

Project Initiation Process

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1.0 Part 1: Initial Project Request and Cost-Benefit Analysis

*Note: This article is based on the book *Project Workflow Management: A Business Process Approach* by Dan Epstein and Rich Maltzman, published by J Ross Publishing in 2014. The book describes PM Workflow® framework, the step-by-step workflow guiding approach using project management methods, practical techniques, examples, tools, templates, checklists and tips, teaching readers the detailed and necessary knowledge required to manage project "hands-on" from scratch, instructing what to do, when to do and how to do it up to delivering the completed and tested product or service to your client. While PM Workflow® is the continuous multi-threaded process, where all PM processes are integrated together, this article will attempt to describe the initiation set of processes as a stand-alone group of processes that can be used independently outside of PM Workflow® framework. It will be difficult in this article not to venture into processes outside of project initiation, such as planning, quality, risk, communications and other management processes, so they will be just mentioned. For more information, please visit www.pm-workflow.com.*

The main objective of the project initiation activities is to ensure that the project scope is agreed on and documented and the requirements baseline is produced. The project initiation includes the following steps:

1. Receive Initial Project Request and Benefit Statement —This process will provide the delivery team with a general idea about the project and will outline expected benefits from the project.
2. Perform/Update Cost-Benefit Analysis —Cost-benefit analysis calculates whether benefits from the project justify expenses.
3. Create Project Control Book (PCB) —This process will create a tool for keeping all project documentation in one place. One of the first records in PCB must be identification of project stakeholders and the established communication channels with them.
4. Business Requirements Analysis —This process will elicit detailed project requirements and analyze them.
5. Create/Update Traceability Matrix —The requirements traceability matrix is a tool for documenting, updating and tracking all requirements and changes to the project scope throughout the life of the project.
6. Create Business Requirements Document —This process will create a document outlining the baseline for all project requirements.
7. Conduct Requirements Review —This process will ensure the quality of business requirements and verify correctness of the business requirements document.
8. Approve Requirements —This process will approve requirements and authorize funds for the next project activity, such as project planning.

9. Review project planning milestones with client — This process will review the planning/high-level design and the overall project plan or milestones with the client before requesting project authorization. Plans may be updated as a result of the review.
10. Update the Project Planning Plan — This process will update plans or milestones with changes requested at the review before the detailed project planning started.
11. Request Project Authorization — This process will request project approval and receiving the project charter from the project sponsor. Receiving a signed project charter confirms that the sponsor agrees with the project scope, including the cost and schedule of at least the planning/high-level design activities for the remaining of the project.
12. Conduct Kickoff Meeting — The kickoff meeting is the official project initiation.

1.1 Receive Initial Project Request and Benefit Statements

Consider the following project initiation scenarios:

1. A project delivery organization wins a bid from an outside company to develop a new product or service. This means that the organization's proposal was selected due to its past experience in that type of project, proven quality or the most cost effective solution. Sometimes an outside company may award a project to an organization without a bid due to its proven reputation for great results.
2. A project starts due to the specific need of an organization, such as a business need for a new manufacturing line or a new software program which supports the expanded business. In this case the requesting department should outline benefits to justify project expenses.
3. Market research may have determined that there is a market demand for a specific service, system or product, which is predicted to be profitable to the company's business

Undertaking any project is a business risk for the organization. The bigger the project and the less experienced the team, the larger the risk. The risk may reach such an extent that the company may jeopardize large financial assets, reputation and its very future existence. Project risks are outside of this article's scope (chapter 6 of the book includes detailed description of Risk Management and provide tools and examples), but it is reasonable to expect that a company will not assign an inexperienced project manager to a multimillion-dollar project.

It is also unlikely that a new, untested project manager will be assigned to manage a project for an important business client or for development of a brand new marketable product. If such a project turned out to be unsuccessful, the company finances and reputation may suffer beyond repair. In the worst-case scenario, the company may be liable for damages and fines and may even be forced into bankruptcy. In internal noncritical projects, financial losses may still occur due to an unsuccessful project, but it is less likely that the company reputation will be damaged and fines and lawsuits are not a threat.

There are small differences between the above three types of projects at the initial and closing parts of a project, but the benefit of PM Workflow® is that generally the project processes will not change.

