

Instructions for Capital Budgeting Worksheet

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Note: These are the instructions for a capital budgeting excel worksheet being developed. Please contact Ruby Ward if you have questions and/or suggestions (ruby.ward@usu.edu or (435) 797-2323).

For many capital projects investments are made and the project is run over multiple years. It may be difficult to examine the effects of investments and cash flows over many years. The Capital Budgeting Worksheet allows you to put in some information and it calculates the annual cash flows and the overall results. This is not meant to provide the perfect answers. This is meant to give a reasonable look at the effects of different assumptions. These instructions will discuss the information that you need to input, some of the assumptions and information on how to interpret the results to analyze profitability and feasibility of the investment.

Information Needed

The template is designed for the use to enter their information in the green cells.

Initial Investment– this is the full cost of the initial investment to get started. This is what it will cost to buy everything that is needed.

Terminal Value – This is the amount that you will get at the end of the project when you sell any equipment or other things that you might have.

% Financed – the percent of the initial investment that will be financed through a loan.

Years Financed – the years that the loan will be financed over.

Tax Rate – the full rate that included state and federal income tax and also self-employment tax. If the individual is self employed they will pay taxes on their

Discount Rate – this is the rate that you desire to earn on your investments. This could also be thought of as the opportunity cost (what you would make on the money you invest if rather than investing it hear you invest it somewhere else). If projects have higher risk and uncertainty this rate should be higher.

Depreciable Assets – this is to divide the initial investment up into the types of assets that could be depreciated. The depreciation schedule rates are used to calculate the amount of depreciation that could be deducted from taxable income each year. This is divided into buildings, equipment and livestock. (Note: this could be expanded to include vehicles, office equipment and a list of other things).

Units per year – this could be 1 for the whole project, or it could be head of livestock, acres, etc. It needs to be consistent with the \$/Unit returns and costs. For example, if 10 acres of tomatoes are being grown, the units per year could be 10.

\$/unit Return – The amount of revenue that will come in the first year from this project for each unit (however you defined them in the Units per year). For example, if we are looking at acres of tomatoes and said 10 for units per year indicating 10 acres. The \$/unit – return should be the revenue that is expected from selling tomatoes from 1 acre. It would be the quantity sold times the price.

\$/unit Cost – The costs to operate the project for one unit as defined in Units per year. For the tomato example, it would be the costs for one acre of tomatoes. These costs should include all of the operating costs. They should not include the loan payment, depreciation and Income taxes. These will be automatically figured out.

Growth – The return and cost in \$/unit are used as the receipts and operating costs for year 1. For future years, the growth rates are used to increase these amounts each year. If you estimate that the price would increase by 2% each year the growth rate for receipts would be 2%. If costs are estimated to go up faster, a growth rate for operating costs could be 3 or 4%. These growth rates could also be 0 for no growth.

Assumptions

To make this easy, we are just looking at annual cash flows rather than cash for each month. The template also assumes an annual loan payment. Most loan payments would be monthly. They would be slightly smaller with a little less interest than an annual loan payment. However, to get an idea of what projected cash flows look like, this will work.

The template is for a project for 10 years. Beyond that we may have a hard time examining what the future would look like.

This template is give producers and easy way to calculate and examine estimated cash flows. These are estimates. This is also a good way to change assumptions (numbers in green) and observe the changes in results.

Results

Annual Net cash Flows. The information in green is used to calculate the cash inflows and outflows for each of the 10 years. This allows the producer to examine the net money that would be needed from another source (negative cash flows) or amounts that would be available from the project (positive cash flows). Assumptions on growth, receipts and costs could be changed and the results on cash flows can be examined.

Net Present Value (NPV)– the is the amount in today's dollars that the investment should return above the desired return from the discount rate. If NPV is 0 or positive the investment is projected to make at least the desired return and may be a good investment. If the NPV is negative, the investment is not projected to make the desired return.

Internal Rate of Return (IRR) and Modified Internal Rate of Return (MIRR) – These measures calculate the percentage return that the investment is projected to make. The MIRR is more accurate than the

IRR. The IRR assumes that money is reinvested at the IRR rate until the end of the project. If the IRR is very small or large, this is an unrealistic assumption and will make the IRR artificially small or large. The MIRR assumes that positive cash flows are reinvested at the discount rate which is more realistic.

Cumulative Cash Flows – This just adds up the cumulative net cash flows for the investment. The first year that it is positive is the payback or the years required to get the money that was initially invested back. The longer it takes to do this, the more risk.

Final thoughts

This results of this exercise are to help business managers examine their ideas and options. It is important to realize that the results are only as good at the assumptions and information put in. One of the reasons to use an excel file to examine your ideas, is to be able to vary assumptions about costs and returns and see the results quickly.

It is also important to remember that numbers do not make decisions, people do. So a capital budget exercise is a place to start. You as the decision maker need to also think about all the issues that do not go into the numbers. It is also important to think about how each project will fit into your existing business.