

## The Project as Investment

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### Investments

#### What does it mean to invest?

To invest means to purchase an asset for the purpose of obtaining a future benefit, the amount or timing of which can be more or less certain.

So an investment has 4 characteristics:

1. The asset purchased
2. The costs associated with purchasing the asset
3. The anticipated return on the investment
4. The risk associated with that return

Let's consider each of these four characteristics in more detail.

#### The characteristics of an investment

##### The asset

First, there is the asset purchased. What can we say about it?

1. It was purchased because of the likelihood that it will generate a future benefit
2. The asset is thus owned by the person or entity that purchased it
3. The owner also owns, or controls access to, the hoped-for future benefit

##### Asset costs

Next, there are costs associated with purchasing the asset, and these costs come in two flavors:

1. First we have the direct cost – the price paid. How much the investor is willing to pay for the asset depends on the future benefit:
  - The value of the benefit
  - The timing of the benefit
  - The probability associated with both the value and timing of the benefit
2. Besides the direct cost, the price paid, we also have to consider the opportunity cost. The decision to invest funds in any one asset is simultaneously the decision to not invest those same funds in any other asset, and so we forgo making all other investments.

##### The return

Next, let's consider the hoped-for future benefit. This benefit is the reason for the investment – the reason for purchasing the asset – because it is the asset that will generate the benefit. This benefit is the return that the owner will get for having made the investment.

Typically, this return on investment, this **ROI**, is expressed as

1. A percentage of asset price
2. Over a specific period of time
3. Realized at specific intervals

**ROI** is the term that captures the value of the investment, and so it has those three critical aspects

1. How much it's worth as a percentage of asset price
2. When it starts
3. How long it lasts

## Risk

But these things are not certain – and so we come to the fourth and final characteristic of investments, which is risk – the uncertainty surrounding the amount and timing of the return.

Generally speaking, the amount an investor is willing to pay for an asset is inversely correlated with risk – the higher the risk, the lower the price – all other things being equal.

On the other hand, generally speaking, the return an investor expects to receive is directly correlated with risk – the higher the risk, the higher the expected return – all other things being equal.

Risk influences both terms in the ROI calculation – the price the investor is willing to pay and the return the investor expects.

## The project as investment

Projects must be understood as investments. It's not enough to say that a project is *like an investment*. A project *is* an investment, strictly speaking. We can therefore understand the four characteristics of investments in the project context.

### The four characteristics in the project context

In the world of projects, the asset isn't purchased directly – it's created – by the project. The asset is exactly the result of the project. The purpose of the project is to create the asset. The asset is exactly project Scope.

And what are the costs associated with creating the asset? First, we have the direct cost – the price to be paid. This is exactly project Cost. And, of course, we have opportunity cost. The decision to undertake a particular project is simultaneously the decision to not use those same funds to undertake any other project. And so we forego the investing in all other projects.

And what is the return on the investment? This is the reason the asset is being created. It is the presumed future benefit of the asset, the presumed future benefit of the Scope of the project.

But this Scope is being created speculatively – without any real certainty that it will deliver the desired benefits, which brings us to the fourth characteristic of any investment, which is risk. This is just the nature of investing – this uncertainty around the hoped-for return.

So, considering the project as investment, we can see that

1. The asset is project scope
2. The price paid is project cost
3. The return is the presumed benefit of project scope
4. And a project has all the same investment risk that any investment might have

### The added dimension of project risk

Beyond that, however, projects, as investments, are particularly interesting. Certainly, projects have the normal investment risk associated with purchasing an asset for the purpose of obtaining a future benefit. But projects add an entirely new dimension of risk – *project risk*.

We can evaluate the elements of project risk in terms of their potential impact on the investment characteristics of the project.

#### Project scope

Consider project scope. This is your asset. This is what you are investing in. This is what you are buying. What will you get for your money?

On a great many projects, you will get:

- Less than you wanted
- Less than you expected
- And a lot of things you didn't want but will pay for anyways

### Project cost

Now consider project Cost. This is your asset price. This is your investment. How much will you pay?

