Comparing Investment Opportunities

Learning Outcomes
By the end of this unit the learner will be able to:
✓ Explain how to make better financial decisions.

Comparing Investment Opportunities

Every day, senior management must evaluate investment opportunities (such as an opportunity to build a new plant or to purchase new equipment). Big decisions require information, and information is based on planning. This is capital budgeting. Cash is always sacred so every project requires a thorough analysis to see if it is feasible, and ultimately profitable to the company.

Payback Period

Generally an investment in new equipment or a new plant will result in a net cash flow (through a decrease in annual operating costs). The payback period is the time it takes to recover the initial investment through this net cash flow.

Example:

Cost of machine	$16 000
Annual net cash flow	$3,500

Over a period of 4.6 years this machine will have paid for itself. This is based on the budgeted annual operating costs being accurate and shows how important an accurate budget is. In choosing investment opportunities, a short payback period is desirable. The shorter period also reduces the risk of premature obsolescence as well as changes in the business environment that may reduce the usefulness of the purchase.

Break-Even Point

Identifying the break-even point for a particular project is a good way to evaluate whether or not a new idea has the ability to make money. The formula is:

$$Break\ Even\ Point = Fixed\ Costs + Variable\ Costs$$

Fixed costs are those that remain the same regardless of the level of production, like rent or office equipment. Variable costs encompass the materials and labor required for the product. These items are used more or less depending on how much product is produced.

Let's say that you want to make a new kind of gadget. The fixed cost for each gadget will be $50. The variable costs will be $5.56 for each gadget. The break-even sales point, therefore, is $55.56. Selling your product for any less than this would result in a loss.

Cost-Benefit Analysis

Another type of analysis that can be as simple or complex as required is cost-benefit analysis. This allows you to compare what an opportunity will cost versus the expected payoff.

Let's say that you're trying to decide between two robots to help you make widgets.

	Robbie the Robot	**Rachel the Robot**
Widgets Produced Per Hour	75	60
Value of Widgets Produced Per Hour ($5 sale price each)	75 x 5 = 375	60 x 5 = 300
Cost of Units Produced	75 x 1.5 = 112.50	60 x .25 = 15
Total Value – Total Cost = Estimated Benefit	375 – 112.50 = **262.50**	300 – 15 = **285.00**

Initially, Robbie seems like the better choice if we just look at how many widgets produced per hour. However, Rachel has an overall better benefit, and therefore seems to be the better buy.

Return on Investment

This calculation enables you to see what a particular investment has returned, giving you a percentage that easily allows you to see how this investment has performed. The basic equation is:

$$\frac{Payback - Investment}{Investment}$$

The result is then expressed as a percentage, which gives you the return on investment.

Let's say that you put $100 into a savings account. Over a period of 20 years, you got $10 back in interest.

$$\frac{110 - 100}{100}$$

Your return on investment, then, is 10%. Please note that when performing this calculation in the real world, there can be many other factors affecting it and therefore complicating it. This is only the basic formula.

ISO 9001:2008

What is ISO 9001:2008?

"Say what you do and do what you say," is the oft-quoted slogan that epitomizes the ISO philosophy. Originating in Europe, ISO (International Organization for Standardization) came across the Atlantic in the late 1980's and has developed firm roots in North America. Its goal is to offer international standards for various types of businesses, including manufacturing and government agencies. Their standards are updated periodically, so it's important to make sure that you have the latest information.

A main motivation for engaging in the ISO certification process is to measure up to your customers' quality standards and to keep them happy, or at least keep them. ISO 9001:2008 is extremely customer focused, and that can be justification alone for committing the energy and the resources to the process.

ISO 9001:2008 is a structured process through which a company can raise the quality of the products and services it provides, and then maintain that level. This is the set of standards that outlines the structure for quality management systems, customer-related processes, product design and development, purchasing processes, production and service processes, and continuous improvement.

If your company is ISO certified or plans to become certified, make sure you are familiar with the standards as they can greatly impact how your budget is prepared and what it contains.

Test Your Knowledge

Company One

Peerless Data Corp. is a service organization. Its main service is providing information on companies and organizations of every size and type. Each regional office serves as a center for collecting and processing data. Information is collected from field reporters, credit agencies, the companies and their customers, and various research sources. All of this data is then organized and processed and eventually packaged in its own file. Your office is therefore involved in producing research files as efficiently as possible. Each office operates as a profit center with the Operations Director making all decisions independently.

Does ISO 9001:2008 make good sense for this organization?

Why or why not?

What benefits might this company see?

Company Two

Acme Widgets is a manufacturing company. It has seven employees right now, although it plans to triple that in the next five years. They have one manufacturing plant that delivers to wholesalers.

Does ISO 9001:2008 make good sense for this organization?

Why or why not?

What benefits might this company see?

Company Three

Super Training has a thousand employees. They deliver computer training worldwide to Fortune 500 companies. Their business is based on contract work. However, they only deal with the training departments of the individual companies; they don't provide the training themselves.

