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Article:

How to Predict the Success of Your Projects

In this article you will discover:

- The 10 questions you need to answer, to know if your project will succeed
- How to tell instantly if your project is a dud
- How to use the project success indicator tool to track the ongoing likelihood of project success
- And much more!

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How to Predict the Success of Your Projects

Introduction

I don't know how many of the Portfolio Advocate's male readers like to read women's magazines like *Cosmopolitan*, but I'm one of them. What I like in *Cosmopolitan* are the quizzes – 'What Kind Of Lover Are You?' 'Is Your Man Cheating On You?' that sort of thing.

You know how these quizzes go. There are a bunch of multiple-choice questions. You give the answer that suits you best. Each answer has a score associated with it. You add up the scores and it tells you that indeed you are a great lover, or there's a bit of room for improvement or whatever.

For about sixteen years now, ever since it first appeared in my book, *How To Run Successful Projects – The Silver Bullet* [Third edition, Addison-Wesley, 2001], my company, ETP, and its clients have been using a tool called the Probability of Success Indicator, or PSI. To date, the PSI has probably been applied to about 5,000 projects. A spreadsheet version of the PSI can be found at
http://www.bijingo.com/index.php?option=com_content&task=view&id=9&Itemid=7

The PSI is an instantaneous measure of how likely or not a project is to succeed. It can be used at any point in a project's life.

- If used at the beginning of a project, it becomes a practical approach/checklist to gauge the probability of success before a project begins. Thus, it can – potentially - stop turkey projects from getting off the ground.
- At any time, it'll tell you if a project is viable or not, and identify the warning signs that the project is destined to fail.

The Ten Steps

The Ten Steps is a recipe for running any project successfully. More an approach than a methodology, it takes the view that there is a method underlying *all* successful projects. The Ten Steps give necessary ('what you have to do') and sufficient ('all you have to do') conditions for planning and running a successful project.

The approach has ten steps in it. Five are to do with planning the project, the other five with carrying out the plan. Each step has a score or weighting associated with it and collectively, these weightings add up to 100. The project can be scored at any time, by assigning a value to each of the weightings. By adding up the values, we get the number that we call the PSI.

Amongst other things, the Ten Steps gives people the ability to solve the central problem of project management i.e. people committing to things that cannot be done – what DeMarco and Lister in *Peopleware* [1] call 'gutless estimating'. It does this in the following way.

When you are given a project, we like to compare it to a missile being fired at you. There are two types of missiles – the ballistic missile and the cruise missile. Our radars pick up the ballistic missile while it is still a good way off. An example of the ballistic missile is when your boss calls you into her office, gathers up the pile of stuff and says, "congratulations, you've been chosen to lead the Poison Chalice project, and I'm sure it'll be a career enhancing move for all of us'" The cruise missile is the sneaky one. The cruise

missile comes in under our radar and the first thing we know about it is when it lands in our lap. An example of this is where you're say, at a meeting, and somebody suddenly turns to you and says 'how long do you think that would take?'

All missiles carry a warhead. But in project management, they carry a particularly dangerous kind of warhead that we call the 'binary warhead'. The binary warhead contains two items which, separately are pretty innocent, but mix them together and they're deadly. These two items are:

- the request itself (for example, 'please undertake the Poison Chalice project')
- the fixed constraints, or as we like to call it, the 'baggage'.

The baggage is the idea that even though they've asked you the question, 'how long would that take?', they already know the answer! Sales have announced it for the second quarter, or there's a trade show, or there's a window in the market, or any of the other innumerable excuses people use. Baggage usually comes in one or more of three forms:

- Time baggage – the project must be done by a certain date
- Money baggage – the project must be done for a certain budget
- Effort baggage – the project must be done with say, the existing resources

The warhead then works as follows. In trying to deal with the request, you know you're going to need resources, budget and time. On the other hand, the baggage says you don't have the resources, the budget is too small and the time is already (a) fixed and (b) too short. You know how it goes. You want twelve highly skilled engineers, the powers-that-be are offering you a man and a dog, and the dog doesn't have opposable thumbs. If you try to deal with these two issues at once, you will almost certainly come to grief.

The Ten Steps deals with them *separately*. Steps 1 through 5(a) deal with the request, building a model of the project to enable us to understand what we are dealing with. Only after we've done that do we deal with the baggage, in Step 5(b). Doing this essentially 'defuses' the warhead.

