



## Project Managing a New Boat

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### Overview

I have always been a sailing boat rather than a power boat type of person. I have owned a number of yachts, the last of which was an S&S 30. Unfortunately the family were not into sailing. As the years went on the yacht just sat on a mooring and more time was spent maintaining it than using it. Eventually it all got too hard and I sold the boat a few years ago. It is not an uncommon situation. I have spoken to many former yacht owners who found the same thing.

Living near Sydney Harbour and not having a boat seemed such a waste. I had never had much to do with powerboats but decided I would buy one and see if the family were keen enough to make use of it. We discussed it and they were enthusiastic.

Why am I telling you this? Being a Project Manager, I treated it as a project. As I near completion, I want to share with you my approach and some of the lessons I learned by using project management outside the conventional business area. In some areas, it was not pretty.

### Phase One – Planning and Requirements

I didn't start out to run it as a project. It just sort of happened. When I had talked it over with the family, they seemed keen so I sat down to work out what I needed to do. As I said I had always had sailboats so power was a new experience.

Time to go into information gathering mode. I did hours of research. Talked to all sorts of people who would provide information and began to get a feel for the sort of boat I wanted. After running it past a few people, I came up with a list of about 20 requirements.

Some financial analysis resulted in a budget. The budget had to take into account, not only the purchase, but other factors as well. For example the cost of putting down a mooring and buying a dinghy to use as a tender. It had to cover insurance and registration. In the end the budget had about a dozen major items of expenditure in addition to the boat. That was the first surprise. Because I had a fixed budget, the cost of all the associated expenses limited the amount I could spend on a boat.

Probably the most significant requirement was that I was prepared to sacrifice age for size. In other words, I was not looking for a new boat. I was looking to buy an older and bigger boat rather than a newer smaller boat. Little did I know where that was about to lead me.

Other things like the style of boat, and the size were reasonably clear. I was looking in the 26 to 28 foot range; fibreglass; shaft drive; roomy cockpit for taking a group of people out on daytrips. I had a preference for diesel over petrol but the engines had to be low hours as I was discovering that petrol engines only last about 1,000 to 1,500 hours. I was looking at something built around 1980.

So far so good. I had made a list of around 10 models from that period that fitted the requirements. The next phase was to find the boat and negotiate a price.

## Phase Two – Search and Buy

Phase two was not time bound. I was happy to spend months or even a year or two to find the right boat. I circulated my requirements to a number of brokers and looked over a few boats. Nothing jumped out but there were a few potentially interesting ones around. Having a list of requirements made it much easier. I was able to tick off the requirements and at the end of each inspection, see how well the requirements were met. In fact telephone calls often saved a trip to look at the boat. The fit was not near enough to consider.

As I looked at more boats, I started to learn more about particular models and could refine requirements even further. There was no shortage of boats on the market and during business trips I tried to find time to look at boats in other locations. Just hanging around marinas and talking with boat owners proved enlightening.

One boat came up that was outside the requirements in some ways, but also exceeded them in others. It was a Cresta 34 – 6 feet longer than I was looking for but 10 years older. The price was slightly above the target range so if I decided to consider this boat, there would have to be a justification put forward to extend the budget. Still thinking like a Project Manager.



The Cresta 34 for sale.

On the positive side it had two relatively new engines although they were Chevy V8 petrol. I would prefer diesel but had not ruled out petrol. It was a few hours drive from home but we decided to look at it.

The key stakeholder was impressed. No need to explain who the key stakeholder was to any married man. The only problem was she didn't like the colour. It was best described as battleship gray. Still a coat of paint could fix that as it was only the deck and cockpit area.



Interior had lots of wood panelling and but was in good condition

Condition was not great as it had little use over the last four years according to the broker. Paint was peeling. There was some rot in the cabin, and it generally looked tired. On the positive side, the motors were relatively new and it had an enormous cockpit area. Even had a 240 volt generator and such luxuries as a TV and Fridge.

Time for some risk management:

- What if there were unforeseen problems and it turns out to be a lemon?  
**Mitigation.** Find a good boat surveyor who can do a thorough inspection.
- What if I buy it and cannot get a mooring for months?  
**Mitigation.** Put my name down for a mooring where there is a relatively short waiting list.
- What if the brand Cresta has a reputation as a floating financial black hole?  
**Mitigation.** Talk to other brokers and find out about the brand. As it turned out Cresta was a well respected brand and still make a limited range of boats.