Does ISO 9001:2008 make good sense for this organization?

Why or why not?

What benefits might this company see?

Directing the Peerless Data Corporation

Task Explanation

In essence, preparing a budget comes down to making financial decisions that will affect all members of the company. This exercise will test the decision-making capacity of the group.

About Decision Making

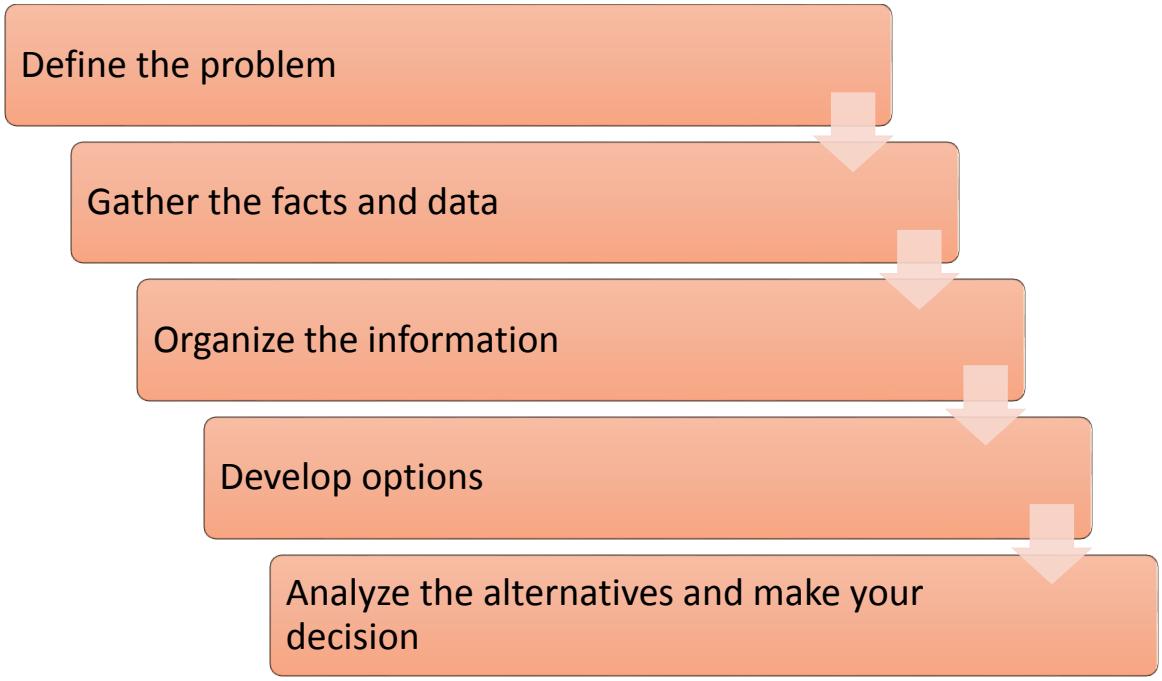
Your team will be playing the role of a manager who has been challenged to turn an unprofitable operation into a profitable one. Each decision requires thoughtful analysis of the information available so that you can evolve and/or evaluate alternatives. Your objective is to make the best decisions, and your pay-off, naturally, will be in profit dollars. We will make five decisions one at a time and debrief after each decision.

Decision-making is one of the most important measures of your ability as a manager. Decisions don't just happen. Good decisions require planning and thinking through. They are an integral part of your job, the price you pay for leadership.

In your workday you deal with two kinds of decisions: the routine and the strategic. In the first, the conditions of the situation which the solution has to satisfy are known, and the job is simply to choose between a few obvious alternatives. The routine decision is often governed by which alternative will

accomplish the goal with the minimum effort and disturbance. Not so for the strategic. Strategic decisions are more complex. They involve either finding out what the situation is or changing it. The ramifications of strategic decisions are broader: they can affect productivity, organization, capital expenditures, and so forth.

Decision-making, in brief, is about selecting a course of action from alternatives. In actual practice, decision-making should be thought of as a process which includes five steps:



Define the problem.

When we are examining our business closely, it can be very challenging to identify the problems we are having; often, the symptoms are more apparent than causes. Symptoms will offer valuable clues to underlying problems, so they are important, but until you have identified the real problem, or problems, you're not ready for Step 2.

Gather the facts and data.

Do the analysis and gather all the data that could possibly be contributing to the problem. Data can comprise facts, opinions, assumptions, records, reports, and information from other people. If key information is not available, delay your decision until you get it. In some cases, however, decisions have to be made on the basis of incomplete knowledge, either because the information is not obtainable or because it would be too costly to get.

Organize the information.

Organize the information so it can be compared and analyzed in a straightforward manner. If you are working with a lot of information, an early task will include sorting what's important from what isn't. To

simplify things a little, look for relationships between different factors such as like pros and cons, costs across departments, growth and so on.

Develop options.

