

Selling Capital Projects to Management

There was an excellent article in the March 19, 2007 edition of the *Wall Street Journal* under the 'Theory & Practice' column by Phred Dvorak. The article was titled "How Understanding the 'Why' of Decisions Matters." It essentially provided justification for how I have made my living since 1997.

In his article, Dvorak writes about a study done by a University of Wisconsin (Green Bay) professor of communications, Phillip G. Clampitt. As reported in the *Wall Street Journal*, professor Clampitt's study surveyed approximately 300 managers and employees at over 100 U.S. companies. What he discovered is that employees at companies where business decisions are explained were more than twice as likely to support those decisions as compared to workers whose companies provided less of an explanation about decisions they made.

After working more than 15 years in various job positions in the utility industry, I have spent the last 13 years developing and delivering customized, financial acumen training for regulated utilities, unregulated generators and manufacturers. My goal has always been to give my class participants the tools that they need to understand the 'why.'

Today, after teaching financial training to over 30,000 individuals in more than 12 countries, I have learned the common questions and misconceptions that employees have concerning accounting and finance. I have used this classroom experience to create relevant and practical financial training programs that demystify how and why a company makes its business decisions. Class participants leave this training able to understand and appreciate their companies' decisions as well as make their own good business decisions. According to professor Clampitt's study, this should also make them more likely to support business decisions at their own companies.

By far, the most common question asked by class participants is: "*How do I sell a capital project to management?*" Of all of the industries with which I have worked, the most capital intensive and financially complex industry is the generation, transmission and distribution of electricity. Because the utility industry is so capital intensive and financially complex, how approval for a capital project is obtained can be a mystery even to those individuals who already know how to perform the financial analysis. I would like to remove that mystery with this article. We will begin with the basics. What are the areas in which you must be competent in order to successfully sell a capital project to management?

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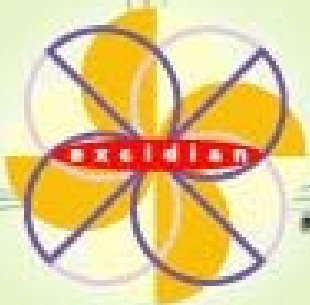
Areas of Competency for Selling a Capital Project to Management

It should go without saying, but I will say it anyway: You must possess some presentation skills in order to be successful at selling a capital project to management. If you want to hone these skills, get all the practice that you can in front of real audiences. Please do not approach a presentation to a capital project review committee as a speech. Approach it as a training class that you are giving to well-educated peers.

Listed below are four areas in which you must be competent in order to increase your chances of obtaining approval for your capital project.

1. **Financial Analysis:** Understand each step in the process of the financial analysis of a capital investment and be able to explain each step to someone that may not be financially astute.
2. **Assumption Justification:** Confidently articulate and justify your assumptions related to the incremental revenue and expenses that result from funding your capital project. This is where your presentation skills will make or break your ability to obtain funding for your project.
3. **Sensitivity Analysis:** Perform, and learn from, a thorough sensitivity analysis. What is a sensitivity analysis? It is nothing more than a “what if” analysis. What if this assumption that you have made is off by 20%? How does that impact the value to the shareholder?
4. **Business Environment:** Understand how the business environment may impact the funding of your capital project. This can be complicated; especially if you are trying to sell a capital project in a utility that is making decisions in a rate-of-return regulated environment. Mastering this capability will help you understand why a seemingly excellent capital project was rejected. It will also help you create an argument for funding the seemingly excellent capital project that was rejected.

Let's examine each of these four areas of competency to get a better idea of how to excel at each one.



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Financial Analysis

The process used to analyze a capital investment is no mystery. It is a financial standard. If you are the one selling the project, you must understand the correct way to perform the analysis and be able to explain it to someone who may not understand it.

