

Success or Failure: Human Factors in Implementing New Systems

Rick Burke, University Librarian
University of Judaism
Los Angeles, California

Bernadette Kenney, Director of Administrative Computing Services
Bates College
Lewiston, Maine

Katherine Kott, Director Implementation Services
Innovative Interfaces
Emeryville, California

Kenneth Pflueger, Chief Information Officer
Pomona College
Claremont, California

Some key factors in the success of any implementation project have little to do with technology. It is important to have the right individuals and to have clear processes in place for decision making and project management. Obtaining buy-in from all of the stakeholders, clearly defining players' roles, knowing how decisions will be reached, and having a clear understanding of the expected outcomes are all critical to success. This panel presentation will explore these and other human factors that are key to success in project implementation.

Copyright Rick Burke, Bernadette Kenney, Katherine Kott, and Kenneth Pflueger, 2001. This work is the intellectual property of the author. Permission is granted for this material to be shared for non-commercial, educational purposes, provided that this copyright appears on the reproduced materials and notice is given that the copying is by permission of the author. To disseminate otherwise or to republish requires written permission from the author.

SUCCESS OR FAILURE: Human Factors in Implementing New Systems

I suppose a natural question is why human factors – maybe it is self-evident, but I would say that the majority of time when an implementation is successful, it is because focused attention was paid to the human factors. Human factors come into play starting with the pre-planning stage (before a project is approved), the approval process, project planning and project implementation through the transition to production status. In essence the human factors relate to the interpersonal skills of the individuals involved with the project – individual abilities to work together toward a common goal, in the face of conflict, competition, turf, status, etc. I have found that one of the most critical is simply people’s willingness to work as a team. From my experience it is essential that people buy into the team centered approach from the start. Without that kind of buy in personnel changes become necessary and/or problems emerge from the very beginning of a project, and any project cannot afford to have individuals working in silos.

Key factors determining who should be involved center on institutional politics – the political players – stake holders – those who will actually have to use the new system or its products in their daily work. The challenge to success is being able to navigate these waters – knowing how and when to involve players from both groups and still keep the project on track – on time and within budget.

The focus of our panel discussion is precisely on how to navigate these complex waters with success. We will be sharing from our real life experiences and I think you will find that our joint experiences point to a consensus of practices that can foster success in project implementation.

Human Factors: The Importance of Project Leadership

The real critical success factor of any implementation project is the ability to break through “fixed ideas.” The extent to which this can be done will have a decided impact not only on the success of the implementation, but also the success of the system once it is in production. The importance of breaking through the fixed ideas. One example of this is just the view people adopt about the role of technology in an implementation.

Whether you are talking about new roles — changing processes, using technology to work more effectively and efficiently, you are generally talking about breaking down fixed ideas.

One of these fixed ideas in project implementation is the concept that success lies in finding the perfect technology solution to the problem – nothing could be further from the truth.

While consistently getting more focus, probably because they are more clear cut, the technology issues in an implementation are normally the more easily resolved in the

typical project; while the less clear cut human factors are pushed to the back burner. In reality the success or failure of any project implementation rests on the ability of the principals involved to manage the “human factors” of the project. Another common example of fixed ideas is the adherence to procedures simply because that is the way “we have always done it. Many opportunities are lost in system implementations because the people involved refuse to view the implementation as an opportunity to evaluate current processes and look for better ways of working.

If success is measured both in terms of bringing the project in on time and within budget as well as the satisfaction with and the ability of the users to use the new system, then managing these “human factors” is the real key to the success of any implementation.

This puts a lot of pressure on the project leadership and/or perhaps even more pressure on those who appoint that leadership team.

In a recent article on criteria for successful project management, Jurgen Hauschildt (*Project Management Journal*, September, 2000, p26), identifies seven key sets of talents and abilities that must be present on the project leadership team to insure success:

1. The ability to organize in a situation in which there is some conflict and/or criticism.
2. Experiential knowledge of the appropriate procedures
3. Decision making based on systematic, analytical thinking
4. Creativity and idea generation linked to an ability to carry out the ideas
5. Ability to plan and organize in a way that includes others, with stress on effective interpersonal skills
6. Ability to motivate others in a context of cooperation and effective communication
7. Ability to attend to the ideas of others and bring disparate thoughts together

If you are putting together a project implementation team or if you are the project leader a key first step is to build a team that contains these talents and abilities – you need to assess your own strengths and then pull in individuals with complementary talents -- In assessing whether you or someone else has a particular talent you need to honestly look for “recurring patterns of thought, feeling or behavior” to determine if an individual or yourself for that matter possesses a particular talent. Don’t just assume, that someone will step up to the challenge, because if that recurring pattern is not there before, it will not emerge as a result of the project! (An excellent resource for more information on this topic is the book based on Gallup Research, entitled, *First Break all of the Rules.*)

A key question at every turn is who needs to be involved? Who has a stake in this decision that will ultimately determine the success of the project?