The project manager receives the initial project request and the benefit statement from the client. The resource manager documents them in sufficient detail to ensure their unambiguous understanding. A unique identifier is assigned, which consists of three parts separated by hyphens:

1. Project identifier— Assigned to the project when the project is initiated, this can be in a format chosen as appropriate for the particular enterprise.
2. Requirement identifier— Consists of three digits from 001 through 999, usually sequential within the project, which identify the requirement number.
3. Revision identifier— Consists of two digits which identify the requirement revision number. At the time when a requirement is approved and baselined, those two digits are always 00. Each subsequent approved change request will increase this number by one.

Examples of a unique identifier are CLI00253-001-02 and RET00229-011-00. This identifier will be used throughout the life of the project to ensure that all project scope changes are identified. Documentation concerning each requirement includes its unique identifier, a description of the functionality to be provided for a functional requirement, the rationale for the requirement which states why the requirement exists (from a business perspective), priority and an impact analysis of the requirement on the business, the other requirements and existing products.

The requirements will be documented in accordance with the established requirements template. Additionally, a traceability matrix will be used to document and manage requirements in order to assist in traceability. The requirements document and traceability matrix must be stored in the project control book.

The Requirements template is available in the book.

After receiving the initial project request and benefit statement from client, the next task is to provide the ballpark estimates of the project cost, assuming that sufficient project information is available from past experience to do this sort of estimation. It is necessary to establish whether it is possible to perform the ballpark cost estimates without having detailed project requirements beyond the initial project request. This may not be possible unless (or until) the delivery team has significant experience in the same type of projects. Since costs of similar past projects are known, it is possible to establish the approximate cost of new projects which are similar in project context. If the project is in an unfamiliar business or a different or brand new technology, then the detailed project requirements must be established first. It is also critical to know whether or not the delivery team has significant experience in delivering similar projects. Even if they do, the cost may only be roughly estimated, consistent with other completed similar projects, making corrections as appropriate. The lowest estimating accuracy allowed for the ballpark project estimates is –25% to +75%. If this accuracy is not achievable, no estimates will be made at this point and the next process in the process flow, Create Project Control Book, will be executed.

If there is enough information for the ballpark project cost estimates, it must be performed at this point. The project estimating process is out of scope for this article. This process is covered in Chapter 11 of the book and in my article *Project Estimating Process* at <http://pmworldjournal.net/article/project-estimating-process/>. After receiving the ballpark cost estimates, the process Perform Cost-Benefit Analysis is initiated. If it is not possible to estimate the project at this time, skip the estimating and the cost-benefit analysis for now and do them later when it is possible.

In the case where the project is the result of a winning bid, then instead of the initial project request, there will have already been a winning proposal submitted by your organization to the client. In this case, no cost-benefit analysis is required. The project was awarded to one of the developing organizations, because the client found its proposed solution and the price to be the most cost effective. Proposal writing is the entirely different subject, since it relates to the subject of proposal management rather than project management. Even though proposal managers are usually experienced project managers, the spectrum of issues associated with proposals is not the same set of issues faced by project managers.

The initial project request almost never provides detailed specifications that can be used to build detailed project plans. At this stage, users often are not even sure about what they want—at least not exactly. Sometimes mutually incompatible requirements come from different business user groups. In order to come up with the set of requirements, agreed on by all parties, including the delivery team, a costly analysis is often required here. Before committing to pay for this work, the client may want to know whether expenses justify expected revenues from the project implementation.

The projected revenues are provided by the client in the benefit statement, which is a part of the initial project request. Thus, the client may estimate that the project implementation will provide revenue of, say, \$2 million during the first year, after which it will increase to an annual \$5 million each of the following three years. If the cost of the project is estimated at \$7 million, then the money spent will be recouped in two years, without accounting for the effects of interest rates and inflation. It will be a business decision whether it makes sense to wait two years before getting any profit from the project. Details of cost-benefit analyses will be provided later in this chapter.

The general rule is that if the revenue generated by a project does not cover the cost of the project in 2.5 years after project completion, a commercial project is not justified. The actual number will, of course, vary for different organizations and projects. As a business owner, the client should know how the business is expected to profit from the project and provide this information in the benefits statement. Based on this and the ballpark project estimates, the information needed to perform the cost-benefit analysis is available. If project benefits do not justify project spending, the project should be terminated and the process flow is directed to the project termination.

