

The Soul of a Project

By Ian Stokes

'The Soul of a New Machine' (1) by Tracy Kidder is reckoned to be one of the best management books ever written. Every project is a story, and this book reads like a novel. It recounts all the drama and the passion of a project to create a new mini-computer at the heart of Data General in the 1970s. The company had just reached the point where phenomenal growth had slowed and all the indicators were turning down. Data General's management did not even support the project. On the contrary, the company was betting its future on another project to build a newer and better computer. Of course, that only made the 'Soul' team even more determined to succeed.

The book is a fascinating story about how a project team can triumph over all the odds. Despite suffering from a lack of resources, the project is successful and the computer eventually becomes one of Data General's most profitable projects. The team takes on the company, and the rest of the world, and wins through. Nevertheless, at the end of the project, they break up and disperse. We are left with the sad feeling that an enormous potential has been wasted. I wonder how often things happen in a such a way? Anyone who has worked on such a project will recognise the experience described --the huge investment in time and energy, the intense commitment of each team member, the sharing of skills and insight, the creative synergy ... When people are grouped together and given a common objective in a challenging situation, something explosive seems to take place. The combination of a team, a common unique objective and a deadline is the catalyst which releases the energy.

A project has the ability to capture the imagination. Intuitively, we know that a project is more than a collection of dusty components - methodology, computers and project reviews. It has an ad-hoc, front-line feel about it, and it can be extremely motivating. A project has soul. But for those who are unaccustomed to the rhythm of a project and are not equipped with the necessary teamwork instruments - planning, group decision making, problem solving, communication - it can be both tiring and difficult. First, it is necessary to live through a successful project in order to appreciate this form of working. Then it is necessary to repeat the experience until it becomes natural.

How can we recreate the soul of a project ?How can we recreate the soul of a project to communicate what it feels like? The answer must be to tackle a challenging task, to create an event (projects are highly visible), to do something which requires thought, analysis, planning, foresight, action, animation, discipline and improvisation. In other words, put a team of people in a situation which roughly corresponds to a real project on a micro-scale.

We would not be alone in proposing this approach. Mintzberg talks about creating artificial practice environments. Senge's solution for analysing systemic interactions is to create 'micro-worlds'. The best way to progress is to do and to observe, thereby creating positive feedback loops which enhance ability and understanding. This is how it works Devise a task which represents some kind of challenge.

Surround the task with functional requirements and a teamwork framework.

There must be a sufficient number of sub-tasks so that everyone can find their role and get involved. There must be a sufficient number of alternative solutions to require creative thinking. Let's call it a 'micro-project'.

Dropping an egg or a bottle, making a boat or a vehicle, brewing beer or making a perfume, constructing a crane or a bridge, devising a new tool or a game, engineering a coin machine or an oil platform, making a teddy-bear or a gift ornament, preparing a video or a theatre play...Some tasks are more creative, others are more technical. Some tasks can be done out of doors, others on the table-top. The task should be chosen according to the target population. Ask engineers to perform an engineering task and artists to carry out an artistic task, unless you really want to shake up the culture!

Introducing the 'egg-box' game

The egg-box game is one of the most creative tasks. It is suitable for people who will work on innovative projects in a strongly competitive environment. There are dozens of solutions. The game generates energy. Ideas are tossed around, some are seized upon, some are rejected, others are ignored. Inhibitions are cast aside and each member adopts a role in relation to the team. What happens? Nothing could be more simple. Each team receives some ordinary chickens' eggs -- unboiled. At the end of the micro-project, the eggs will be dropped from a height of 3 to 5 meters, at the discretion of the client (i.e. the trainer). Each team receives a box of a different colour -- red, blue, yellow, green, black. Inside each box, are to be found -- paper napkins, index cards, paper clips, toothpicks, pipe cleaners, elastic bands, balloons, sellotape, string, scissors, drinking straws, paper cups, chewing gum and inner soles -- all of the appropriate colour.

When the egg hits the ground, it must not break. Security will be vital. But each material has a price and some of the egg-saving solutions will be cheaper than others. Cost will be an important consideration. Certain solutions will be easier to fabricate than others. One last thing the solution should be as distinctive, original and pleasing to the eye as possible. Does this sound familiar? It should do -- some of these objectives are clear-cut, others are fuzzy and open to interpretation (just like on a real project).

