

Reprinted with the permission of AACE International, 209 Prairie Ave., Suite 100
Morgantown WV 26501. Phone 800-858-COST or 403-296-8444. Fax 304-291-5728.
E-mail info@acei.org URL www.acei.org

REALIGNING AN ORGANIZATION TO INTEGRATED REAL TIME PROJECT CONTROLS

Presented by Mike Milinusic, P.Eng., M.B.A.

June 2000 AACEI

INTRODUCTION

Over the past couple of years, since OnTrack Engineering first released its core software package, we have discovered, both through our own experiences and through research, that providing an integrated software to fulfill project controls needs within any organization is not as straightforward as it is to introduce a single function software. During the course of this presentation, I will share with you some of the discoveries we have made and how you might plan to avoid some of these hurdles when you implement multifunctional software.

OnTrack Engineering's software package provides for integrated project controls and carries projects from the initial budget and schedule until final completion. It links engineering, procurement, construction, and accounting. Delivery of this software has led to our involvement in the training and support of persons from a wide range of responsibility: project and construction managers, engineers, estimators, planners, cost controllers, procurement professionals, contract personnel, inspectors, expeditors, clerks in material receiving and warehousing, accounting staff, and notably all the secretaries entrusted to critical data input duties.

From our experiences, we have discovered that certain criteria have to be present for any company to adopt a new methodology. In particular, for a company to adopt and effectively use a complex "multidisciplinary" software there are key areas where the adoption and use of such software will impact any company choosing it. The areas we will examine today are:

- Organizations and structures

- Personnel and environments
- Tasks and technologies

In the process of presenting these areas for your consideration, we will offer some recommendations we have incorporated into our software delivery and some ideas you can take away to examine how to discern the readiness level of your firm for a complex software application and how to facilitate its implementation.

Organization and Structure

Requires the need for change

The primary essential for the effective introduction of any new efficiency tool is that **the need to change** must be perceived as essential and valuable by the goalsetters within the organization. If the need is not seen as valuable to the future of the organization then it is inappropriate to introduce the tool. Why? Because the introduction of an integrated project management tool will likely precipitate realignment of an organization from a vertical system to a more horizontal one. This movement is viewed as the direction of the future where efficiency depends on bringing the decision making process to the lower echelons of the organization. Thus an organization must be prepared for the changes that will arrive with the “tool”.

Frequently, the larger and older an organization is, the more firmly its traditional “ways” are entrenched, and therefore, the more difficult it is to implement any tool that will cause sweeping changes. Such firms have reliable and sound procedures in place – some even inherited from before the computer age. Most of these methods are based on functional divisions working independently with information being transferred manually on paper or even via electronic downloads. In one large international engineering company, we observed a six-week time lag between the commitment of an item by procurement and the logging of this item into the cost control system. With an integrated system this process would be seamless.

Full acceptance and integration of OnTrack’s software was best achieved within forward thinking electronically “at ease” younger firms. These companies recognize the need for change, and are not satisfied with spreadsheets and word-processing tools. To achieve their vision for a competitive edge they seek out data base vehicles for integration and for information retrieval and

processing. Some of OnTrack's clients, having fewer than one hundred staff, are now managing projects of several hundred million dollars in size. Projects of this size were previously exclusively reserved for the industry giants.

Requires the will to change

Within established organizations, a movement to allow decision making to take place at other than the top level in each department, that is a team approach and a movement to decision making being in the hands of the actual "doers", may create some challenges. In fact, this movement feels threatening to many entrenched managers. In some departments, another factor interferes with the process of change – the departmental in-house developed software. Often this has been developed at great cost, it is familiar and it works. However it limits the company's need to move forward. So here it is important to work with key personnel in this department to help them see the bigger picture and to expand their view and to have the "will" to adopt a new method - one that moves the whole company along the continuum bringing it to a position where it is more competitive, via a system that integrates their work with that of other departments.

Requires corporate support

To adopt an enterprise wide system for project controls will force changes within any organization and these changes will include areas outside of the project controls department. Therefore, the second most essential aspect of introducing such a tool is the **involvement of senior management** from the time the need is identified through all its adoption stages until it becomes a part of the company's culture. Companies that have this management leadership adopt and integrate the new tool easily. Because resistance to change can come at any level within an organization only with the financial support and directive from senior management can any broad change take effect through more than one functional department. In companies where the senior management did not initially participate, only partial implementation was achieved early on. These firms realized benefits within the departments that adopted the system but did not enjoy the advantages that full and seamless integration provides.

