

Fundamental Concepts of Business

- Proposal
- Cash Flow



Proposal

- A **proposal** is a starting point of a business decision.
- A proposal is a single, separate option that is being considered, such as carrying out a particular software development project or not
- Another proposal could be to enhance an existing program, and still another might be to redevelop that same software from scratch



Proposal

- The whole purpose of business decision making is to figure out, given the current business circumstances, which proposals should be carried out and which ones shouldn't.



What is Important in a Software Proposal

- The key for a great proposal is to invent a great idea.
- There is no “official template” for writing software proposals.
- To sum up: **Content is the key. Form just helps to convey it.**



You may not need to waste time on proposals, but it should be convincing enough to get accepted

A few main parts of the proposal

- **Problem diagnosis**
- **Proposed treatment**
- **Plan of work**



Cash Flow

- To make a meaningful business decision about any specific proposal, that proposal must be evaluated from a business perspective
- The concepts of cash-flow instances and cash-flow streams are used to describe the business perspective of a proposal

Cash flow is defined as:

Incomings and outgoings of cash, representing the operating activities of an organization.

or

A revenue or expense stream that changes a cash account over a given period.

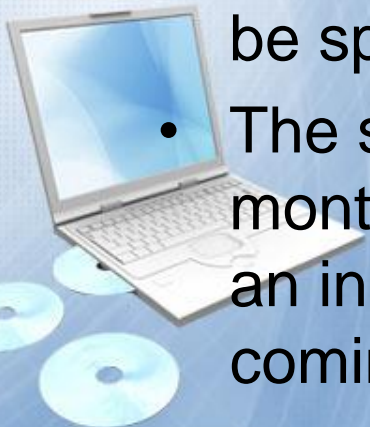


Cash Flow Instance

- A specific amount of money flowing into or out of the organization at a specific time as a direct result of some proposal

E.g.,

- In a proposal to develop and launch Product X, the payment for new development computers, if new hardware is needed, could be an example of an outgoing cash-flow instance. Money would need to be spent to carry out that proposal.
- The sales income from Product X in the eleventh month after market launch could be an example of an incoming cash-flow instance. Money would be coming in because of carrying out the proposal.



Cash Flow Stream

- The set of cash-flow instances, over time, which would be caused by carrying out some given proposal.
- Cash flow stream is a complete financial picture of that proposal.
 - How much money goes out?
 - When does it go out?
 - How much money comes in?
 - When does it come in?

A cash flow streams helps in selecting among different proposals



Categories of Cash flow

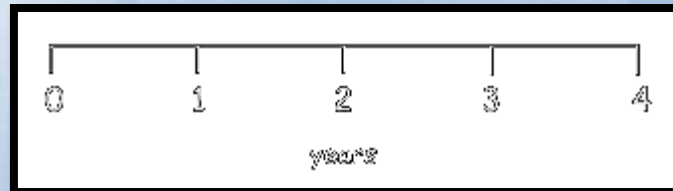
- Initial Investment
- Operation and maintenance cost
- Sales income
- Cost avoidance
- salvage value