Let's play the game

Now where do we start? We should define the objectives? what does the customer want, why and for how much? Let's get organised where, how, who does what? We could try and analyse the scope of the situation. We have two hours. There are fifteen of us. There are four other groups and so right now our chances of winning are only 20%. We have to assume that the task is possible with these materials. Do we want to win? The answer to that is a unanimous yes. Therefore, the job is worth doing well. Who determines the winner? The trainer does. What will tip the balance in our favour? No secret here -- ask the trainer. Let's call her the customer.

They say that Quality means satisfying the customer. But, what if all five competitors produce a product which satisfies the customer? How can we distinguish ourselves and gain an advantage over the competition? Will price be the deciding factor? Or, will it be something less tangible? In any case, our team decides to delight the client. Two separate markets are identified. One is for a cheap, robust and functional product. The other is for an original, fantastic and ingenious solution. This is not after

all the first time that the trainer has run the exercise. Let's provide something which she's never seen before, and better still, never even imagined.

Are the objectives clear? Does everyone in the team understand the priorities? The team seems ready for the challenge. It's time to get organised. Which skills are necessary? Who will take care of which aspect? How is the team going to plan and coordinate the work? What is to be the strategy? If there are two sub-projects, how will the work be divided up? Will the functions of design, marketing, fabrication, project administration and so on be project functions or central functions?

Now is the time for leadership. This is also the moment to establish the team's culture and personality. We'll need a name for the team, a logo and a unique identity. Are we going to be the happy team, the learning team, the lucky team, the crazy team, the clever team... This identity is a potent cohesive force. Our team decides to be the exotic team and resolves to win by a large margin, thanks to an unbelievably original solution.

Our Team

Our team spreads the contents of the box over the table top and takes a critical look at the material. What can we do with the straws? What are the properties of a pipe cleaner? How can we use the balloons? What would happen if we put the egg in a balloon? Ah, but are balloons not expensive? Shall we wrap the egg in a chewing gum? Any other ideas? What about the toothpicks? Is the paper cup helpful?

Wait a minute! What properties are required? Let's approach it methodically. Shall we make a matrix between materials and functions? What functions are we actually looking for? Yes, now we are on the right track. Let's see - first we have to cushion the fall of the egg. Also, price is a factor. Most of all, the solution must include style and panache. Obviously, the force of impact should not be directly on the egg. The egg in a balloon solution will not work. And, if the egg lands top down, that would be ideal. But, we should really slow the fall of the egg. Could this be with elastic, or with a sort of montgolfier balloon, or with a parachute? What about a bungee jump? Is it allowed? Perhaps we should make a mattress or why not a nest?

How does a car's suspension work? Now we are in the creative phase. Creativity also requires technique. One technique is called brainstorming. Let's use analogy. Think of some words. OK, we already have 'bungee', montgolfier, nest, mattress ... What else? Car suspension ... No, it's too early to start thinking about feasibility. Don't kill the creative process. Think soft ... mattress, feather bed, silk pillows, bubbles, water bed, diapers, omelet, fruit ... Think suspension ... springs, rubber, tyres, joints, layers ... Think flying ... aeroplane, helicopter, bird, wings, landing gear, angels ...

It's time to refine our ideas. Let's have a look at that long list of words. What were those functional requirements again? 1) Egg must not break. 2) Price. 3) Originality. What was our strategy? We had decided on a low entry product and a high fashion product. What was our image? We were going to be the exotic team. How can we develop this? Suddenly, things click into place. We settle on the bird of paradise for the high range product. The team has bought into the project and is ready to fly.

We start with the mundane, because we need our low end product. Simple is beautiful. Someone proposes that we use sellotape and balloons. We inflate three balloons and place the egg in the centre. We wrap the sellotape around the outside, and ... a balloon bursts. One expensive balloon wasted.

Forget that solution, because its too risky. The contract states that the client wants 2000 of these things. We won't repeat that error. Why do we need three balloons in any case ? Two will do the job, and with a 30% saving. An elastic band wrapped around the outside, instead of sellotape, and it works ! That only took us ten minutes.

The Bird of Paradise

Now for the bird of paradise. We should think of new ways to combine the materials. What happens when we combine straws and paper, cups and elastic ? Someone constructs a straw framework and drapes it with tissue paper. It soon resembles a sort of pterodactyl with large gliding wings. It has a pipe-cleaner underbody, talons and a tail like a swallow. The egg is held in a nest of straws, paper and string and secured by elastic. When the bird flies, it lands on its talons. Let's decorate the plumage. How? Why not ask the client? This is client-assisted design. We really are the exotic team!