In some cases, however, the project is justified even if no profit is expected. Let us say, for example, that you work for a bank, which has just received information about new government taxation rules effective three months from now. In this case, the bank must start a project to modify software programs that calculate taxes by the due date, even though there

will not be any financial benefits to the bank from doing that. The option of ignoring this requirement may be too costly for the bank or may prevent it from staying in a profitable line of business. This is an example of a project undertaken for economic sustainability.

Another example is when a highly visible project is not expected to be financially beneficial, but success would improve the future business situation. Therefore, project expenses may be regarded as an investment. Again, this is an example of investing for the longer term—for economic sustainability.

If it is determined that the project is justified, it is necessary to establish detailed business requirements as accurately as possible. If it is not clear what precisely should be delivered to the client, then it is not possible to know how long it is going to take and how expensive it is going to be, let alone the issue of client satisfaction.

Often a project manager will be under severe pressure from the management to provide project estimates, because the client is reluctant to commit funds even for the requirements analysis if they have no idea about the total project cost. If you submit to the pressure and provide estimates for the entire project, which may later turn out to be twice as high, there will be severe consequences for you, because your management's insistence on providing project estimates without sufficient information will not be remembered.

The opposite situation, when your estimates are way too high, won't be any better for you. Usually, the company budgeting process involves the most senior managers, who allocate budgets for all projects based on the available funds. Your failure to provide reliable estimates may cause them to change the budgeting of all projects in the organization. For sure, someone will request that this never happens in the future, which will not end well for you!

1.2 Perform/Update Cost-Benefit Analysis

The project cost-benefit analysis is a documented process which is used in decision making to determine whether the project is worth the money spent on its development. Benefits received from the project within a reasonable period of time must exceed the cost of the project. This process is executed after the initial estimates are made, or, if not possible, after the preliminary estimates are made following completion of the business requirements document.

The benefits statement must be provided by the client when the initial project request is submitted. Since the client requests the project, it is assumed that the client believes that the project will be beneficial to the business. If the project is the development of a new marketable product (or service), then the marketing (or product/service management) department must have an answer to how many products or services may be sold and at what price. However, if the project is to redesign a section of highway to reduce accidents, the benefit cannot be immediately calculated.

The cost of a project comes from project estimates. Usually, the project manager receives hourly rates for project resources from the accounting department or from a delivery manager. It is important to note that hourly rates and hourly earnings are not the same. It should come as no surprise that if the resource cost is, say, \$90 per hour, the salary component may only be around \$45 per hour. Vacation, sick leave, pension, health benefits,

the cost of facilities or equipment used for development, the overhead cost of management, marketing, etc. must be added to present the true cost of resources.

The cost of a project consists of several types of costs:

$$\text{Project cost} = \text{Direct cost} + \text{Indirect cost} + \text{Fixed cost} + \text{Variable cost} + \text{Sunk cost}$$

Direct cost is the cost incurred due to the work performed on the specific project. It includes wages, bonuses, work travel, materials, etc.

Indirect cost is the cost of running the organization, which is split among all company projects, such as cost of facilities, power, accounting, security, etc.

Fixed cost is the cost that does not change with the size of the project or its duration. This is a nonrecurring cost. Examples of fixed cost include machinery setup cost, a onetime cost of advertising for a special resource and so on.

Variable cost is the cost which grows in direct relationship to the size and length of the project, such as cost of material, equipment amortization, etc.

Sunk cost is the cost which has already occurred and over which we no longer have any control. For example, if we spent \$300,000 on a project and then found that due to the wrong approach we have to start all over again, that money represents sunk cost. Sunk cost is a loss, which should not play any role in determining the future of the project. Only new estimated costs of the project and risk must be considered in the decision to stop or continue the project. However, sunk cost is indeed a part of the overall project cost.

The following are major formulas used for cost-benefit analysis.

Net Profit after Taxes (Profit)

$$\text{Profit} = \text{Revenue} - \text{Cost} - \text{Expense} - \text{Project cost}$$

Revenue is company income as a result of business initiated due to the project. *Cost* is the money spent to organize the project. *Expense* is what is spent to obtain benefits from the project. *Profit* is the value of the benefits less the money spent to get the benefits. Profit is also called net earnings before taxes (*NEBT*) or gross profit. Net profit is also called net earnings after taxes (*NEAT*).