The steps, and their contribution to the PSI, are described in turn.

Step 1 Visualise the goal of the project [PSI contribution = 20]

More projects probably go wrong for breaching this step than any other. The step involves doing three things:

(1) Identifying the goal of the project – what lies within the scope and what lies outside it. What are the project's completion criteria i.e. how will we know when the project is over?
(2) Controlling changes to the goal as the project unfolds (a 'change control' system).
(3) Given that a project can have lots of different endings, identifying what would be the best possible ending from the points of view of the various stakeholders – 'maximizing the win conditions of the stakeholders', as Boehm calls it [2].

Step 2 Make a list of jobs that need to be done [PSI contribution = 20]

Planning any project involves predicting the future. In predicting the future we will not get it right. We therefore need to do as much as we can to reduce how wrong we are.

Project management is basically the identifying and 'stringing together' of many jobs. It is the project manager's responsibility to do this stringing together. There are three ways it can be done:

(1) It can be allowed to happen itself. This occurs when somebody doesn't devote adequate time to project management, and so the project participants are left to manage themselves.

(2) It can be done in real time. This is the 'firefighting' approach beloved of many project managers. In this approach, the project manager takes the view that pretty much nothing can be predicted, that everything is going to be a surprise, and only then can it be dealt with. If somebody uses the expression 'it'll take as long as it takes', then the chances are that consciously or otherwise, they've chosen to go for this approach.
(3) It can be done at the beginning of the project.

This step recommends that by planning the project in sufficient detail at the beginning of the project, many of the problems that would have occurred later can be anticipated. Where there are unknowns in the project, we can make assumptions and then build our plan on these. When the knowledge becomes available to replace the assumptions, we can then 'plug' this knowledge into our plan. If this results in a change to the plan then our change control system (in Step 1) will deal with it. This step is as true for a small project of 6 man-months as it is for a multi million dollar one. (The biggest project the Ten Steps have been applied to, to date – that we know of – is the Special Olympics World Games 2003, the world's biggest sporting event of 2003).

This step is about identifying the work to be done.

Step 3 There must be one leader [PSI contribution = 10]

The project must have one leader - not zero, not two and not a committee.

A good analogy for a project can be found in the old black and white Westerns which are about cattle drives. I'm sure you know how they go. We start out on the Rio Grande with five thousand head of longhorns and our job is to get them to Abilene or Kansas City or some such place. The project manager's job then is to 'trailboss' the herd of jobs to the conclusion of the cattle drive. Hence we often use the term 'trailboss' to cover terms like 'project manager', project leader' and so on.

For a project to be regarded as having a leader or trailboss, three conditions must be satisfied.

(i) The person doing the trailbossing must take responsibility for *all* of the jobs. In general, the set of jobs breaks down into two – those being done by 'our people' and those being done by the others i.e. people in other departments, organizations or companies. Despite the fact that the trailboss may have no *obvious* leverage over these people e.g. they don't report to her, it is still the trailboss's job to make sure that these jobs get done.

(ii) The second condition is that the trailboss must always give priority to project management tasks. Many people, particularly in small projects, have both project management work to do and actual jobs on the project. For there to be one leader, the project management jobs must always take precedence.

(iii) Finally the trailboss must be able to devote adequate time to do the trailbossing. This means that the time necessary to do the project management must be factored into the list of jobs (Step 2). In the absence of any other rule of thumb, we suggest taking 10% of the total project effort (from Step 2) and adding this on to cover project management.

Step 4 Assign people to jobs [PSI contribution = 10]

Project management is essentially a problem in supply and demand. The demand comes from Step 2 where we identify the work to be done. Step 4 is where we identify the supply necessary to work off that demand. For a successful project the supply and demand must balance over the lifetime of the project.

There are three things you must do here:

- Make sure every job has somebody to do it i.e. make sure every job has a person's name against it. I fully accept that at the beginning of the project you may not know who is going to work on particular things, but – at the risk of stating the obvious – the person had better be in place before the job is due to start. Otherwise the job will be delayed.
- Ensure you allow for the fact that people have other commitments. For example, don't schedule people 5 days per week when they are maybe involved in a second project; or you conveniently forget that they spend a block of time every day (and all of these blocks add up!) reading e-mails or other forms of inbox activity.
- Maximize the strengths of the team you've got and try to anticipate problems before they occur.