As a project manager, it is critical that you have a process for identifying individuals who are key to the various phases or project milestones. For example, when I managed the campus wide networking project at CLU, once we had the overall project plan in place with the key milestones and time line, I put the project leadership team through a process to identify key stakeholders in each milestone. We then set up sessions and in some

cases created discreet task forces to deal with questions around the achievement of a particular milestone. The task force was always lead by a member of the project leadership team. There was always a clear charge from the leadership team, known boundaries, limitations were clearly stated so the group knew the context within which their recommendations/decisions had to be made, and they were given a deadline. The member of the project leadership team was responsible for bringing back to the leadership team the recommendations/decisions which were then incorporated into the project plan. To give you a couple of examples, a task force was formed from faculty who use the teaching labs to come up with and recommend a set generic desk top image fo ruse in the labs. Another task group was established of representatives from the various administrative offices to establish the configuration of the programmable buttons on the telephone instrument. While the CLUnet project was a very complex project involving the implementation of a data network, a new voice network and a new administrative system, even in a less complex project that involved only the implementation of the library online system, a similar methodology was employed in order to involve key individuals in making recommendations about system configurations. This model should be scaled to the specific project -- you do not want to make things unnecessarily complex.

Another critical factor is making sure, not only that the right people are around the table in terms of the politics of the institution/situation and the representation of the stakeholders (key constituent groups), but also that the right people with the right set of talents are involved. These people need to understand their role and be able to carry it out. If they are only focused on their own personal needs and cannot see a bigger piece of the picture, then their recommendations are likely to be flawed. One example from our campus networking project was the situation we encountered with the task group I already mentioned that was recommending the configuration of the telephone instrument. The person representing the admission offices ended up only being concerned about the configuration of their own telephone and the department secretaries, but did not represent the needs of the rest of the staff in the department, hence they were rather upset when the new phones were installed. So the selection of these individuals is important. I want to reiterate the importance of selecting individuals based on recurring patterns of thought, belief and behavior.

In any project implementation, who plays what roles must be based more on the talents an individual brings to the table than on his or her position. This can be a tricky situation as institutional politics are often the worst enemy of project success. Institutional politics often dictate the involvement of individuals when they may not be the most appropriate person(s) for the success of the project.

It helps to be able to have candid conversations with the project champion, the key administrator who is sponsoring the project and ensuring that it has support and resources from the highest levels in the institution. Nevertheless, the project champion may even be hesitant to take a stand in the face of institutional politics, thus a certain level of creativity in required on the part of the project manager in order to bring the best people to the table. For example, this was the situation I encountered with a recent

administrative system implementation. So the approach I took was to include everyone on the project team and expand its size a little to include some people with key skills that were needed on the project team so that my needs and the political requirements of the situation were both met. I then also used task forces composed of key people that were better suited to make many of the decisions and for actually thrashing through the issues and then making recommendations back to the project management team. This proved to be an effective way to get the right people involved so that the best decisions were made.

With the project team in place and the right individuals involved at the right time, attention must also be simultaneously directed at communicating with the larger community. This requires having a good communication plan in place. The major goal of such a plan is to promote a sense of ownership for the project on the part of everyone in the institution. Regular and consistent communication is important to having the entire community buy into the project and support the implementation project. I have also found it important to have the communications about the implementation come from the Project Team. This reinforces the concept of shared ownership for the project, that it is not just an IT project. This also promotes buy-in from the larger community as well. One of the things you do not want to have happen is for people to be surprised and/or develop the wrong set of expectations. Many if not all of these individuals will have to deal with the aftermath of the project once the system goes into production, so keeping them informed and laying the ground work for the implications of the “live system” will help ensure success beyond the life of the project.

In summary, I just want to reiterate the importance of putting together a strong project team that contains the right skill set.

Human Factors in Implementing New Administrative Computing Systems:

Background:

Implementing SCT Banner software at Bates:

- 1.) Implemented full suite: Finance, Alumni/Development, Student, Financial Aid, Human Resources (1993-2000)
- 2.) Implemented 2 Web modules, Student and Faculty 1999-2001
- 3.) Planned implementation for Web for Employee in 2002

Major Lesson Learned:

Though similar in scope and resources, every module has a different implementation process because people differ.

- 1.) High level decision-makers are different and have different expectations of involvement
- 2.) End-users have different levels of understanding and expertise
- 3.) Technical staff may be reluctant to participate in and are often impatient with committee decision-making processes

Beginning the process:

Provide a template for decision-making but be flexible about working within it.