Return on Investment (ROI)

$$\text{ROI} = \text{NEAT} / (\text{Cost} + \text{Expense} + \text{Project cost})$$

$(\text{Cost} + \text{Expense} + \text{Project cost})$ is called total investment.

Present Value

Let us assume that you want to buy a new car. One dealer advertises the car with a “buy now, pay later” deal for \$20,000, with payment due 24 months from now. Another dealer advertises the same car for \$19,000, due immediately. You know that the current interest rate is 5%. Which dealer (and which deal) would you choose?

Very rough calculation would show that depositing \$20,000 in the bank for two years would yield over \$2,000 in interest, so you decide to pay the first dealer \$20,000 in 24 months and make \$2,000 in interest. If you were to pay the second dealer \$19,000, you would save only \$1,000.

Today’s money is worth more than the same amount later. *Present value (PV)* is today’s value of future cash flows. For example, if the project cost today is \$1,000,000, two years from now, when money for the project is received by the project developer, the value of the money may be worth \$800,000 due to inflation, rising costs, etc. In this case, the project developer is losing \$200,000, but the client, who pays for the project, gains \$200,000. This is called *PV cost*. Similarly, if you are a buyer and paid cash for the project in advance, by the time the project is done two years later, the value of the cash paid will be less, because you will not get interest on the money paid and you will not get project revenues for two years. After you start receiving project benefits, this lost revenue must be taken into the overall revenue calculation. This is called *PV revenue*.

Note: *The term PV is also used in earned value analysis (Planned Value). It is important to be aware of the context of the terms so that you apply them properly, especially with commonly used acronyms such as PV.*

Since we are doing the calculation today, we want to know today’s value of money that would be paid or received t years in the future:

$$PV = FV / (1+r)^t$$

PV is the present value of money, *FV* is the future value of money, r is the interest rate (also called value discount rate) and t is the time period in years. Practically, revenues, expenses and project costs do not occur at one specific moment, but rather are distributed over time, which makes accurate calculations difficult. Considering the low accuracy of initial project estimates and the estimated revenues, for the sake of calculation, it can be safely assumed that all revenues and costs happen at one specific moment at the end of each year, and the cost-benefit analysis is calculated separately for each year. Refer to the example of cost-benefit analysis calculation provided here.

Cost-Benefit Ratio

The cost-benefit ratio (CBR) is the expected profitability of a project:

$$CBR = PV_{\text{revenue}} / PV_{\text{costs}}$$

A *CBR* of 1.0 is the break even project (no profit). A $CBR < 1.0$ means costs exceed benefits

(and means a project is not financially attractive). A CBR > 1.0 means a profitable project.

Payback Period

The payback period is defined as the number of months up to the point where cumulative revenues exceed the cumulative costs and the project pays for itself:

$$\text{Payback period} = \text{Project cost} / [(\text{Project cost} + \text{NEAT}_{1\text{st year}}) / 12]$$

Note that if revenue for the first year is less than all expenses, NEAT will be negative. If the project cost is \$1,000,000 and NEAT in the first year after project completion is -\$200,000, then:

$$\text{Payback period} = \$1,000,000 / [(\$1,000,000 - \$200,000) / 12] = 15 \text{ months}$$

When calculating cost-benefit analysis, it is very important to avoid double counting costs or benefits. For example, if the first-year cost-benefit analysis includes the cost of the project, it is not counted again in the second-year cost-benefit analysis. However, if the project does not pay for itself in the first year, the unpaid part is counted as the project cost of the second year. In this case, for the second-year calculation, the time period in years for the PV_{cost} calculation part related to project cost is 1.

Similarly, if revenues are received each year, rather than at the end of a period of several years, then the time period in years for the PV_{revenue} calculation is always 0, because costs and revenues are counted at the end of each year.

While the calculations are not complicated for a project manager to do, it may be a good idea to have an authorized person, such as a financial analyst, deliver the formal statement of expected payback period in months. The general guideline is that the expected payback should not exceed 24 months. If it is found that the project financially does not justify itself, the decision is made by the project manager to reject the initial project request. It is wise to consult with your line management prior to notifying the client so as to be aware of other reasons which could take priority over financial considerations of the project (for example, compliance with regulations). It must be clearly stated in the cost-benefit analysis document that despite the lack of financial benefits, the project request is approved due to reasons specified. The cost-benefit analysis document must be signed by the project manager and the line manager.