be sure to add cost of removal

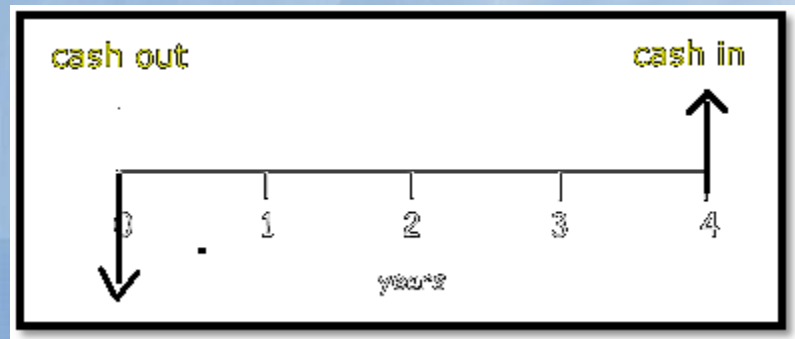


Cash Flow Diagram

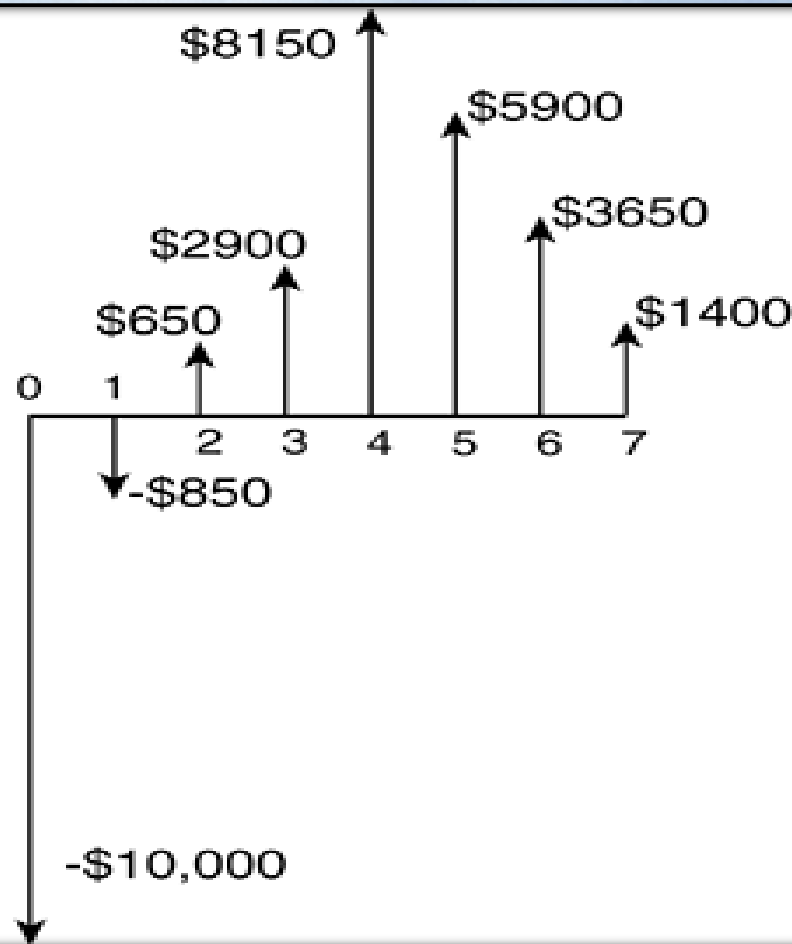
- A **cash flow diagram** allows you to graphically depict the timing of the cash flows as well as their nature as either inflows or outflows.
- We start with a simple horizontal time line



- Then add arrows to represent the **inflows** (arrows pointing upwards) or **outflows** (arrows pointing downwards) of cash

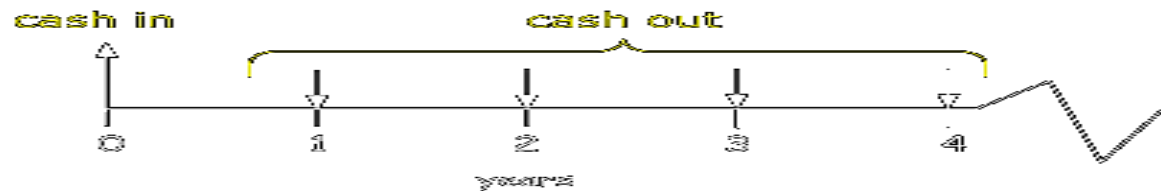


An Example of Cash Flow Diagram

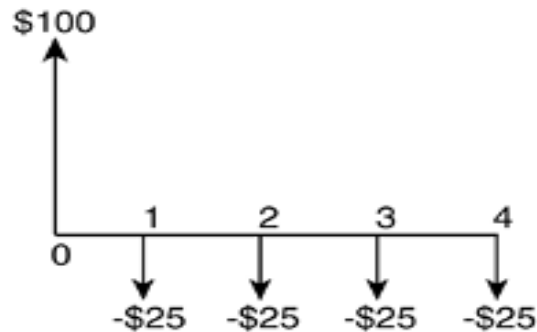
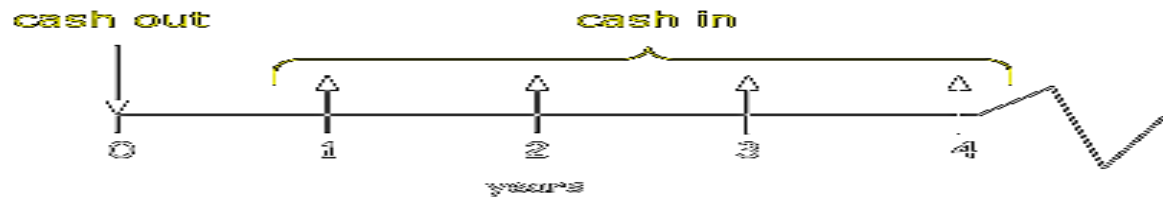