In this process, you are going to answer a series of questions that will provide you with data that you will use to create a spreadsheet to analyze your project and perform a sensitivity analysis. The questions are:

1. For each year of the analysis, what incremental revenue will the company receive as a result of owning this capital equipment?
2. For each year of the analysis, what incremental expenses (including depreciation), or savings, will the company incur as a result of owning this capital equipment?
3. For each year of the analysis, how do these incremental revenue and expenses impact the company's net income?
4. For each year of the analysis, what are the incremental working capital requirements that result from owning this capital equipment?
5. For each year of the analysis, how do the incremental net income, working capital and depreciation impact the company's cash flow from operating activities?
6. For each year of the analysis, what are the incremental capital expenditures that result from buying and owning this equipment?
7. For each year of the analysis, how do the incremental capital expenditures impact the company's free cash flow?
8. What is the net present value of the company's incremental free cash flow that results from owning this equipment over the time period designated by the CEO or CFO?
9. Is this a good investment for the shareholders or owners?



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The result of following and answering this series of questions will be a populated version of the spreadsheet shown in Figure 1. All capital investment analyses should be constructed assuming that the equipment is paid for with cash at time zero, or the beginning of the analysis. If you pay cash for the equipment, then the company will not incur any incremental interest expense. This is why the incremental interest expense is set to zero during the analysis period. If the project is a good investment paying cash upfront, then you can make it even better by financing it. However, if the project is a poor investment paying cash upfront, then why bother financing a poor investment?

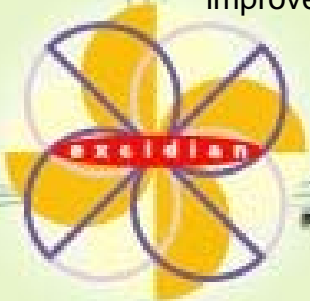
Year	0	1	2	3	4	5	6	7
Revenue								
(Operating Expenses)								
(Depreciation)								
Operating Income								
(Interest Expense)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Earnings Before Taxes								
(Taxes)								
Net Income								
(Working Capital Requirements)								
Depreciation								
Cash Flow from Operations								
(Capital Expenditure)								
Free Cash Flow								
Discount Rate								
NPV of Free Cash Flow								

Figure 1

Assumption Justification

Once you are comfortable with the process of the financial analysis, be prepared for the hard part, explaining and justifying your incremental revenue and expense assumptions. The assumptions used to determine the incremental revenue and expenses are the linchpin in your bid to obtain funding for your capital project. This is where your experience and credibility are critical. Not only do these assumptions have to be logical, but they also have to be justified by past experience, history and / or data. Even more challenging for you, as the project sponsor, is that you may have to explain these assumptions, which are likely to be technical in nature, to a non-technical financial person. If you cannot explain it at his or her level, then you may lose credibility with this decision maker.

Suppose you are trying to justify the replacement of a series of heat exchangers at a power plant because their continuing tube failures require unscheduled maintenance, thereby decreasing plant availability, which results in lost revenue and higher maintenance expenses. In your analysis, you estimate the impact that an improvement in plant availability will have on revenue after the heat exchangers are replaced. How would you explain the basis for your revenue improvement assumption?



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We begin by examining one way of explaining the revenue improvement assumption and then determine how we could make it more effective. A tip for making the explanation more effective is to imagine standing in the shoes of a non-technical financial person on the capital project review committee. Then try to list the questions that might come to mind as you read the explanation in the next paragraph in italics.

Incremental revenue from increased plant availability was calculated assuming an average price per MWh lost of \$50/MWh. This was multiplied by 144,000 MWh, the energy the plant is unable to generate and sell as a result of outages to repair the heat exchangers. The result is an annual increase in revenue of \$7,200,000 once the heat exchangers are replaced.

Here are the questions that you might be asked by a non-technical financial person on the capital project review committee.

1. Why \$50/MWh?
2. Can't we repair these things during off-peak periods?
3. Does the entire plant have to go offline to make this repair?
4. How often do we have to repair these heat exchangers?
5. How long does it take to repair these things?
6. Is there any evidence that the frequency of repairs is increasing?

Now incorporate the answers to these questions into a revised version of the revenue improvement explanation. At the same time, we want to present the explanation so it logically flows to the financial assumption we are trying to justify, while minimizing the complexity of our explanation. This will improve the explanation and generate fewer questions from the capital review committee.

Based on five years of maintenance data, tube failures in this series of heat exchangers require us to back the 1,000 MW base loaded plant down to 50% power for approximately 24 hours while the heat exchangers are repaired. This data also shows that the frequency of repairs is now occurring at monthly intervals.

