

## WET CELLS AND CASH FLOW

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Every time you turn around, your company is trying to save money—often at great cost! Those new battery racks are junk, and there's no way a UPS without an isolation transformer is any kind of bargain. But, try telling them that. It's like they can't hear you. Maybe it's because you don't speak their language. And sometimes, you must show instead of just tell. We'll look at how to do just that.

### WHY ARE YOU DOING THIS?

Sure, you hear that line "Why are you doing this?" in half the B-movies out there. But, do you ever stop to ask that question about your own work? Why are you taking the time to disassemble a part that shouldn't even be there? Why are you taking the time to rig up a special contraption so you can accommodate a terminal post-access problem? What is your job, and what should it be? How can your time best serve your employer? As you begin to answer these questions, you begin to have the basis for talking to people who can make the changes you need. Think in terms of goals. What is your goal for each task? For each set of tasks? What stands in your way?

### KNOW THE ENVIRONMENT

You can best characterize today's industrial and commercial environments with one phrase. "Money is tight." It is not that way because of factors that will change tomorrow. Money is going to be tight for the foreseeable future. You will probably never see a change from this in your lifetime. Here are some reasons money is tight:

- Stock price sensitivity to earnings
- Competition on price and "features"
- Foreign competition
- General competitive pressures due to globalization
- Companies being bled to death: taxes, CEO pay, more taxes, lawsuits and regulations, and still more taxes.

Most companies have zero control over any of these factors. But, they do have control over how they handle them. And the main way they handle them is to cut costs. Corporate charitable giving is at a record low. So is corporate investment in workmanship, education, and research. Money for wet cells is way down the list. In fact, office décor is ahead of some of the most pressing needs of production and maintenance. This is true for several reasons. Too few people understand quality, or will pay for it. Decision-makers pay attention to their constituents—those they see in the hallway, in the bathroom, and at the coffeepot. Not necessarily in that order. For most of the day, the production floor is invisible to them. Certainly, the wet cells are not in front of them as often as that lobby furniture or the chairs that don't match the new carpet in the executive meeting room. And all of them know their car batteries work just fine without all those testers and such. The truth is, office décor wins over wet cell needs, because those who want new furniture are both visible and persuasive to the decision-makers.

Thus, to win money for wet cell maintenance—or even proper specification and installation—you must be both visible and persuasive.

#### Being visible

To be visible, you must communicate up the food chain. You can do so through a variety of means. In fact, to be successful, you must use a variety of means.

You can use *written reports* to make needs known. These are especially useful if you include charts and graphs, as well as an executive summary. They are especially useless if they do not make their point clearly and succinctly. Or if they come across

as pretentious, not well-thought out, or otherwise unprofessional. Never submit a report that documents any illegality the company may be involved in. Doing so can not only ruin your career, but may endanger the company. Address illegalities orally and confidentially.

You need *representation at meetings* if you are going to be on anyone's mind. A person needs to understand your cause and be there to make a case for it on your behalf. If you can get a higher manager to buy into your position, you merely need arm this person with facts. Contrary to what many people think, organizations are not flat, and the dynamics of meetings have a huge influence on whether someone will listen to what you have to say. Stature means a great deal.

It's hard to beat *personal communication*. Written reports are passive documents people can gloss over, or just ignore. At a meeting, there is usually posturing and other anti-communication behavior going on. Politics are the main item on the menu. But when you develop a rapport with a decision-maker who learns to trust you, all of that falls by the wayside. You can't just file reports and/or complain at meetings, if you want action. Say you find there is no spill containment in your battery room. You can see a trail of acid stains going to a sewer drain that shouldn't even be there. You have enough sense not to document this. And you know bringing it up at a big meeting is pointless. The cure, here, is to identify who the players are, *and keep them in the loop*. That doesn't mean you need to brown-nose the highest ranking person on site. It means you find people who would naturally have a stake in what you are doing, and you talk to them. Ask them for advice and other input. Feed them useful information. Don't wait until there is a problem, and then suddenly assume a few meetings will have key players willing to go to bat for you and your ideas. You must cultivate the relationships from the start. Just look for a common, specific interest. All you need to do in that regard is think of whom your work affects. If the batteries fail, who will be screaming in the most anguish? There's the one person you need to contact first. And go on from there.