Another consideration in these analyses is the longer term sustainability and the so called “triple bottom line” (people, planet, profit). These are international criteria for measuring the success of an organization in economic, ecological and social areas. While a country’s laws supersede international laws, it may be appropriate in your role as project manager to ensure that your project is in alignment with corporate social responsibility or the corporate mission, which often helps dictate this long-term view.

Cost-Benefit Analysis Example

Let us assume the client submitted the following benefit analysis:

1. The proposed project will develop a website for booking vacation holidays. The website will allow customers to select, book and pay for vacations online.
2. After completion of the project, the expected rate of the online holiday bookings will be 500 vacations per month for the next three years or 6,000 vacations per year.
3. The average price of one booked vacation is \$2,000.
4. The annual cost of operations is estimated to be \$75,000.
5. The cost of project development is estimated at \$1,500,000.

Refer to the cost-benefit example below. During each of the first three years of operation after the project ended:

- Vacations sold per year: 6,000 (line 1 = actuals by the end of each year)
- Unit price of each vacation: \$2,000 (line 2 = actuals)
- Unit expenses (room maintenance): \$1,700 (line 3 = actuals)
- Gross revenue: \$12,000,000 (line 4 = calculated)
- Expenses (paid to hotels and airlines): \$10,200,000 (line 5 = calculated)
- Revenue from one vacation: \$1,800 (line 6 = calculated)
- Cost of operations: \$75,000 (line 7 = actuals)
- Project cost: \$1,500,000, applied only to the first year (line 8 = actuals); since we do not want to count it more than once, the project cost for the second and third year is 0

PV cost in our example consists of PV project cost plus PV operating cost. Two separate calculations are required here, because the time period t is not the same for both. After these calculations, both PV values are added to get the PV for all costs.

Even though the operational costs occur throughout the year, the earlier assumption was to account for them at the end of the year, so that no time passed from the assumed operational costs payment and the end of the year. Thus, t for PV operating cost is 0 for all three years of operation. For the first year of the PV project cost calculation, t is 1, because the payment occurred one year ago. For the second and third years, t is 2 and 3, respectively. Once all PVs are calculated, they are added to arrive at PV all costs.

Similarly, the time period t for PV revenue is 0 for all three years, since revenue is assumed to occur at the end of each year. Since t for PV revenue is always 0, you may wonder why we bother making this calculation. Actually, this is not always the case. For example, in construction projects the future occupants often pay a deposit in advance, while the building is being built. In this case, t will not always be 0.

The payback period calculation result is 10.7 months in this example, which means that the project cost will be paid back in 10.7 months, after which only operating costs and unit expenses will constitute project costs, resulting in excellent profits beginning in the second year of this business.

However, if the payback period is over 12 months, then NEAT for the first year will be negative, since expenses in the first year, which include the cost of the project, exceed earnings. In this case we have to figure out first the payback amount in the first year and then use the balance of project cost minus payback amount for the first year as the project cost for the second year. The following formula can be used to calculate the balance for a payback period over 12 months:

$$\text{Balance} = \text{Project cost} - [(\text{Project cost} / \text{Payback period}) * 12]$$

For example, if the calculated payback period is 18 months, then two-thirds of the project cost (\$1,000,000) will be paid back during the first year and the rest, \$500,000, during the second year:

$$\text{Balance} = 1,500,000 - [(1,500,000 / 18) * 12] = 500,000$$

This amount, \$500,000, is entered in the second-year column on line 8.