At a 50% power reduction, 500 MW of capacity is not productive for 24 hours. This equates to 12,000 MWh per outage. At a frequency of one outage per month this equates to 144,000 MWh of lost energy sales.

The revenue lost during the 24-hour repair period is made up of 16 hours of off-peak hourly prices and 8 hours of on-peak hourly prices. Although the average off-peak hourly price is \$30/MWh, the average on-peak hourly price is three times that or \$90/MWh. Therefore, the weighted average price for energy during a typical 24-hour repair period is \$50/MWh

$$(\$90/\text{MWh} \times 8 \text{ hrs} + \$30/\text{MWh} \times 16 \text{ hrs})/24 \text{ hrs} = \$50/\text{MWh}.$$

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Using an average market price for energy of \$50/MWh, avoiding these monthly 24-hour heat exchanger repairs would increase our revenue by \$7,200,000. This is how we derived the incremental revenue that this facility could gain if we made the investment in the new heat exchangers.

This revised version of the explanation of the revenue improvement assumption is a much better way to explain this assumption. At this level of detail you will receive very few of those questions that begin with: "Wait a minute, how did you....?"

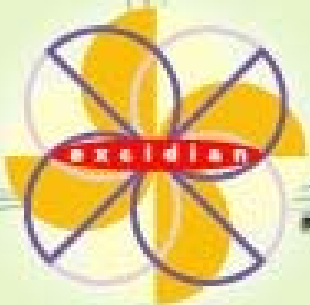
It is acceptable if your explanation still generates one or two of those types of questions as long as you have anticipated them and are prepared to answer them. This is why it is always a good idea to let someone else read, or listen to, your explanation. When you practice, be sure to ask your audience what questions come to mind during the explanation.

Your goal is to structure the explanation so it flows logically to the assumption, allowing the logical sequence to answer anticipated questions and justify the assumption. Present the explanation in financial terms and adjust the amount of technical information to suit the audience experience and education, but be prepared for a financial person with a technical background or operations experience.

For example, in the more effective explanation, we made no mention of the statistical analysis that was performed to determine the average repair duration. If asked about the nature of the analysis on the maintenance data, you may respond that average tube repair lasted 24 hours with a standard deviation of 0.5 hours. This implies a 90% confidence interval of 23 to 25 hours. This answer should satisfy a technically-oriented financial person on the capital review committee. In fact, your answer indicates that you were prepared for this question, which makes you credible to your audience.

Explaining your assumptions so that you answer most questions that an audience would have, will improve your credibility. Many people feel that being asked questions during their presentation indicates an unfavorable response from the audience. It is only unfavorable if you did not anticipate the questions and your answers are not satisfactory.

An exercise that will help you prepare for questions is a sensitivity analysis, which is the third competency we need to address.



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Sensitivity Analysis

By performing a sensitivity analysis, you learn a great deal about how sensitive your project's net present value is to errors in your assumptions. This will require you to vary your assumptions and observe the impact on the net present value. This exercise provides additional insights into how to sell the project and how to answer questions related to your assumptions.

In this analysis you are asking: *"What if my revenue assumption is not accurate, or what if my various expense assumptions are inaccurate?"* To answer these questions, you would start lowering the revenue number, or lowering the estimate of expense savings by changing the corresponding line items in the spreadsheet. You then observe the impact on the net present value. You keep lowering your revenue until the net present value becomes zero. Now you compare the revenue number that caused the net present value to go to zero to your estimate of revenue.

If your original estimate of revenue was \$7,200,000 annually in the heat exchanger project and the revenue could drop to \$3,000,000 before the net present value goes to zero, then it is a waste of the review committee's time to delve into detail on how you derived that estimate for revenue.

Suppose further that you have sound data to document the decrease in the expenses. In this case, any questions related to the credibility of the incremental revenue can be answered by stating that you could be off by 50% in your revenue estimate and the net present value would still be positive. Then direct the review committee to the credibility of the operating expense savings and away from the revenue assumption.

On the other hand, if the net present value of the heat exchanger project drops to zero when the revenue drops to \$6,500,000, you would need to structure your explanation of the revenue improvement to prove that your estimate of revenue has less than 10% error.