A caution on personal communications, here. If you want people to see you as credible, watch what you say and to whom you say it. Never say bad things about any person or his/her work—except to your supervisor, very much in private. Keep your opinions about religion, politics, gun control, abortion, and other inflammatory issues to yourself. It's OK to bash universally-hated organizations like the Nazis, KGB or IRS, if you need a verbal punching bag. But keep even that to a minimum. While it's true you're not running a popularity contest, it is true you can't go around making people angry—or even uncomfortable. If you end up sitting at the same mahogany table as the executive staff, you want them to think of you as the person who knows how to save them some money—not as a loudmouth they need to listen to just to get it over with.

*Physical examples and in-person tours* can be very powerful. When your controller can stand in front of the corporate finance committee and show them a corroded cable that they can pass around and touch, your case for a means of preventing that gets very strong. Or, suppose your controller can stand there and say, "I know, because I have been there. I have seen this firsthand." When you decide to go this route, plan things very carefully. The concept of portability is important, here. You want to show things that make a point the other person can take with. You can reinforce that point with physical samples or photographs. If you can do a demonstration with an instrument and have that person record the measurements, you also aid your case. You can also ask that person to perform a task. "See how this cover makes it hard to get a test clip in there? Here, see if you can latch onto this terminal." When the person experiences the same frustration you experience 100 times a day, you can say, "Frustrating, isn't it?" When the person agrees, you can then say, "I feel that frustration 100 times a day. Think of how much all that farting around with that stupid terminal design must cost the company. It's not a value-added activity."

### Being persuasive

Much of what we covered in "Being visible" crosses over into "Being persuasive." For example, in the paragraph we just finished, we hinted at the cost to the company. And earlier, we said "Money is tight" describes today's industrial and commercial environments. What do you think that means, in terms of what kind of information you must give the higher-ups if you want to be persuasive?

*Show the dollars saved or dollars lost.* The so-called bottom line is usually what managers want to know about first. Why? Because today's manager wears many different hats and has responsibilities that assume s/he is capable of working 7x24. A salaried supervisor could easily make less per hour than many of the hourly workers reporting to him or her. These people are under constant pressure to work efficiently. If they don't then they must give up such luxuries as seeing their kids once a week. You know, now that computers save us so much time (when we are not reconfiguring them, rebooting them, reconstructing corrupted files, or learning a new program while trying to figure out how to use files created in the previous one), managers today typically have the workload 3 or 4 managers had 20 years ago. So, they take a lot of shortcuts and really don't care to dig into details. Their main concern is to keep from drowning in a flood of incoming work—in the hopes they can have some free time during the week, perhaps to do their taxes. So, unless your communication to them is both effective and efficient, it will not get anywhere.

Everybody has a few *hot buttons*. Learn what these are for various people, and push the right ones. You already know every manager has a *dollars saved hot button* and a *dollars lost hot button*. All you have to do is talk to people to find out what

their hot buttons are. If a manager talks about value-added activity all the time, then talk in terms of value-added activity when you try to get some funds for your wet cell concerns. If a manager always talks about the customer, then you can say, "I feel this will serve our customers better, because...." You get the idea.

The *SWOT analysis* will help you be credible. List the Strengths, Weaknesses, Opportunities, and Threats for each of the options you are looking at. Be objective—don't favor your initial idea. You can soften things for the final "presentable" analysis if you are going to include it with your proposal. Keep this analysis on file for at least one full year after you've paid the final invoice related to your project. You may need this analysis at performance appraisal time if there are problems with executing your project.

These SWOT items might include things that don't come to mind right away. Do some digging, talk to some people. Will this option leverage your existing resources? Will it simplify parts ordering and stocking? Are there intangibles associated with it, such as good will with a particular vendor or consultant? Look very closely at equipment reliability and the associated downtime costs.

*Production uptime* is what makes a plant or facility a viable concern. For many kinds of these facilities, every minute of downtime is a serious loss of revenue. If you say, "I'd sure hate to see the negative impact such a move would have on our uptime," you will get attention. Unfortunately, too many people think in terms of cost and conveniently leave uptime out of the picture. However, you can use this to your advantage. When Joe Blow manager cuts the isolation transformer out of your new UPS proposal, you can say, "I guess the company won't mind going from four 9s to three 9s." If you can prove this drop in production uptime is likely to happen, Joe Blow won't be cutting that transformer out of your UPS system. Just work production uptime into your every effort to obtain cash flow. It's a hot button for nearly everybody.