Requires a corporate sponsor

Several factors are involved in introducing software into a company and we have found that having an influential corporate sponsor can facilitate communication between departments, resolve any trust issues, and ensure that the appropriate resources, such as training budgets, are secured.

Requires a resource person

Essential to the implementation stage and required for continuity and support is a resource person from within the company. A resource person, preferably a cost engineer, should be knowledgeable about the company policies and procedures and should also be given a thorough understanding of the software being introduced. Then, ideally, team members using the software would refer to this person as the first resource if any problems arise. A resource person will serve to coordinate training and will communicate needs and issues to the software developers.

PEOPLE AND ENVIRONMENT

The introduction of cross-functional software directly impacts the people and the culture of an organization. Allowing personnel to effectively communicate project status means there will be a weaving of departmental project information. Having all the project information immediately available revolutionizes and dramatically enhances communication. And, as I mentioned before, an integrated software requires that a company evaluate its culture. If it has been a vertical/traditional organization, the introduction may feel threatening to some and may be shunned by others. Efforts to recognize and overcome these resistance areas need to be made within the adopting company.

Requires “buy-in”

The first stumbling block is to have “buy-in” and the full cooperation of all parties. This is imperative, as each person working with such a system is integral to the end product – a successfully completed project. Their dependence on each other is a change from the vertical and

traditional organization where each job was done separately and then the data, as stale as it might have become, would be transferred to another department for further processing. In an integrated system, all data is available to the right personnel as soon as it is entered into the system – in real time. The problem for OnTrack was to recognize that educating on how to use the software was not as integral to its successful implementation as was the instilling of confidence for each department and each person involved in the use of the software that their work was integral to the successful outcome of the project. That is, each person needs to identify with his or her value/role in the success of the project and therefore the success of the company. Creating this self-confidence and pride was a far greater challenge than teaching personnel how to use the software!

So that each step as a rung on the ladder of “success” is visible, to the more traditional organizations, OnTrack often suggests a gradual introduction of the software where its implementation process begins at the startup of a new project by the introduction of the software in a logical fashion to each concerned department as the project unfolds – step by step and department by department.

Requires time for training

One must allow enough time to properly train a project team. For our package, the time to train already computer literate knowledgeable project team members in how to use the software – introductory level – usually requires four days. A shorter, crash course, can be used to prepare experienced project managers who already have effective computer skills. The other personnel who will “use” (enter data, produce reports, etc.) do need to understand the system not only from a what to do when and what data to enter where, but also why the data is integral to the process and to the management of projects – that is many of the personnel need some introduction to project management so they can understand the value of their role in the running of the project. Initially, we provided a two-day course but we soon discovered that far more OnTrack support was required and this meant loss of client productivity as well as slower implementation and errors that required intervention. We learned from our initial training efforts to make the training period longer ensuring that the material presented was fully digested.

Requires basic computer skills

Basic to the use of any software these days is a thorough understanding of the Windows operating system. When the personnel using this software are unfamiliar with the latest developments and Windows based software they require a much longer learning period and will tend to make far more input errors. From our experience, this is a stumbling block for some of the more established firms, as their more senior personnel probably did not grow up using laptops and surfing the “net”! However, these senior personnel delight in the speed, accuracy, and timeliness of the reports an integrated system places in their hands.

Requires understanding of project management

Part of the training requirements do not relate directly to the **use** of the software. It is to help our clients to understand the interrelated needs of the others concurrently using the software and working towards the common goal. Key to the successful implementation, then, is to have the personnel respect and understand the needs within their organization, which fall outside of their narrow specialization. This extends the employee value and makes each person using the program part of the corporate web and important to the outcome. Frequently a flow chart map helps the users understand the relationships and responsibilities existing between the “players”. This understanding reinforces the value of their work and builds communication between the various departments.

Requires project teams

One of the clues to successful integration of enterprise software is the creation of cross-functional teams. These teams dramatically improve communications and impact the learning “absorption” rate. Team members have more liberty to expand their horizons and impact the decision making in various departments. This builds a greater collaborative effect and results in a dynamic organization with keenly interested involved employees. In times of employee shortages, as is obvious in many areas of North America at present, keeping employees excited about their work is a major key in keeping them on staff – rating higher than increased salaries as a factor in employee retention! An integrated project controls system promotes effective team building and may in fact reduce employee turnover because the communication barriers are effectively broken

down and opportunities to expand their horizons within an organization increase. The growth of team members from project to project will increase their potential and efficiency and will have the team members looking enthusiastically forward to the next team project!

