**Decision Models**

**Think-Big Development Co.: Capital Budgeting**

The Think-Big Development Co. is a major investor in commercial real-estate development projects. It currently has the opportunity to share in three large construction projects:

Project 1: Construct a high-rise office building. Project 2: Construct a hotel.

Project 3: Construct a shopping center.

Each project requires each partner to make investments at four different points in time: a down payment now, and additional capital after one, two, and three years. Table 1 shows for each project the total amount of investment capital required from all the partners at these four points in time. Thus, a partner taking a certain percentage share of a project is obligated to invest that percentage of each of the amounts shown in the table for the project.

Table 1

**Investment Capital Requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Office Building** | **Hotel** | **Shopping Center** |
| 0 | $40 million | $80 million | $90 million |
| 1 | 60 million | 80 million | 50 million |
| 2 | 90 million | 80 million | 20 million |
| 3 | 10 million | 70 million | 60 million |
| Net present value | $450 million | $700 million | $500 million |

All three projects are expected to be very profitable in the long run. So the management of Think-Big wants to invest as much as possible in some or all of them. Management is willing to commit all the company’s investment capital currently available, as well as all additional investment capital expected become available over the next three years. The objective is to determine the *investment mix* that will be most profitable, based on current estimates of profitability.

Since it will be several years before each project begins to generate income, which will continue for many years thereafter, we need to take into account the *time value of money* in evaluating how profitable it might be. This is done by discounting future cash outflows (capital invested) and cash inflows (income), and then adding discounted net cash flows, to calculate a project’s *net present value*.

Based on current estimates of future cash flows (not included here except for outflows), the estimated net present value for each project is shown in the bottom row of Table 1. All the investors, including Think-Big, then will split this net present value in proportion to their share of the total investment.

For each project, *participation shares* are being sold to major investors, such as Think-Big, who become the partners for the project by investing their proportional shares at the four specified points in time. For example, if Think-Big takes a 10 percent share of the office building, it will need to provide

$4 million now, and then $6 million, $9 million, and $1 million in 1 year, 2 years, and 3 years,

respectively.

The company currently has $25 million available for capital investment. Projections are that another

$20 million will become available after one year, $20 million more after two years, and another $15

million after three years. What share should Think-Big take in the respective projects to maximize the total net present value of these investments.

(Note: There are four investment points in time. Funds not used at one point are available at the next point. For simplicity, we will ignore any interest earned on these funds and any money left over at the end of year 3 will not count towards the overall investment’s net present value.)