We give it a great fan like a peacock, made out of card. We cut the paper on its body to make a sort of feathered effect. It's going to cost a fortune and will be rather tedious to make. Yes, but what a work of art and we already have our low end product. We'll have to find ways to cut down waste. Here we can save time. There we can save on materials.

We only have 45 minutes to go. This is your specification. Good teamwork does not necessarily mean everyone working on the same task. There is a moment for concurrent engineering (design, for example) and a moment for working individually (developing sub-modules, for example). Now the project controller is managing the interfaces. The designers are revising the reference sketches. Tell the marketing people. Record the experience. The manufacturing team is working meticulously. The product will be easy to fabricate (even by a less qualified team). The cost manager is calculating the unit price for each product. The quality people are preparing the experience plan. The marketing presentation is going to be a real piece of theatre -- a professional product launch! Meanwhile, the project manager makes sure that everyone receives the necessary support and encouragement.

Everyone should be informed of the project status. No-one needs to be unoccupied for very long. Why not get everyone a cup of coffee? Finally, our team completes its task on time, on budget and according to its defined specification. The presentation is perfectly executed and the bird of paradise remarkable. Our team has two products which function and wins the decision of the customer. We feel as if we have achieved something important. In only two hours we have forged a powerful team spirit, we have acted imaginatively, we have engineered a solution to a tricky problem and we have met our objective. Bring on the next task!

The Trainer's Observations

The trainer must keep an eye on everything the organisation, the teamwork, the leadership angle, the ability to be creative and to resolve problems, as well as the management of costs, schedule and quality. Organisation How has the team organised itself? How many sub-projects were there in the group -- two or three? Do the various functions (design, fabrication) reside inside the project team, or are they centralised? Is the principle role of quality to inspect, to set standards or to strive for improvements? Who takes care of project administration and cost management? Who watches the clock?

Leadership --Does the team leader define the strategy with the help of the team? Does everyone

participate in the decision? How effectively does the project manager handle task and team aspects? What is the preferred management style? Does the team leader keep the team focused on the objective?

Teamwork - Is the workload evenly shared among the team members? What happens when one person is idle? Is it natural to try and help the others? Is the team results-oriented? How is the work divided up between the sub-projects? How are the materials shared? How are differences of opinion dealt with? Who talks and who listens? Who thinks up the ideas? Who makes decisions? Does the team manage its external environment? Does it try to cooperate with the other groups, or spy on the other groups? Does it ask questions to the client?

Creativity and problem solving - Does the team employ tried and tested methods? Or does it invent new ones? What slows the team down? What helps it to function more efficiently? What creative techniques were used? What was the decision making process? What were the feelings within the team? What was the effect of the team finding itself in a competitive situation? Did the team really understand its customer? How did it handle the social process? What lessons were learned for the future?

Technical management - Was a baseline configuration established and maintained? Was the original specification respected? How were changes managed? Was the whole team kept informed? Schedule management How did the team cope with the time imperative? Was the task broken down into phases? Was a master schedule drawn up and displayed for all to see? Did the actual work follow the schedule? If not, what happened to the schedule? Did the team try to estimate actual physical progress? Did they use these estimates to plan ahead?

Cost management - How important was cost for the team? Did the cost imperative kill off initiative? Was there any wastage of material or human effort? Did the team try to evaluate cost against value? How were costs allocated to sub-projects?

Conclusions

The discussion which arises at the end of this type of exercise can be very rich. Although the exercise only lasts for about two hours, it can present quite a challenge. It is rewarding to observe how a group of as many as 12 or 15 people can get to grips with a problem, meet its objective and become a performing team in such a short time. At the end, the team can say 'There were no functional barriers on this project. The team cooperated on all the major decisions. Waste and in-fighting were kept to a strict minimum. Methodology was used appropriately. Experience has been captured and is available for the future.'

This kind of exercise can become a sort of metaphor for a new way of working in teams. It represents a shared and successful experience. Thereby, people can learn to appreciate the soul and sensation of working inside in a project, as described in the 'Soul of a New Machine', but without all the risk and the stress, and in only two hours.

Note 1: This article first appeared in the February 1995 issue of Project Manager Today.