On a great many projects, you will pay:

- More than you expected
- And quite probably, more than you should

### Project schedule

Now consider the project Schedule. Project completion determines when your return will begin. Your return begins when asset being created is put into service at the end of your project. So, when will your project end?

A great many projects

- Finish later than scheduled
- Take longer than necessary

### The benefit

And so, finally, let's consider the return on your investment.

The value of the return depends on how well the asset created delivers the intended benefit. So the value of the return clearly depends on project scope.

The value of the return as a percentage of the amount invested – of asset price – depends entirely on the amount invested, which is project cost.

Furthermore, the value of the return depends on when the benefit will start, and this is determined by the project schedule.

So the value of the return on the investor's investment will depend entirely on the scope, the cost and the schedule of the project.

### The overall impact

Quite possibly, as an investor in a project

1. You will not get what you wanted
2. You will pay too much for it
3. And it will be delivered late

## **Making the investment**

Because a project really is an investment, it's interesting to consider what it would mean to approach the decision to invest in a project with the same rigor with which a typical investor would approach investing in securities. We can envision a dialog between such an investor and an investment broker, in which the investor is trying to understand the terms of the investment, and the investment broker must describe the investment with all of the uncertainty that typically surrounds the decision to fund a new project. This is typically at its highest at the beginning of the project, and yet, that is when the first decision to invest in the project must be made.

## **What will I get for my money?**

The first thing the astute investor might ask is, “What will I get for my money? What am I investing in?”

Faced with the uncertainty that characterizes the project, the securities dealer is constrained to answer with corresponding uncertainty:

That’s an excellent question. What will you get for your money. It’s hard to say at this point. At least it’s hard to say with a great deal of precision. I mean, part of the problem is that you’re not entirely sure what you want, and so neither am I. Certainly, what you get will be something like you want, but not precisely. On the other hand, you’ll get some things you don’t want or need, though you will have to pay for them in any case.

## **What will my return be?**

The reason to make the investment is for the presumed benefit. It’s reasonable that the investor ask, “What will my return be? What will be the benefit to me of making this investment?”

Once again, faced with the uncertainty that characterizes the project, the securities dealer is constrained to answer with corresponding uncertainty:

That’s an excellent question. What will be the return? It’s hard to say at this point. At least it’s hard to say with a great deal of precision. I mean, part of the problem is that we don’t have a lot of clarity around what the asset is going to be so it’s hard to say what the benefit will be because the benefit will depend on the quality of the asset delivered and the extent to which it meets your needs, which are rather vague at this point. And it’s all so far off in the future. Surely you can understand that.

## **How much will I pay?**

Any investor would want to know how much they should expect to pay so it’s reasonable to ask, “How much will this cost me?”

And once again, faced with the uncertainty that characterizes the project, the securities dealer is constrained to answer with corresponding uncertainty:

That’s an excellent question. What will be the cost? It’s hard to say at this point. At least it’s hard to say with a great deal of precision. I mean, part of the problem is that you’re not entirely sure what you want, and neither am I so it’s really hard to say how much it will cost. I should be able to give you an estimate in another few months, a range of possibilities. Mind you, the odds are that my estimate will be too low, and in the end, you will likely pay more than my estimate.

## **When does my return start?**

The value of the return depends a great deal on when it starts and so it’s reasonable to ask, “When will I get my asset and start to see my return?”

And, of course, faced with the uncertainty that characterizes the project, the securities dealer is constrained to answer with corresponding uncertainty:

That’s an excellent question. What will your return start. It’s hard to say at this point. At least it’s hard to say with a great deal of precision. I mean, part of the problem is that you’re not entirely sure what you want, and neither am I so it’s really hard to say how long it will take to create it. I should be able to give you an estimate in another few months, a range of possibilities. Mind you, the odds are that my estimate will be too low, and in the end, it will probably take longer than that

## **What will my ROI be?**

The only way to understand the value of the investment is to understand the value of the return, expressed in terms of asset cost – the amount invested. Clearly, it would be reasonable to ask, “What will my ROI be?”

