology in

its purest sense centers around change. Project managers will be faced with this challenge throughout any project. It is at this step where executive sponsorship plays a key role. Without it, change blocking will cause delays and can eventually kill a project.

The McInnes project saw a considerable amount of resistance. Many of the users had been with the company for 10 to 20 years and had never participated in a project of this magnitude. Resistance took the form of mild skepticism to outright refusal to participate. Executive-level encouragement and constant training eased much of the tension associated with the changes. As a result, most of the project trauma settled down after only 6 months.

SUMMARY

McInnes Steel Company turned a project that often ends in failure to success by using this 12-step process. The company found a product that fit 98% of its requirements. In addition, it implemented and changed the culture of the company within one year. Some of the key steps of the winning strategy included:

1. Organize for success.
2. Create a project plan.
3. Develop a means to track performance to plan.
4. Implement the plan.
5. Train, train, and retrain.
6. Anticipate and prepare for the culture shock associated with change.