Marrying supply (resources to do the work) with demand (work to be done) means we end up scheduling the project.

Step 5(a) The plan must have a margin for error / fallback position [PSI contribution = 10 for this plus Step 5(b)]

The plan is a prediction. Since it is a prediction it is wrong - or, to be more precise, it is not 100% right. Contingency allows for this eventuality. It allows the plan to drift somewhat from the straight line we have predicted. Provided we don't drift outside the contingency we will be OK. The margin for error is created by doing risk analysis on the plan and by putting contingency into the plan.

Step 5(b) Manage expectations [For PSI contribution, see Step 5(a)]

By the time we have applied steps 1 - 5(a), we have done a really useful piece of work to ensure project success. We have built a supply/demand model of our project and how it could unfold. We have a prediction, connecting the four parameters:

- What is to be delivered ('functionality')
- When it is to be delivered ('delivery date' or 'elapsed time')
- Effort (or 'work') which acts as a gateway into cost ('budget')
- Quality.

We know how much the project will cost (the budget), how long it will take, what people and other resources are needed to do it, what the major pitfalls are likely to be, what assumptions the plan is based on and a whole host of other useful information.

Now we're ready to deal with the baggage. We can use the model to determine how best to do the project. We can identify different options for our management and customer. We can vary the resourcing or the budget for instance, and see how these affect the end date. If none of our options – or 'flavours' we sometimes call them - is acceptable, we can use our model to generate other options on demand. Most important of all, however, we can use the model to try to ensure that we only commit to something that is actually possible and achievable. Having done this we are then in a position to start the project. (I realize that the subject of not accepting impossible missions is a wider issue that can be dealt with here. I also realize that with all the tools / methodologies / approaches in the world, people will continue to commit to silly things where projects are concerned.)

There are a further five steps to do with running the project i.e. executing the plan. These are:

Step 6 Use an appropriate leadership style [PSI contribution = 10]

Clearly we wouldn't, shouldn't and don't, manage all of the people involved in the project the same way. Some we know we can depend on to get the job done. Others will require lots of care and attention - 'micro management' as the management books would have it. This step ensures that we recognize this fact and is related to maximizing the strengths of the team mentioned in Step 4 above.

Step 7 Know what's going on [PSI contribution = 10]

More fancily referred to as 'monitoring and control'. The model we have built has served two purposes so far. It (a) has enabled us to get a feeling for the scale and scope of the project we were dealing with and (b) it has given us a sense of how likely or not the project is to succeed and a way of communicating that to stakeholders. In step 7 we see the third use of the model where we use it as 'instrumentation' to drive the project and determine how close or how far from our original prediction events unfold ('monitoring'). Knowing this we can take appropriate action ('control').

Step 8 Tell people what's going on [PSI contribution = 10]

This involves reporting at an appropriate level of detail to all of the people involved with the project. At the risk of stating the obvious, it also involves being prepared to tell the bad news as well as the good!

Step 9 Repeat Steps 1 through 8 [PSI contribution = 0]

We don't just plan the project once and then take a giant leap to what we hope will be the end. As the project proceeds we should be constantly applying steps 1 through 8 until we eventually reach … the prize.

Step 10 The Prize [PSI contribution = 0]

Good, bad or indifferent though our project may end up, there is one other useful thing we can do before we consign it to the archives (or the scrap heap, as the case may be!). That is to do a post-mortem on the project. Figure out what was done well, so that we can do it again, and what was done badly, so that we can avoid doing it in the future. Also record some basic historical information that we can then use to make our estimates more accurate next time out.

Calculating the Simple PSI

Here is how I assign values when I do the simple PSI. While on first reading, this may seem to be wildly arbitrary, my experience has been that it is anything but.

Step 1: This is a measure of how well-defined the goal is. I've discovered that the acid test here is that if you were to ask each stakeholder what the goal of the project is, and if each were to give you almost exactly the same reply, then the goal is well-defined. Otherwise it is not. You only get a 20 when the project is complete because only then do you know *exactly* what was achieved. Enter a number between 0 and 20.

Step 2: This is a measure of how complete the list of jobs is. Zero is no list. You might get 2 or 3 for a high level work breakdown structure. You only get 20 when the project completes because only then do you know exactly what the list of jobs was. Enter a number between 0 and 20. If the goal (Step 1) scores low, then this will score low, since – if you won't know what you're trying to do, how could you have a list of jobs to do it?