Cost-Benefit Analysis Example

| | Formula | 1-st year | 2-nd year | 3-rd years | |
|----|---|--|--------------|--------------|--------------|
| 1 | Vacations Sold per year (Units Sold) | 6000 | 6000 | 6000 | |
| 2 | Price for one vacations holiday (Unit Price) | \$2,000 | \$2,000 | \$2,000 | |
| 3 | Expenses of one vacations holiday (Unit Expenses) | \$1,700 | \$1,700 | \$1,700 | |
| 4 | Gross Revenue | Units Sold * Unit Price | \$12,000,000 | \$12,000,000 | \$12,000,000 |
| 5 | Expenses | Units Sold * Unit Expenses | \$10,200,000 | \$10,200,000 | \$10,200,000 |
| 6 | Revenue | Gross Revenue - Expenses | \$1,800,000 | \$1,800,000 | \$1,800,000 |
| 7 | Operating Cost | | \$75,000 | \$75,000 | \$75,000 |
| 8 | Project Development Cost | | \$1,500,000 | \$0 | \$0 |
| 9 | Total Investment | Project Cost + Operating Cost | \$1,575,000 | \$75,000 | \$75,000 |
| 10 | Net earnings before taxes - NEBT | Revenue-Op Cost-Project Cost | \$225,000 | \$1,725,000 | \$1,725,000 |
| 11 | Tax Rate | | 20% | 20% | 20% |
| 12 | Taxes | Taxes=NEBT * Tax Rate | \$45,000 | \$345,000 | \$345,000 |
| 13 | Net Earnings after taxes - NEAT (revenues) | FV Net Earnings=NEBT-Taxes | \$180,000 | \$1,380,000 | \$1,380,000 |
| 14 | Return on Investment - ROI | ROI=NEAT / Total Investment | 11.43% | 1840.00% | 1840.00% |
| 15 | Time Period "t" in Years from payment of Project Development Cost | | 1 | 2 | 3 |
| 16 | Time Period "t" in Years from Maintenance Cost Payment | | 0 | 0 | 0 |
| 17 | Time Period "t" in Years from receiving annual revenues | | 0 | 0 | 0 |
| 18 | Interest Rate r | | 5% | 5% | 5% |
| 19 | Present Value (PV Project Costs) | $PV1 = FV \text{ Project Cost} / (1+r)^t$ | \$1,428,571 | \$0 | \$0 |
| 20 | Present Value (PV Operating Costs) | $PV2 = FV \text{ Oper Cost} / (1+r)^t$ | \$75,000 | \$75,000 | \$75,000 |
| 21 | Present Value (PV All Costs) | $PV \text{ All Costs} = PV1 + PV2$ | \$1,503,571 | \$75,000 | \$75,000 |
| 22 | Present Value (PV Revenues) | $PV = FV \text{ Net Earnings} / (1+r)^t$ | \$180,000 | \$1,380,000 | \$1,380,000 |
| 23 | Benefit Cost Ratio BCR | $BCR = PV \text{ Revenue} / PV \text{ All Cos}$ | 0.12 | 18.40 | 18.40 |
| 24 | Payback Period (months) | $\text{Payback Period} = \text{Proj Cost} / ((\text{Proj Cost} + \text{NEAT}) / 12)$ | | | 10.7 |

About the Author



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Dan Epstein combines over 25 years of experience in the project management field and the best practices area, working for several major Canadian and U.S. corporations, as well as 4 years teaching university students project management and several software engineering subjects. He received a master's degree in electrical engineering from the LITMO University in Leningrad (today St. Petersburg, Russia) in 1970, was certified as a Professional Engineer in 1983 by the Canadian Association of Professional Engineers – Ontario, and earned a master's certificate in project management from George Washington University in 2000 and the Project Management Professional (PMP®) certification from the Project Management Institute (PMI®) in 2001.

Throughout his career, Dan managed multiple complex interdependent projects and programs, traveling extensively worldwide. He possesses multi-industry business analysis, process reengineering, best practices, professional training development and technical background in a wide array of technologies. In 2004 Dan was a keynote speaker and educator at the PMI-sponsored International Project Management Symposium in Central Asia. He published several articles and gave published interviews on several occasions. In the summer of 2008 he published "Methodology for Project Managers Education" in a university journal. His book, *Project Workflow Management - The Business Process Approach*, written in cooperation with Rich Maltzman, was published in 2014 by J. Ross Publishing.

Dan first started development of the Project Management Workflow in 2003, and it was used in a project management training course. Later this early version of the methodology was used for teaching project management classes at universities in the 2003–2005 school years. Later on, working in the best practices area, the author entertained the idea of presenting project management as a single multithreaded business workflow. In 2007–2008 the idea was further refined when teaching the project management class at a university. In 2009–2011 Dan continued working full time in Project Management. Dan can be contacted at dan@pm-workflow.com.