### **Haggling**

To avoid a change request to the bank manager, we started negotiation by offering a figure close to the top of the target budget range. It was well under the asking price but no harm in trying. As expected it was rejected but we had opened negotiations. Over the next few months offers and counter offers continued.

A variation was definitely likely so we started to weigh up the costs and benefits of changing the target range. The key stakeholder “just liked it”. I was a little more pragmatic and started estimating the benefits.

If the engines lasted longer, the eventual cost of these engines could be amortised over a longer period. Say replacement cost of engines was \$30k and they lasted 10 years,

the cost was \$3k per year. Being almost new, I could probably gain an extra 2 or 3 years which equated to \$6k to \$9k over an average boat in the target range with 3 or 4 year old engines.

Most of the interior was timber which meant I could do a lot of the work myself. Had it been a newer boat with lots of moulded fibreglass it would have been beyond my skills to fix up the interior. Estimated saving \$3k to \$5k. In total I came up with about \$12k to \$15k of quantifiable benefits.

There were other benefits such as the ability to cater for additional people and the comfort of the additional space. The generator was also a bonus as it would make use of power tools an option to carry out repairs. The boat was to live on a swing mooring rather than at a marina so there was no shore power available. The cost of a marina berth was not in the budget.

### **Inspection**

After a few months of negotiation we reached a figure that was acceptable. Final agreement was subject to an inspection of the boat.

At this stage I took the boat for a run and there were a few minor problems but it certainly met our requirements. We gave it a good run under full throttle and the engines performed without a problem. A few of the electrics did not work but that was consistent with a boat that had hardly left the mooring over the last few years.

Being an old boat, I expected there would be lots of work identified and the intention was to negotiate the completion of essential work as part of the purchase price.

I was not disappointed. The survey came up with around 50 items in need of maintenance or repair. Stage two of the negotiation involved agreeing what would be repaired as part of the purchase price. Another period of haggling took place and eventually agreement was reached. Repairs were carried out.

In retrospect, there was a problem in my project management approach at this stage. It related to quality. I should have spent more time and effort to check the quality of the repairs. The boat was a few hours away and I relied too much on the broker to manage repairs. That was a mistake. I should have had the surveyor who did the inspection revisit the boat and check repairs. It would have been expensive but would have been worthwhile. This was not the only quality planning mistake I made. I will come to the other major one later in the white paper.

### **Purchase and Delivery**

The final step was to part company with the money and bring it to Sydney. A temporary mooring was organised as my permanent mooring was still a month or two away and we arranged a friend to drive us to the boat one weekend so we could bring it back.

Just as we arrived at the marina, we had a phone call from a mechanic who had serviced the Onan petrol generator. He told us there was a problem with an electrical cut-out switch and the generator might not work properly. The petrol engine was fine but the generator was cutting out. Nice to know just as you are about to leave. It was not essential. Just meant we could not make a coffee on the way down as we had no power for the stove.

Another surprise was that when we went to start the motor, one motor kept cutting out. A call to the broker and a mechanic arrived to point out that we had run out of



petrol in spite of the gauge showing over a quarter full. We topped up the tank with enough fuel from a can to get us to another marina where we could fill up. The broker had told us it used around 15 to 20 litres per hour at 7 knots. If you wanted to go faster where the boat planed, or lifted out of the water it was about 40 litres per hour. At planning speed (20 knots) we estimated the time to Sydney would be around 6 hours.

The tank held 400 litres but the pickup for the fuel tank was not at the bottom of the tank. There was room at the bottom for sediment and any water that may get into the tank over the years. We based our trip on being able to use 350 litres which gave us a safety margin of 100 litres. The tanks were filled and we settled down for the night planning to leave early the next day. Good project management – or so we thought.

### **The Trip**

About half way down the coast, we looked at the fuel gauge to find it was between three quarters and half. Knowing that a quarter means it was empty, we were getting a little concerned. It continued to drop more than we would have liked. If it was accurate, we were burning closer to 60 litres per hour. Was the gauge wrong, or did the broker stretch the truth?

We had an issue. Options were to keep going and hope the gauge was wrong, or reduce speed to 7 knots and hope the cruising consumption was accurate. I tried to see if the tank could be checked with a dipstick but there was no access without much removal of panels. We decided to cut the speed.