- 1.) Know your institution – Is decision-making done best by committee or by individuals
- 2.) Call upon Department Heads for advice – Involve the department heads from the get-go. More likely to get buy-in and active interest in the project's success.
- 3.) Develop a list of sponsors to consider policy changes – Understand that many decisions cross departments. Some will want formal meetings; others will be happy with regular email communications; while others will be completely hands off (but be careful with this one)
- 4.) Learn what decisions can be made without sponsors

Develop a project team of technical staff and end users

- 1.) Choose a strong leader –May be technical; may be management; may be an end-user
- 2.) Identify roles and responsibilities
- 3.) Identify a timeline – be ready to modify it

Maintaining the process:

Keep the process going

- 1.) Meet frequently – make sure people attend (thus need for strong leadership)
- 2.) Stay on task – Identify major tasks to be accomplished and stick to it
- 3.) Be very vigilant of timelines – Recognize that most participants have other jobs to do as well so some tasks may slip. It's okay to modify a timeline; just remain aware of where everything stands
- 4.) Continually assess the work of individuals. Make sure everyone is doing their part
- 5.) Keep sponsors apprised of progress and needed intervention

Rolling out:

- 1.) Don't delay rollout because of individual discomforts. Only delay if there is a major problem with the technical system or major policy decisions have not been made
- 2.) Expect that the first week will be chaotic because people are changing their habits
- 3.) People adapt more quickly than they anticipate

Failure Factors:

Human factors that will cause problems in implementation

- 1.) Little or no management involvement/commitment – This is the worst one. No management buy-in makes it difficult to move the process along. It can still happen but it may not happen well.
- 2.) Poor skill sets among users – Train thy staff: hire technically savvy people. Where technically savvy users do not exist expect to provide a level of support that will get ensure there work can get done.
- 3.) Resistance to change – refusing to see benefits of a new system for all because what is known works for an individual
- 4.) Benign neglect – refusal (may not be conscious) to stay on track or fulfill responsibilities; always finding something more important to do
- 5.) Inadequate staffing – Both technical and functional
- 6.) Scope creep – implementing features outside original scope

- 7.) Creeping featurism – also outside original scope but it’s about adding features, unsystematically, ultimately making the system harder to use
- 8.) Political battles – Turf issues: who is responsible for what, who owns what information
- 9.) Perfectionism – refuse to use because not working exactly as specified
- 10.) ‘Just do it’ attitude – Much of the work requires analysis and input from many people – this could have consequences later causing even something as dramatic as redesign and re-implementation.

Success Factors:

- 1.) Active top-down involvement
- 2.) Frequent, organized meetings
- 3.) Active participation at all levels
- 4.) Never losing sight of the ‘big picture’
- 5.) Recognizing and acting on ‘failure factors’

Human Factors: Implementing Technology in a Small Academic Library:

Key factors to success:

- 1) Trust
- 2) Training
- 3) Communication
- 4) Empowerment

Trust: Must be able to trust your staff, technically knowledgeable or not, to be able to help implement the technology in question.

Training: However heavy the staff daily work schedule may be, you must give them time for focused training. In addition, provide funds for them to be able to attend conferences or other continuing education opportunities outside of work.

Communication: The “technology” department of the university (MIS, computer services, or whatever it is called at your institution) must keep the affected staff in constant communication. Top-down edicts are counter-productive. To make implementation work smoothly, you must provide a framework for ongoing planning, strategizing and communicating desired goals long before you reach the implementation phase of a project.

Empowerment: If you can meet the three goals cited above, you will empower the staff to execute the implementation. They will feel invested in the project and determined to make it a success. In addition, even if you are resource-poor in terms of equipment or

funds, technology projects can still be successful if you have staff that believes in the project.

Examples:

- 1) In our library, back in the 1980s, we were still mired in the age of card catalogs, typewriters and carbon paper. We had a staff whose average age was probably in the 60s. The only “technical” person/computer geek was myself. Over many months I met with each staff person and studied his or her work in the library. When computer technology was first implemented, the library was closed and staff were given a day off from their routine go to a separate computer lab to begin to learn how to use the computers and become comfortable with them. Specific applications were then provided that were tailored to their particular task. While, due to funding issues, it took many years to move to an automated library system, all other internal library functions were streamlined and computer-based within the year following the orientation process. (Only one staff member really could not adapt.)
- 2) In the mid to late 90s our library finally got around to networking its computers, building a new electronic classroom/computer lab, and providing full Internet access to our clientele. It was all done with a small grant and student help. At this point in time the University still did not have a “technology” department, so the library took the de-facto lead to bring the University “on-line.” Rather than hire expensive consultants, we used personal contacts or technically savvy students that I met or already knew to help put the network together and make it work. With one networking/MIS expert in particular, we bartered bandwidth for consulting time. (A bit of “creative financing.”) He had a personal LINUX server he wanted to put on a T1, and we had bandwidth to spare. His participation was key to our success, and it cost the university nothing, given our network usage. The students loved the challenge of the project and worked hard to make it work at little cost to the library. The staff was involved as well. Equipment was purchased cheaply by shopping for low-cost clones or purchasing close-outs of perfectly good equipment. The key to the success of this project was having a timeline with set goals, utilizing a “free” consultant, and meeting those goals under budget using the staff and students available.
- 3) Most recently, the library purchased an integrated library system. Because of the particular needs of our library, we required a multi-lingual capable system, specifically Hebrew and English. The challenges of creating such a system are numerous, but the library used this to its advantage by becoming a test site for the vendor. This enabled the library to use its staff (which is generally capable of working with Hebrew in this instance) for input on how the system should work and add custom design elements to the system at little additional cost. To this day we continue to have a good relationship with the vendor because of the library staff’s commitment to providing feedback and ideas. Once again, because the library staff was involved with the project from the start, participated in all training sessions, and

were left on their own to make the system work for their particular job, they felt empowered .

- 4) Over the past couple of years the university created a “technology” department that has largely assumed the technology efforts implemented by the library in the 90s. We are now going through a process of adjusting to working with an outside group, and trying to assure that the goals noted above are still in place. Communication above all is key in our situation, as while we are pleased to have someone else be responsible for the more technical side of the network, we cannot function unless operations are implemented in an atmosphere of trust, planning and appropriate notice so that we can move forward smoothly.

Human Factors: A vendor perspective on system implementation

A vendor perspective

Innovative Interfaces is a vendor of the Millennium integrated library system. We work with organizations to implement over a hundred new systems a year. With each project we implement the same basic system, yet some projects go very smoothly and others do not. In analyzing the differences between easy implementations and those that are more difficult, we observe that projects go best when our customers pay attention to human factors. Our customer base is international and we serve a wide variety of library types, public, academic and special. Throughout all cultures and organizational models, the human factors remain the same.

- Critical factors
 - Strong project leader
 - Able to build consensus
 - Change manager
 - Problem solver
 - Plan project including processes for decisions, roles
 - Include stakeholders, involve staff
 - Communicate
 - Prepare staff and users for change (training)
 - Keep the process moving (milestones)
 - Build relationship with vendor

Internally, we use a project management model for each implementation. We have a project manager leading each Innovative implementation team. The project manager models behavior, asks leading questions and sets expectations to encourage customers to consider human factors as they choose the best implementation strategy for their organization. The first step in our process is for the sales person responsible for the contract to introduce the project manager to the customer, usually the director of the organization. During this initial call, the project manager gathers background information about the customer's organizational structure, team leader, decision-making process, team

member roles, etc. Next, the project manager arranges a team meeting by conference call. This meeting includes all members of the Innovative project team and all members of the customer's implementation team. At this meeting, the Innovative project manager sets expectations for communication between the two teams and outlines milestones that must be met by each side to keep the project on track.

Built into the Innovative implementation process is a training component. Trainers make five visits to each customer during the course of the project. The structure of the training encourages dedicating focused time to learning the new system and the trainer visit provides an opportunity for a somewhat personal human bond to be built between Innovative and the customer.

What to do when plans go awry

The best laid schemes o' mice and men
Gang aft a-gley;
And leave us naught but grief and pain
For promised joy.

From Robert Burns, "To a Mouse".

- Project lead leaves. Do you replace? Delay project? Step in?
- Staff difficulties. Lack of leadership, decision processes are not working as planned, etc.

With the number of projects we have at Innovative each year, we occasionally encounter situations where something puts the project at risk. Sometimes customers seek our advice on whether to forge ahead or delay a project if a key staff member has left or if the process seems to be foundering. There are no hard and fast rules, but keep in mind the human factors that contribute to the success or failure of a project. It is better to delay implementation than to risk failure through lack of leadership or reluctance of staff to use the new system. Most vendors will be happy to work with you to reschedule your project at a time when you have key staff in place. After all, successful projects make for satisfied customers.

Summary

Ken, Bernie and Rick have each described projects that are quite different from each other from the technology standpoint, but they have reached similar conclusions about the human factors that enabled each of them to succeed in the implementation process and in putting the systems into production. In conclusion, I would like to highlight one key factor from each speaker. Ken emphasized the importance of good leadership. Bernie advised recognizing the differences between each implementation and tailoring the process to accommodate the differences. Know your institution and its politics. Rick emphasized the importance of staff involvement to insure that people will make a good

transition from implementation to production. For my perspective, attending to these human factors is just as important as choosing the best technological solution to the problem at hand.