Cash flow diagram from different perspectives

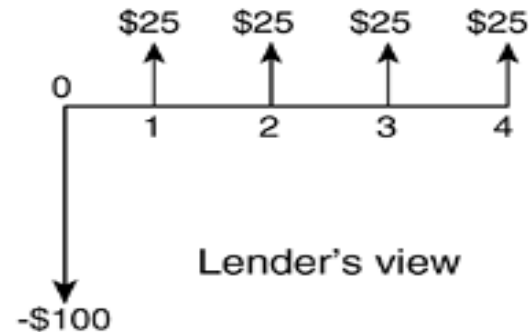
Borrower's Perspective



Lender's Perspective



Borrower's View



Lender's view

Work Breakdown Structure

- One way to develop the cash-flow stream for a proposal is to create a Work Breakdown Structure.
- A hierarchical decomposition that lists all the work associated with the proposal being studied



Work Breakdown Structure

- Work Breakdown structure for buying and operating the car:

Own and operate a car for transportation

buy the car

pay the down payment

Pay the taxes, licensing and registration fee

Get insurance on the car

Make the monthly car-loan payments

Operate and maintain the car

Pay the semiannual insurance payments

Fill the car with gas when needed

Change the oil every 3000 miles

Other routine maintenance as needed

Sell the car



- Next step is to estimate the amount and timing(s) for each of the bottom level items

Own and operate a car for transportation

buy the car

pay the down payment (\$2000 on the day you buy it)

Pay the taxes, licensing and registration fee (another \$1500)

Get insurance on the car (\$350 on the day you buy the car)

Make the monthly car-loan payments (\$500 per month)

Operate and maintain the car

Pay the semiannual insurance payments (\$350 every six months)

Fill the car with gas when needed (about \$25 every two weeks)

Change the oil every 3000 miles (about \$25 every four months)

Other routine maintenance as needed (roughly \$200 per year)

Sell the car (assume you will net \$1000 after paying off the car loan)



- Now it's simply a matter of adding up all of the individual cash-flow instances that happen in each period to find the net cash-flow instance for that period.

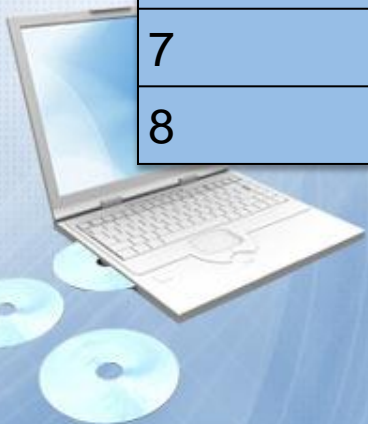
In the car example

- The initial investment is \$2000 down + \$1500 license and tax + \$350 insurance, which equals \$3850 at the end of month zero.
- Most months will be \$500 for the monthly loan payment + \$50 for gas + \$6.75 for oil + \$17 for other routine maintenance; this equals \$573.75.
- Months 6, 12, and 18 will have the \$573.75 monthly from above plus the \$350 insurance, for a total of \$923.75.
- Selling the car at the end gives a salvage value of \$1000.



The Cash-Flow Stream

Month	Amount	Month	Amount	Month	Amount
0	-\$3850	9	-\$573.75	18	-\$923.75
1	-\$573.75	10	-\$573.75	19	-\$573.75
2	-\$573.75	11	-\$573.75	20	-\$573.75
3	-\$573.75	12	-\$923.75	21	-\$573.75
4	-\$573.75	13	-\$573.75	22	-\$573.75
5	-\$573.75	14	-\$573.75	23	-\$573.75
6	-\$923.75	15	-\$573.75	24	-\$573.75
7	-\$573.75	16	-\$573.75	25	\$1,000
8	-\$573.75	17	-\$573.75		



The cash-flow stream, in cash-flow diagram format