By the time we were approaching the mooring after adding a few hours to the trip, the gauge was on a quarter. A safety feature was that the fuel pickup for one engine is lower than the other. One engine will stop before the other so if you do run out of fuel, you get a warning when one stops. You have the other engine to get to a safe anchorage or a refuelling point. One engine stopped about 50 metres from the mooring.

Aside from the fuel issue and the generator we were happy with the boat. Phase two was complete. Now to move on to the big phase which was to get the boat up to a level of reliability and condition that would ensure we could enjoy it.

### **Phase Three - Maintenance and Repair**

Having purchased the boat, I asked the broker if the previous owner would agree to a visit or even a phone call. I wanted to meet him so that I could get to know some of the quirks of the boat, and understand what modifications the owner was aware of, or had done. The owner refused to talk with me or even provide a telephone number. When I have sold boats, I have spent up to a full day with the new owner going over every inch of the boat to pass on any information that might be useful. This meant that planning work on the boat was more difficult.

I started with the work identified during the inspection. In true project management style I created six priority levels and then allocated each piece of work a priority. Next I did a thorough inspection myself and identified any other work which was also prioritised. Although we had brought the boat to Sydney, I went out a few more times looking for other problems and found a few. Next was to look at essential modifications, additions and upgrades and prioritise them.

One of my favourites was on the flybridge. For non boating types, the flybridge is the upstairs section where you steer the boat. The boat had a wheel and controls in the

cabin and a wheel and controls on the flybridge. It could be steered from either position.

As you can imagine, the flybridge is not a very stable platform. Moving around you are subject to considerable rocking as you go over waves. You tend to hang onto rails and get into a seat as quickly as possible. The flybridge had a rail which was around 50 cm high at the front but sloped down to around 15 cm at the rear. If you moved towards the rear of the flybridge, not only was there no rail to hang on to. There was a rail at ankle height to trip you as you fell off the back. It had to go.

After a week or two the scope was finished. There was a list of 130 items to attend to. Some were an hour or two and others a few days work. All were prioritised and grouped into related activities e.g. electrical or carpentry work. I put some time estimates together and created a schedule. I also made allowance for work that had not been identified, and work that would be more complicated than I expected.

I also did a cost estimate and came up with a budget. As most of the work was to be done on weekends, I did an estimate that said there was about a year of known work to be completed.

I decided to split it into two sub-phases. I would work weekends as one sub-phase, but plan to take two to three weeks to undertake major refurbishment at the end of that period. Get all the minor or urgent work out of the way on weekends, and then spend a solid chunk of time to do things like repainting. It was much more efficient to repaint over consecutive days rather than come back to it every weekend. We had a plan.

What were the risks?

- The biggest risk was that I would hit a problem that would exceed any budget allocated. As I could not come up with a mitigation strategy for that, I had to accept the risk.
- The second risk was that I would not be able to find the two or three weeks I needed to do the major refurbishment.

**Mitigation.** Review the two sub-phases and ensure there are no work items in the refurbishment phase that will stop me using the boat. At least if it is delayed, I can continue to use the boat when I have time available.

- The third major risk was that I would not have the skills, and could not easily locate someone with the skills to undertake some of the work. As I said, I knew my way around sailboats but not power boats. If I wanted something relating to power boats, where did I go?

**Mitigation.** I started researching companies and people who fixed things on boats. There is a lot of information available on the web, and by using forums, you can get an idea of satisfaction levels with particular people or companies. I also tapped into my boating network to find recommended providers.

## **Generator**

As I mentioned, the biggest immediate problem was getting the generator working. I found there was one authorised dealer for Onan generators and had them visit the boat. As it turned out, they knew the boat from a previous time when it was moored near Sydney.

After much prodding and poking they told me the electrical problem was in fact a mechanical problem. They suggested a new carburettor – cost \$800+. At this stage I was having flashbacks of hardware and software vendors arguing about whether the problem related to the other person's hardware or the other person's software.

I thought it cannot be that complex. It is a simple two cylinder petrol engine. I removed the carby myself and took it to a specialist carburettor company. They immediately pointed out the float was leaking and charged me \$80 to fix it and service the carby. When I reinstalled it, the motor actually started and ran for a while.