All of the elements of the ROI are affected by project risk (as we have seen above), and so the securities dealer is constrained to answer with multiplied uncertainty:

That's an excellent question. What will your ROI be. There's just no way of saying. Consider that ROI depends on just what the asset will be that we are creating, and we don't have a lot of clarity around that at this point. And since we don't know what we need to know about the asset (just yet), there's not much we can say about what the exact benefit will be. Furthermore, we really don't know how much your investment will be so it's difficult to say what the ROI will be. And since we don't know exactly when your return will start, it would be very difficult to calculate a net present value of the future benefit.

### **That's not investing!**

That's not investing! That's gambling!

If securities dealers were to describe the investment characteristics of the investments they are peddling in the same terms that project managers must use to describe the investment characteristics of their projects, it's likely that those securities dealers would never sell the first security!

And yet, project portfolio managers are forced to make real, concrete decisions on how to invest oftentimes huge sums of money when the characteristics of the potential investment are so clouded by uncertainty.

## **The project portfolio as investment portfolio**

So what does this mean now in the context of portfolio management?

I had said earlier that it's not enough to say that projects are like investments. Projects are investments, strictly speaking.

To that, I would add that it's also not enough to say that project portfolios are like investment portfolios. Project portfolios are investment portfolios, strictly speaking.

### **To manage an investment portfolio**

The role of the portfolio manager is to meet the client's strategies and objectives by optimizing risk and return in a context of limited resources.

How? Well, for the financial portfolio manager, there are only two possibilities:

1. Buy – select which investments to make
2. Sell – decide which investments to get out of

The Project Portfolio Manager has two similar possibilities:

1. Select which investments to make by choosing which projects to fund
2. Decide which investments to get out of by choosing which ones to stop funding

### **Comparing alternatives**

The financial portfolio manager needs a way to compare investments to make buy and sell decisions.

The prospectus

The prospectus gives the financial portfolio manager that capability. The prospectus is a statement of the characteristics of an investment. It describes:

- Investment strategies and goals
- The asset
- The asset price
- The anticipated return (how much it will be and when it will be realized)
- And the risk associated with the return

The prospectus is standardized to facilitate

- Readability
- Comparison among alternative investments
- Investment selection

Analogously, the Project Portfolio Manager needs a standardized way to evaluate projects and make investment decisions.

## The business plan

The information that the Project Portfolio Manager uses to make those decisions should come from the Portfolio Management Information System in a report that is exactly analogous to the financial portfolio manager's prospectus.

This report should likewise be standardized to facilitate readability and comparison, and ultimately, project selection. It should contain the same kinds of information as the prospectus, as well as project performance and project risk information.

Typically this information is reported in a document called the Business Case. The Business Case is the Project Portfolio Manager's prospectus.

## Considerations

Portfolio management, whether for the financial portfolio manager or for the project portfolio manager, comes down to investment selection. Buy or sell. Fund or do not fund.

Owing to resource limitations, it's not possible to fund all projects and so the project portfolio manager must evaluate the investment characteristics of each project against organizational strategies and objectives, and against all other projects, and choose which opportunities to seize and which to forego.

The problem is the same for the financial portfolio manager and for the project portfolio manager in that the 4 characteristics of each investment must be considered:

1. The asset purchased
2. The costs associated with purchasing the asset
3. The anticipated return on the investment – the ROI
4. The risk associated with that return

## Project risk

But there's another consideration in the project context. Recall that the thing that makes projects particularly interesting as investments is the added dimension of project risk.

ROI is a function of return, asset price and timing, and all three of these depend enormously – entirely – on project performance in terms of scope, schedule and cost.

## Range of possibilities

The project portfolio manager needs to understand ROI across the full range of each of those critical project variables and the only way to understand that is with a full regression analysis that explores all of the corners of the combined possibilities.

Within that envelope, there are certainly some combinations that yield an investment that should be undertaken. On the other hand, there are combinations that fall outside the criteria for what constitutes a good investment, according to the organization's objectives.