## KEY FINANCIAL CALCULATIONS

If you want to obtain funds for wet cell projects, remember one thing. The people controlling the money don't know a wet cell from commode, but they do know financial calculations. If you are going to have any hope of getting some financial backing for whatever it is you want money for, you need to speak in financial terms. And typically, you will do so in the form of a request for capital. Let's look at these calculations with that in mind.

### Cost/benefit or benefit cost analysis

Tally up your costs. Tally up your benefits. Divide the first total by the second. If you bomb one project because of a poor analysis, then your future proposals carry the stain of that. Once you've done this analysis, you should recheck the numbers and the information that drives them to make sure you are on the right course.

### Payback

Payback isn't a ratio, but I include it here because many people use it. Just think of it as the expected number of years to recover the original investment. To calculate payback, you tally up the costs of a project. Then, you determine how much money it will save and/or generate per month. Divide the first number by the second number, and you have the number of months until the project "pays back" the capital invested into it. This calculation usually assumes no cost of capital, so if you include the interest charges for financing it, make a note of it.

In the days before calculators and computers could do IRR calculations, payback was a common number for managerial and financial decisions. It's easy to calculate, especially compared to the other methods. However, it has fallen out of favor because it has little practical value. It's also a vague way to think of capital investments, so don't include it in your proposal unless your accounting people or higher-ups specifically request it. Still, you may want to calculate payback before you get too deeply into the project. If something has a 20-year payback, you might want to save writing the proposal for that project for a day when you have fewer things to do.

### NPV

This stands for Net Present Value, meaning a dollar is worth more today than it will be in the future. The NPV method is the gold standard by which most financial types evaluate funding proposals. You express NPV in terms of absolute dollars.

Forget doing NPV calculations manually—the formula is far too complicated. With a financial calculator, you can type in the cash flows and wait a few seconds while it crunches the numbers and handles the formula behind the scenes. Even better is the electronic spreadsheet. You "play with" the numbers and modify things for "what if" scenarios. Also, on any modern PC, the calculation is instant.

The NPV analysis is one of the *Discounted Cash Flow* methods that arose in response to the “We hate the Payback Method” attitude that began to dominate the financial world near the end of the polyester 70’s. Yes, VisiCalc changed the world every bit as much as Marcia Brady did. To implement NPV calculations, you need to determine your cash flows. To chart your cash flows, simply draw a time line and write down the positive or negative cash amount for each month. Positive is incoming (i.e., savings and revenue), while negative is outgoing (i.e., costs). When you submit your proposal, submit your cash flow diagrams also. If you are not familiar with NPV, it’s a good career move to go out and spend 40 tax-deductible dollars on a managerial finance book so you know all about this. You can order such a book from <http://www.mindconnection.com/books.htm> at a substantial savings over the typical bookstore. If you have time, it’s an even better move to go to a college bookstore in the fall or spring and spend maybe 20 such dollars on a used textbook. As a bonus, you’re likely to find useful notes—the student jotted down in the book—look for the most beat-up book.

### **IRR**

The Internal Rate of Return is the silver standard for financial types, but the gold standard for managers. You express IRR in terms of a percent.

IRR uses the same basic equation as does NPV. Financial types prefer the NPV because the IRR uses kind of a back door approach that involves polynomial equations. This leads to inaccuracies when the cost of capital is in certain ranges, when projects are mutually exclusive, or when projects in some way compete for funding. If you are competing with another project, you may want to leave IRR out of the picture, because that picture will be a distorted one. You will have conflicts between IRR and NPV whenever the projects differ in size (or scale), or in the time patterns of cash flows. When there is a conflict, you are better off going with NPV.

Managerial people prefer (by a factor of 3:1) the IRR method because of its being a percentage return the same way mutual funds and savings accounts express their returns. The flaw in this method is it does not reflect reality. Which do you think nets you more profit: a 25% return on \$100, 000 or a 100% return on \$1? Thus, you may want to provide a statement of actual value even if the IRR is the only number some executive wants to see.

You should know how to derive both IRR and NPV from a given set of cash flows. Get that textbook if you have doubts about either.