The generator is still not running perfectly so time to do some more research. I found a web site ([www.smokeskak.com](http://www.smokeskak.com)) devoted to Onan MCCCK generators with an active forum. After posting a request for help one night I woke up next morning to find about 10 replies. The first suggestion was to replace the points. After doing that, performance improved again and it was fine for a few months.

Again it started to die but by this stage, I had found a mechanic who had done a few bits and pieces on the boat and knew how to fix things rather than replace components. Greg spent some time with the motor and a service manual I had bought over the Internet and improved the running. We are still not there but getting closer all the time. The generator runs reliably but is not working well under load. The priority has dropped from 1 to 6.

## **Electrical**

The wiring was always going to be a major issue. Anyone who has had an old boat will tell you the same thing. If something stops working, try rewiring it. Don't take out the old wires however. Given almost 40 years of this approach there is probably as much unused wiring as there is used wiring. A bunch of wires disappear behind a bulkhead and pop out somewhere else. Since there is virtually no colour coding, you have no idea where wires start and stop.

I tried to group most of the wiring issues in a single group of work. For weeks I chased wires and tested components. Lights were replaced and terminals cleaned. Surplus wiring was ripped out. Slowly the electrics started to come together.

In IT projects, testing can be done by either purchasing some test tools, or doing it manually. If you are going to do lots of testing you tend to buy testing tools as the time and cost saving justifies the expense. With electrical testing, there are some basic tools like a test lamp and a meter but not much more. Necessity is the mother of invention.

Finding the other end of the wire is a tedious process. For example, I wanted to find which wire provided power to the instrument lights on the flybridge. I had a switch for instruments on the dashboard inside the boat but no obvious wire heading for the flybridge. There were potentially a dozen wires on the flybridge that may have been providing instrument lights with power at one stage.

I invented an intermittent voltage checker. Take one auto flasher unit, a switch, a globe to make it work, put it in a box and connect to the cigarette lighter plug. Add a wire out with an alligator clip. Find a wire you want to trace and clip the unit onto one end. You can now check the other end for an intermittent voltage. Much easier than trying to do continuity checks where the connection may be 10 or 15 metres away.

I had one funny experience when checking wiring to the flybridge. There was a random wire that did not seem to be doing anything on the flybridge. Connected “Turbit’s Tester” to the wire and turned it on. “Brrrr” pause “Brrrr” pause “Brrrr”. Turns out it was a spare starter wire. If you think of a starter being turned in time with you blinkers you get the picture.

### **Maintain the Old**

One problem worth noting from a project management perspective was with the starter on one motor. As mentioned there were dual controls. When I bought the boat there was no cover on the flybridge so all the controls and instruments were exposed to the weather even when the boat was not in use. I had not worried about protecting the controls as I planned to eventually have a cover made.

One day I was working on the boat and decided to run the engines. I started them from the flybridge. The starter was a key starter. Turn the key to start the motor then release it.

A short time later I could smell something burning. After I cut the motor I looked at the engine to find the starter smouldering. Seems that after I started the motor, the key had not released. The starter was still locked in although the motor was running. Ten minutes later the starter melted. The whole episode cost me around a thousand dollars by the time I fixed it.



The view from the flybridge when I bought the boat. The dash had lots of lights and switches that were not connected to anything. They just filled holes. All were removed and the holes filled and sanded before repainting. The compass fluid leaked and drained away so it had to be replaced. The seat frame was corroded and fell apart six months later.

Had I paid attention to maintaining the existing controls until the cover was made, I could have saved that money. Often in a project we take a deep breath and rush to build something new hoping that the old one will last until it is replaced. It may be



software, it may be hardware, it may be a bridge. Sometimes we need to consider maintaining the old until the new is ready.

### **How Long?**

I mentioned a quality issue earlier in the article. After purchasing my Cresta 34 I did some research on the make and model but could find no reference to a 34 foot model. There was a 32 foot model made around that period. I contacted the manufacturer and spoke to a person who happened to be having lunch with the original owner. The original owner was now in his 90's. I provided some photos and evidently livened up the lunch with some reminiscing about the model. He could not remember building a 34 foot version but said there were all sorts of modifications requested at the time and there may have been one built.

Time to take out the tape measure. There is no real way to measure a boat on a mooring so I had to wait until I was tied up on a jetty to do a measurement. Guess what? My 34 must have been in the water for so long it shrank. It is now 32 feet. Had I applied a little quality management I would have verified all the details about the boat before purchasing. While I could go back to the owner or broker, I would probably hear that they bought it as a 34 footer and never checked. There is nothing to gain. It does however show that in a project, you need to QA all deliverables.