The decision to invest or not invest (whether in the financial context or in the project context) is not made only once. In the financial context, once an asset is purchased, the decision becomes "hold or sell". In the project context, once a project is undertaken, the decision becomes "continue to fund the project, or kill it".

## **Decision checkpoints**

In either case, the decision needs to be made at predefined checkpoints according to predefined criteria.

In the project context, it makes sense to reevaluate at checkpoints that align with project phases according to the methodology used by the organization.

It's worth noting that not only is the status of the project constantly changing, but the criteria against which the project will be evaluated are also constantly evolving. These criteria might include things such as:

1. Strategic business objectives
2. Thresholds for ROI
3. Spending limits
4. Critical resource availability
5. Organizational priorities

## **The "to-go" business case**

At each checkpoint, the business case should be redone – now, with greater certainty. Sunk costs should be disregarded. The new ROI should be calculated considering only:

1. The current outlook for scope delivery
2. Current projections for the anticipated benefit of the project
3. The current schedule
4. The projected remaining cost
5. The current risk posture

What matters now is the new investment – what remains to be spent against anticipated benefits. Is the "to-go" or remaining business case still a good investment in absolute terms (does it meet organizational thresholds)?

Once again, we should be dealing with a range of values and so it's necessary to complete a regression analysis to understand under which circumstances the investment meets thresholds and under which it does not.

Assuming the to-go investment is a good investment in absolute terms, is it still a good investment in relative terms? It should be compared with other investments, actual and potential, and prioritized accordingly.

## **The element of emotion**

In the financial context, the decisions are difficult enough. One of the primary difficulties is in dealing with the emotional state of the investor. Often enough, this would have the investor do exactly the wrong thing – which is why individuals and organizations do well to have an investment portfolio manager. The decision-making needs to be dispassionate, and based on pre-established and well-defined criteria that consider the strategic and performance objectives of the investor.

The problem is even more difficult in the project context. It happens often that the person who conceived the project has a strong voice in the decision-making process – or, in fact, may be the decision maker. And understandably, this person also has a particularly strong emotional attachment to the project. This creates a strong bias toward funding the project, and away from not funding it.

Isn't it true that it often takes a change in management before projects that should have long since been killed are finally terminated!?

## **A balancing act**

Project portfolio management is a continuous balancing act taking place within a context of constant change.

- External circumstance change
- Organization strategies, goals and priorities change
- The status of projects changes

This requires constant adjustment and that requires that the portfolio manager has current and good information.

## **The importance of estimates**

Not many of us are project portfolio managers, but almost all of us are project managers, and we are the primary source of the information that the portfolio manager uses to make funding decisions. The key parameters that we provide input on are around schedule and cost estimates.

We do well to never give an estimate as a single data point, but rather as a range of possibilities. Of course, we all understand that these ranges narrow as the project progresses, and we are all familiar with the suggested ranges to be used at various stages in the project.

At whatever stage the project is in, the best thing we can do to help our portfolio manager make good decisions is provide the best possible cost and schedule estimates, because these bear so heavily on ROI. I suppose that's easy enough to say, but that's the real challenge in project management, isn't it?

## **Requirements management and planning**

This talk isn't about requirements management, nor is it about project planning, but let it be said: Good input for the portfolio manager presumes good planning and good planning presumes good requirements definition.

Good requirements definition ensures that the asset delivered will more closely resemble what is intended.

Good planning ensures that the asset price will be more precisely known in advance and that it will be as low as it can reasonably be.

Good planning ensures that the return on the investment will be more precisely known in advance, that it will start as soon as it can reasonably start, that it will last as long as can reasonably be expected to last, and that it will be as high as can reasonably be expected to be.

## **Conclusion**

We don't want to be like that securities dealer. We want to be able to say with greater certainty:

1. What will be delivered
2. How much it will cost
3. When it will start yielding its return

We want the project portfolio manager to be able to calculate the ROI with greater certainty, and we want it to be as high as it can be because it will be based on a better asset and a better asset price, and it will begin sooner and last longer.

## References