A sensitivity analysis helps you to understand the limitations, or strengths, of your financial assumptions. Unfortunately, even capital projects with the most well justified financial assumptions can be rejected because of situations that arise in the business environment. Learning how to deal with these scenarios is the last competency that we need to address.

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Business Environment

Inevitably, the business environment can generate situations beyond your control that may impact the funding of your capital project. Consequently, you must understand how this can happen and what, if anything, you can do about it. Mastering this capability will help you understand why a seemingly excellent capital project was rejected. It may also help you create an argument for funding the seemingly excellent capital project that was rejected.

Suppose that your project is not going to be funded because the generator field must be rewound on the generator at a much larger facility and the option of deferring the generator project carries the risk of a generator failure. Repairing such a generator failure would be a large capital investment that would also require the purchasing of expensive replacement power for an extended period of time. Your capital project cannot compete against this risk. If the probability of obtaining funding for your capital project is low, then just walk away from the battle.

I know this is hard to do, but you need to understand that your project may be one of several capital projects at a plant, and your plant may be just one plant in a fleet of power plants. Try standing in the shoes of senior management in this situation. If a senior manager invests in your capital project and the field on the generator of a 1300 MW unit fails as a result, that manager will get a chance to pursue other career interests.

While that last example did not provide you with an opportunity to obtain funding for your capital project, the following examples will illustrate situations that arise where you may still have an opportunity to obtain funding for your capital project.

At a regulated utility, the successful implementation of your project may cause actual return on equity to increase above the allowed, or regulated, return on equity. This will draw the attention of regulators, who may initiate a "show-cause" rate case to take money away from shareholders. A good argument for implementing your project would be that the increase in return on equity will permit the funding of X dollars of capital projects that provide negative net present value, such as environmental controls or infrastructure improvements.

Another regulated utility example would be the opposite of this last scenario. Perhaps the company's estimated return on equity is below the allowed return. Many times when utility CEO's are faced with this scenario over an extended period of time, they react by cutting capital spending to boost return on rate base, which increases return on assets, which, in-turn, increases return on equity.

If you are facing this scenario, you will have to be prepared to prove that incremental net income divided by the capital investment for your project will

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make an immediate improvement in the company's overall return on assets. Such an improvement will result in an immediate improvement in the company's return on equity.

In other words, if the company's existing overall return on assets is 3% and its return on equity is 12%, then your project's return on assets must be greater than 3% in order to boost the company's return on equity above 12%.

In addition, you will also have to make a convincing case that the estimated incremental net income from your capital project will be realized with a high degree of certainty.

This is the very scenario where your credibility and expertise will be crucial. Again, look at it from the CEO's perspective. He or she has to meet the expectations of the shareholders and Wall Street, and the top expectation is that the company will operate as close as possible to its maximum allowable return on equity. If the CEO is not convinced that your assumptions are realistic and therefore believes that the probability of success for your project is low, then your project will not be funded.

In the beginning of the article I mentioned that this competency, understanding how the business environment may impact the funding of your capital project, can be complicated; especially if you are trying to sell a capital project in a utility that is making decisions in a rate-of-return regulated environment. As demonstrated by the last two examples, you have to understand how a utility makes money in a rate-of-return regulated environment. How a utility CEO responds to capital budget expenditures or operating and maintenance expenditures is a function of where that company's predicted return on equity is in relation to its allowed return on equity.

Understanding rate-of-return regulation, adding good financial acumen, and combining these with experience in the utility industry will help you perfect this last competency.

The four areas of competency that we discussed in this article will help you to speak, fluently and confidently, the language of the financial person who decides if you receive the capital funding that you request. Learn the language and get comfortable with it, and your confidence and success will follow.

John Hynes is a Partner with Excidian, LLC, a company that develops, designs and delivers customized financial acumen training. Excidian delivers a course titled, "Capital Investment Analysis for Power Plant Projects" at the pre-conference workshops at Power Gen International, Power Gen Renewable Energy, and Coal-Gen. Excidian has also developed a new basic course titled: "The Language of Accounting & Finance." All courses are available for in-person, instructor-led training as well as online webinars. Visit our web site at www.excidian.com.