### **Refurbishment**

Running your own business has good and bad points. My risk of not being able to get time to do the refurbishment came to fruition. It took me around 18 months to get the two weeks I was looking for. In fact it ended up being fourteen days over about six weeks. Fortunately all the other work meant the boat was usable for about a year up to that time. The final sub-phase was more about cosmetics – or so I thought. By planning around splitting refurbishment from ongoing maintenance, the boat was able to be used and I was not delayed from using the boat.

Refurbishment went well until I detected the smell of petrol in the bilge. Now I have tried many things in my life but never had aspirations to be a suicide bomber. 400 litres of fuel in a bilge is not my idea of fun. We had an issue.

The boat was on a marina having just been slipped and anti fouled when the problem occurred. The shipwright I had been using said to pull out the fibreglass tank and have a new stainless steel one custom made. You could hear the cash register ringing. Back to project management principles. When faced with an issue look at all available options and select the most appropriate. I had to find other options.

The problem was that at some stage someone had decided to fit two new fuel outlets. Originally they had come out of the top of the tank and had pipes that ran on the inside to the bottom. The revised arrangement involved drilling a 15 mm hole in the side of the tank near the bottom and screwing in a fitting. As the wall thickness was only about 5mm it was never really a tight seal. It had been covered with silicon sealant to stop it leaking but that had now failed.

Do some more research; gather more information; talk to anyone who might be able to help. Eventually I found a fibreglass repair shop. "If it is made of fibreglass, we can repair it." sounded like good news. Next to remove the tank. If you have never drained about 300 litres of fuel by using a 1 litre plastic ice cream container, life still has a few experiences left for you. I could just get a 1 litre container under the tap and about three quarter fill it while lying across the tank and holding the container at

arms length in a gap between the fuel tank and a water tank. Empty the  $\frac{3}{4}$  litre into a 20 litre container, then fill up all our family cars plus those of a few friends. I was very popular. Anyway it is an interesting way to spend a day.

The tank had to be cut out of the boat and lifted out by a team of four. A week later the old holes had been filled and the wall thickness built up to around 10 ml. Off to a specialist firm who made up new fittings for the outlets and we were back to the marina to fit the tank. The PM lesson is that you don't need to jump to the first proposed solution to an issue. Look at all the options. Sometimes a better one will emerge with a bit of research.

## **Current State**

We are almost there. The original list of 130 items eventually blew out to 175 items but we had built in a 50% contingency so in straight numbers, the increase was only 35%.



Arawa III as it is today. Rail around the flybridge now stops people falling to their death. As an example of the work involved, sanding the timber you can see around the edge of the deck took 9 hours. There are four coats of varnish that took around 2 hours each to apply. Total 17 hours.

Some problems turned out to be more complex so probably took up the remaining 15% contingency although I suspect it was closer to 20% to 25%. Not bad if we were only 10% over in terms of effort.

There are currently 11 items left to be completed and of those the 4 largest are 90% complete. The current estimate is 3 to 5 days to complete the list. Given the time spent recently away from my business, and the catching up to do, that might well mean Christmas before the list is complete.

Of course there are a number of new projects identified however they are more in the area of improvements. The original scope which was to fix what was there rather than add improvements. It is always tempting to let the scope creep, but fortunately some project management experience kicked in here and I overcame the temptation.

## Conclusion

We don't necessarily think of work at home or on a hobby as a project, but it can help to do it that way. I was certainly not as rigorous in restoring the boat as I would be in a business related project. I did - almost through habit - use a number of PM skills and they certainly made life easier. Some of the problems I had could be traced back to not using those PM disciplines. Quality management was one area I did fail in a number of cases. Tighter quality management would have avoided a few issues.

Project management is a whole of life skill. I have long advocated that project management principles should be taught to young kids at school. It would make us all better at "getting things done". I hope that by telling the story of buying and fixing up a boat, you will see that there is a role for project management in all our lives.

The final question of course is power boating more fun than sailing. I have to confess I am still a sail boat person. One day I will probably go back to it or just get myself a small boat I can tow on a trailer and sail on my own. Until then, I can still enjoy Sydney Harbour with friends. I suddenly seem to have found a lot more people who want to be my friend.



## The Author

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## About Project Perfect

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