Requires trust and cooperation

Within any organization when departments become part of a continuum rather than separate entities, the organization needs to build trust. Once this trust has been established, the collaborative efforts of the personnel increase even further the efficient operation of the firm. This is obvious, in certain firms with more than one year of full implementation, of OnTrack's software. We have clients reporting that they are able to easily manage more than twice the number of projects with the same personnel as before introducing our software. And these are employees who are enthusiastic about their work, not overworked, but keenly interested because the information flow makes their jobs easier – and the company more profitable! Based on our satisfied clients we can say that with careful planning and supportive training the implementation of our integrated software not only makes our clients more profitable it makes them more desirable to employees.

TASK AND TECHNOLOGY

Requires a project start-up immediately after training

OnTrack has found that the learning retention rate from training is greatly enhanced when a real project is initiated along with the introductory training on the use of the software. In our experience, “real life” software training is not sufficient to master the program; the optimal training really happens after, on the job. We even had the experience of needing to retrain an entire project team because they had been trained but had not started a project during or directly following training. We consider the implementation of our software into a client's domain to be complete only when the first project has progressed through all its stages to final completion.

Requires training follow-up and ongoing support

Because integrated software has an impact on all levels and through all departments of an organization, it is essential to ensure the ongoing provision of support and follow-up. Software

developers have a responsibility to provide their clients with an ongoing means to evaluate their usage of the software and to ensure that the product is being used effectively. The developers should also help their clients identify any problem areas as a part of the early stages of support. This enables the client to experience a growing set of benefits from the software as early as possible. With follow-up the developer should ensure the optimal use of the software.

Requires an allowance for customization

Although operating within the framework of project controls best practices, each firm still handles tasks differently and has specific needs. An enterprise/integrated system must be versatile and flexible and should be able to be easily customized especially in the area of reporting. Integration should complement and reinforce sound and well-tested practices. In fact, in OnTrack's case, our software is growing in features and functionality reflecting the input from our clients and partners.

Requires built in security

The maintenance of data integrity and privacy is essential to an integrated software package. The trust required to use such software throughout an organization must ensure that data can only be input and accessed by the authorized person(s). Security is essential and is probably one of the areas we most often have to demonstrate to reassure our potential clients that their data integrity is safe with this software. Especially as we expand web usage, this area becomes even more critical.

Requires built in safeguards

Complex software must have built in safeguards so that no one can proceed without following procedures – that is, no essential steps can be skipped and warnings appear whenever any procedure has been missed in the process.

Requires a web-based future

The use of the Internet continues to advance more rapidly than our imaginations can comprehend. It must be assumed that our connection with the web from the simplest ideas of interconnecting our companies' offices around the world to having our offices function in a paperless manner and using the web for all the details of procurement, data base access, etc. is a definite part of our

future. So when seeking a program for your company ensure that the developer is headed in this direction. And start considering all the ways you can enable your company to move into a future filled with change and challenge!

CONCLUSION

The major benefit of moving into integrated project controls software is the increased efficiency – hence time saved, problems averted, and money made. The efficiency comes not only from the use of lateral decision process that cuts across the traditional vertical organization but also from the elimination of duplication of work effort allowing the right person to act at the right time.

In the implementation of a multi-functional software throughout an organization, not limiting it to specific departments, we have seen that there are certain hurdles that, being known, can be approached and “tackled” to ensure effective key ingredients for success:

- ◆ Identify the need for change
- ◆ Foster the will to change
- ◆ Involve corporate support
- ◆ Appoint a sponsor
- ◆ Establish the resource person position
- ◆ Appoint a Resource person
- ◆ Have cost engineers on staff
- ◆ Educate for buy-in
- ◆ Identify the advantages of the change
- ◆ Support the advancement of computer skills at all levels
- ◆ Ensure the understanding of the process of Project Management
- ◆ Create project teams
- ◆ Build trust and confidence
- ◆ Allow time for training
- ◆ Start a project immediately after training
- ◆ Provide follow-up support
- ◆ Allow for customization
- ◆ Build security into the software
- ◇ Build safeguards into the software

- ◆ Prepare for movement into the web

References

1. Mintzberg, Henry, James Brian Quinn, and John Voyer The Strategy Process. Simon & Schuster Trade, 1995.
2. Bennis, Warren G., and Miche, Michael. The 21st Century Organization: Reinventing Through Reengineering. Jossey-Bass Inc., 1997.
3. Hartman, Francis T. Do Not Park Your Brain Outside: A Practical Guide to Improving Shareholder Value with Smart Management, Project Management, Incorporated, 1999.

About the Author

Mike Milinusic, P Eng., MBA
OnTrack Engineering Ltd.
1804 Bay Shore Road SW
Calgary, AB T2V 3M1