### **RRA**

In the case of IRR/NPV conflicts, the fundamental question is “How beneficial is it to have cash flows come in earlier rather than later?” The answer depends on what your company can do with additional funds and the opportunity cost at which your company can invest differential early years’ cash flows. Is there a catch to determining this by using just the NPV or IRR numbers you already have? You bet there is. The NPV method assumes you can reinvest the cash flows at the cost of capital. The IRR method assumes you will invest the cash flows at the Internal Rate of Return.

It is now obvious that the logical choice is the NPV method because you aren’t likely to have a bunch of projects with the same IRR just waiting to be done. Also, the cost of capital is relatively stable and will vary over a small range. There is little sense to going through elaborate calculations if they give a distorted picture of the situation. Thus, NPV wins out to those who appreciate accuracy.

### **MIRR**

The Modified Internal Rate of Return is an attempt to resolve the inaccuracies of the IRR method. The formula for this is incredibly complex, but high-end financial calculators have this function. You will also find it on electronic spreadsheets. Its advantage is it assumes (as does the NPV) that you are investing project cash flows at the cost of capital. This method is now supplanting the normal IRR. MIRR will always lead to the same conclusion for competing projects that are of equal size. If projects differ in size, you’re back in NPV territory.

### **Multiple IRR’s**

When you use the regular IRR method, you can have negative cash flows once a project goes into operation. This means you have multiple IRR’s. It happens with “nonnormal” projects. Such projects have a large cashflow sometime during (or at the end of) their lives. This makes the IRR method go bonkers. You can resolve the problem by going to an NPV or MIRR method.

## **PUTTING IT IN WRITING**

Those who hold the approval pen do not want to read a history on a technology. They simply want to know what it will do for them. The way you present information is often as important as the information itself. Find out from your accountant or controller what the best presentation format is, and use it.

### **Write in the active voice**

Don't write in that stilted, boring, vague way that is so popular among engineers and technicians. Do a word search for the following: was, by, were, had, and been. These are likely candidates for passive voice sentences. Eliminate passive voice completely. Instead of saying, "The study was done and the numbers were tallied," say, "Three maintenance technicians performed the study. The plant engineer entered these in her spreadsheet." Be direct, and do not use adverbs. You don't walk quickly, you scamper. And the big one: do not use words that don't go together. For example, "very unique." Something is either unique or it isn't. Be logical in your writing, so you have the appearance of one who is logical in your thought. This boosts your credibility. If you aren't big on the writing part, consider it a career investment to take a basic writing course at a local community college. Many of these are Saturday only. You may also consider some printed and electronic courses. An excellent way to improve your writing is to use a grammar checker. Most word processors have decent ones, and you can buy stand-alone packages. Just remember, though, the worst sin is to write in the passive voice.

### **Eliminate judgment statements**

Show, don't tell. Let the facts and numbers do your talking. If you can support the numbers and the numbers are good, then the person reading your request will know this is "an excellent project." Just stick to the facts. Anything else smacks of both desperation and ignorance, and you can forget any chance of getting approval. Use of judgment statements in financial proposals can also mark you as an undesirable.

### **Justify all assumptions**

If you say that buying a \$5,400 piece of test equipment will reduce labor by 30 hours a week, you'd better show where you got such information. If it's from a sales brochure, say so—and attach the brochure. If you actually measured such savings, show how you did the measurements. If you assume the cost of capital will be 7% when the project gets its funding, you'd better make sure the current cost of capital is not 11%. One thing that raises a red flag immediately is an extraordinary MIRR. The first thing a reviewer does is check the assumptions. "Oh, sure, no wonder he gets a 90% annual return. He forgot to include the cost of labor, and he's also saying that 500 MCM cable costs ten cents a foot." A classic example is the motor efficiency craze that ended not all that long ago. Savings claims were exceeding costs. If you take a motor that operates at 70% load for 40% of available time and your calculations assume it runs at full load around the clock, you'll show savings that are completely out of line with reality. Suppose you can show a new tool or procedure shaves 10 minutes off a 30-minute task. Don't say because there are 17,520 half hours in a year, you will cut labor by 5,840 hours at a burden rate of \$60 an hour, thus saving \$350,000 a year. How often do you do that 30-minute task? Once a week? Then your savings will be \$6,240 a year. Not a bad savings, and probably worth the \$890 investment you proposed. But, it's a far cry from the \$350,000 amount that would have made you look like an idiot.