Step 3: If the leader can be named and that person has adequate time available to run the project, then give 10, otherwise give 0. Reduce the 10 if the project has any kind of baroque organization structure.

Step 4: I generally score this in the same proportion as Step 2 e.g. a 14/20 for Step 2 would give a 7/10 for Step 4.

Step 5: I generally allocate the 10 in two 5's. The first 5 is for contingency. The more contingency, the higher the score out of 5. The second 5 is for how well or badly expectations have been managed. What you want to measure is how closely what is happening on the project tallies with what people i.e. stakeholders *think* is happening on the project. An exact

tally is a 5, anything less, the score is reduced accordingly. If the project has no contingency or is an impossible mission, then score –15 here.

Step 6: Enter a number between 0 and 10 based on how well the project manager varies her management style with the circumstances.

Step 7: Enter a number between 0 and 10 based on how well the project manager uses the plan to steer the project. If the plan was thrown away as soon as the project was given the green light, score 0.

Step 8: Enter a number between 0 and 10 based upon the appearance and adequacy of status reports.

Steps 9 and 10: No score.

Interpreting PSIs

Here are the things we know about PSIs:

(1) **If the goal isn't right, nothing will be right.** If the goal isn't right, you miss one of the two opportunities to get a high score, but notice now, how it all unravels. If you don't know what you're trying to do (Step 1), creating a list of jobs to do it is impossible. Thus the list is flawed resulting in missing the *other* opportunity to get a high score. If the list is flawed then trailbossing (Step 3) is impossible, as is assigning people to the jobs (Step 4). Contingency (Step 5(a)) will have no meaning; while (Step 5(b)) if you don't know what you're trying to do, setting stakeholder expectations is clearly impossible. What will happen then is that everyone will set his or her own expectations. Steps 6, 7 and 8 all require the job list and so a flawed job list causes these to fall apart as well.

(2) **40 is a threshold for the first five steps.** One of the things we do a lot of is rescues of projects. A rescue is usually only requested when a project has gone way past its end date or wildly over-budget. Almost invariably, we find, on doing a quick PSI calculation, that the PSI for the planning steps is well below 40. This means that the project was what we call a 'living dead' project. It looked like a project, smelt like a project, had all the trappings of a project – notably the consuming time, effort, resources and money ones – but in fact, it was dead. It had no chance of success right from the outset, and all that wasted effort could have been spared if somebody had only spotted these things sooner.

A PSI should start off low and rise steadily over the life of the project. Initially projects may not score more than 40, and this can just mean that there is more work to be done in terms of scoping the project (Step 1) and planning it (Steps 2 through 5). However, a project should eventually go above 40 and stay above it. (Notice that the latter isn't guaranteed, and a project can drop back again. This could happen, for example, if a major change to the scope of the project, went uncontrolled.)

(3) **60 is the threshold for all ten steps.** See previous comments in (2).

(4) **Low scores always point you at the priority problem areas.** Which is nice, I think you'll agree.

(5) **You can do anything you like on a poorly planned project and it won't make the blindest bit of difference.** You may have come across Brooks' Law [3] – 'Adding people to a late project makes it later.' Notice that Brooks' Law involves two of our four parameters, effort and elapsed time. I believe that the above statement - 'you can do anything you like …' - can be viewed as a generalization of Brooks' Law. It basically says, that if your project gets into difficulties, go back and look at the plan; don't just, for example, blindly ask everyone to work harder. The problem is in the plan, not in the execution of the plan.

References

[1] DeMarco, Tom and Timothy Lister, *Peopleware*, New York: Dorset House Publishing, 1987.

[2] Boehm, B.W. and R.Ross, "Theory-W Software Project Management: Principles and Examples," *IEEE Transactions on Software Engineering*, Vol. 15, No.7, July 1989, pp.902-916.

[3] Brooks, F.P. (1995), *The Mythical Man-Month*, Addison Wesley Longman.

About the Author

Fergus O'Connell is one of the world's leading authorities on project management and getting things done in the shortest possible time. The Sunday Business Post has described him as having 'more strings to his bow than a Stradivarius'. He has a First in Mathematical Physics and has worked in information technology, software development and general management. Fergus will be coming to Australia in February 2007 to deliver his course How to Run Successful Projects in both Melbourne and Sydney, for more information go to ***http://www.bijingo.com/index.php?option=com_content&task=view&id=32&Itemid=42***

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