If your assumptions are poor, you immediately get a rejection. If you are unsure of an assumption, use the one you think is best and then provide a note that you are unsure. If you can, use a worst-case (or simply worse case) assumption and provide a separate sheet that shows the financial calculations based on the less favorable assumptions. Make sure you clearly mark this as such.

### **List reference sources and attach documentation as needed/as allowed**

A 3-inch thick proposal may not get the most eager reception. If you add just a single page listing your references, it will be enough to show your diligence. You will need to determine what your "target market" readers want to see. Your accounting people and higher level managers should be able to tell you what is appropriate. Keep any research on file, so you can respond to inquiries with authority and accuracy.

### **Prepare a half-page executive summary if you have a lot of information--format permitting**

Mentioned earlier, this summary can make all the difference in the world. Unless your company's proposal format prohibits such, write a summary of the project. List its benefits and the reason why you want to do it. Here, also, you should list the NPV and MIRR.

When you write the summary, revise it at least 5 times—on 5 different days if you can. This summary is often the only place the highest signature authority will look. Keep the language concise and make your point. Do not build up to your conclusion. State it at the outset. Here's an example of a good summary:

“We want to install a battery-monitoring system in the number 3 data acquisition UPS. We have such systems in the number 1 and 2 data acquisition UPS's, and they have prevented system crashes on 5 separate occasions. The number 3 UPS did crash, due to unknown battery condition, resulting in a 21-minute outage even though the diesels came on line on time. We can install the system with no downtime. The NPV is \$20,000. The MIRR is 34%.”

Here is an excerpt from a three-page summary from hell:

“Much has been studied in recent times regarding events that have transpired with the transprostitution of reliability decrementing occurrences in the tide-over battery system conditions readiness monitoring absence. The data that had been lost had been due to unsustainable power due to power interruptions occurring....”

This is gibberish, and no numbers. Steer clear of this kind of writing. Give the facts straight up. That is the theme throughout this paper. Doing that one thing—and doing it thoroughly—will improve your approval rate dramatically.

### **Rules of writing**

- Do your homework: know your facts
- Take a methodical approach
- Back all claims and assumptions with hard data or other substantiation
- Contact manufacturers, trade magazines, and other users for case histories
- Sell the benefits that are important to the gatekeepers
- Show respect for the time of others; make your point clearly and precisely.

### **BEYOND THE WET CELL**

Remember, every “No” you get is an attempt to preserve cash flow. You must develop the skills to overcome those “no” answers and show you will increase cash flow instead of impede it. Chances are, you do not already have these skills in great abundance. So, you must work at them. Develop a plan to do so, and follow it. A course or two at your local community college can help immensely, and you have distance learning options as well.

While your technical skills allow you to do what you see as the core of your job, they will never propel you beyond the limits of your job. If you can grow in the skill areas of communication, personal networking and financial analysis, you will be able to quiet those concerns over cash flow. You will have success in getting the funds you need for proper wet cell system purchase, installation, operation, and maintenance. But, is that all there is to it?

As you grow in these skills, other things will happen in your life. Not just the job you hold now, not just your career, but your life. Conversely, to build some of these skills, you can use life experiences. For example, you can write a paper for the next BattCon. Or, you can become an officer—even if just for a year—in one of the IEEE's hundreds of sub-organizations. You will develop both networking and communication skills. In fact, why not mark your calendar now for the next Battcon? Why not contact some of the people you met at this one, and stay in touch? Perhaps you can collaborate on an article for a trade magazine (see <http://www.ecmweb.com> for author guidelines) or a professional Website (see <http://www.ieee-kc.org>). Open the door to possibilities, and pick something—then just do it!

Unrelated activities help, also. Volunteer to help teach adults to read—you can do this at night or on weekends if you work days. If you work nights, volunteer to tutor for a high school. You can meet some important people in such organizations as Habitats for Humanity. These people, like ex-President Jimmy Carter, may not be able to help you with wet cells, but they will help you develop networking skills. The opportunities for personal growth through church and community activities are immense in both scope and quantity. You will see more about how people think and how to communicate with them in a month of involvement than you will in years of working just with wet cells. The road lies open before you. Will you let it take you to new opportunities?

Wet cells are important, but only because of the systems that rely on them for backup power. The underlying concern for everyone is cash flow. To work successfully with any support technology, you must get cash to flow into it. That won't happen unless you dip your oar into the flow of cash. Sometimes, you may have to row upstream. In that case, row hard.