This is the guts of the decision-making process: developing as many good options as possible. Quality and quantity are equally important. It is rare for a problem to have only one solution, so don't be deceived. The important thing is to keep an open mind, let your imagination roam freely over the facts you've collected, and jot down the possible solutions that occur to you.

Analyze the choices and make your decision.

With the previous groundwork laid, you are now in a position to compare the different options generated, and make decisions based on what is available. Making the best decision you can relies upon testing the options against specific, strong criteria, including the risk involved, permanent nature of the remedy, timing, achievability, your strategic plan, etc. Sometimes you can quickly eliminate the unacceptable options and focus on a few alternatives with fewer shortcomings. Ultimately, you will arrive at the best possible decision.

Background

Congratulations! You have just been promoted to Operations Director and assigned to the Bigtown office of the Peerless Data Corp. Previous to this move you held a similar position in a smaller office. You're now ready to move into this more challenging job with higher pay and increased responsibility. "Challenging" is hardly the word to describe the Bigtown office. You've been warned that it's a can of worms; the lowest performing operation of its kind in the country. You've been given a mandate to make this unit profitable.

Peerless Data Corp. is a service organization. Its main service is providing information on companies and organizations of every size and type. Each regional office serves as a center for collecting and processing data. Information is collected from field reporters, credit agencies, the companies and their customers, and various research sources. All of this data is then organized and processed and eventually packaged in its own file. Your office is therefore involved in producing research files as efficiently as possible. Each office (yours included) operates as a profit center with the Operations Director making all decisions independently.

You have inherited a staff of ten people. Morale is low, that's obvious. Supervision has been neglected in the past. The office itself is inadequate and overcrowded. Staff and equipment are not being used efficiently. As a result of these problems, production is at a low of 40 files per day (where it should be 60 per day), growth is stagnant, and the office is operating at a loss.

Your objective is to build annual profits to $100,000 within a year's time. You can only accomplish this by increasing file production from 40 units per day to 75 per day, while keeping expenditures at minimum. As a secondary, long-term objective, you should give adequate consideration to growth, making sure that none of your decisions provide immediate gains at the expense of future profits.

Company Information

This is general information designed to give you a better grasp of your operation. You won't use all the information, but you may need to refer to some segments of it during the game.

The Home Office activates the process by requesting data compilation on a specific account. When the request is received, the Coordinator sets up a file, directs the appropriate field office to visit the account and collect local information. (Field Offices are not under your control.) While the Field Office is completing its assignment, the new file is forwarded to the Researcher where a search for pertinent data is made in the library and existing records. Relative information is combined with the input from the field office; the data is organized, and a variety of calculations, ratings, and adjustments are made. The file is then passed on to the Reporter, where a formal report is dictated, summarizing all findings. (The Reporter has two secretaries who transcribe reports.) The final report and file then go to the Quality Controller for review. The Q.C. verifies accuracy and completeness, and then forwards everything to the Reproduction Aid. The RA copies every item in the file (copy goes to home office, original remains here). Before the original is filed it goes to Data Entry Clerks who transfer data to the Computer. The Computer stores the information for demand availability. The Expediter follows files from station to station, controls movement, and fills in when employees are absent. Here is the list of employees you have inherited, shown by title and salary.

Position	Salary
Coordinator	$45,600
Researcher	$46,000
Adjuster	$48,000
Reporter	$48,000
Steno 1	$42,000
Steno 2	$43,500
Quality Controller	$50,000
Reproduction Aid	$42,000
Data Entry Clerk	$48,000
Expediter	$50,000

Your salary is $75,000.

Peerless Data has established four different salary grades which are reflected in the figures given above.

Grade	Salary Range	Description
Grade 1	$40,000 to $45,000	Clerical jobs
Grade 2	$45,001 to $48,000	Staff performing one function
Grade 3	$48,001 to $52,000	Staff performing more than one function
Grade 4	$52,001 and up	Supervisor or executive

Employees cannot move from one pay level to another unless they are promoted or a job is broadened to include more than one function.

Decision One: Office Relocation

You currently occupy 4,000 square feet of office space which is barely adequate for your staff, files, and operating equipment. There's no doubt that the cramped quarters contribute to the low level of production. With your present lease about to expire (in 60 days), you commissioned a local real estate broker to find the four best locations available, according to guidelines you provided.

You would like to meet your needs for at least three years, preferably five. The normal rate of business growth is about 20% a year with a commensurate increase in personnel and space; your office should eventually conform to this pattern. As a rule of thumb, total space usually allocated is 500 square feet (per employee). Your current lease will revert to a month-to-month basis at the end of the 60 days. Right now, you pay $6,000 a year; when your lease expires, your monthly rent will be $700. A recent poll of your employees indicated that all of them would stay with your company if the move didn't increase the commute from your present location more than 15 minutes each way.

Below are the four locations recommended by the real estate broker.

Location A

This location offers 9,000 square feet of operating space at an annual rental of $10,000. The owner requires a five-year lease. He will provide required painting and renovation work at no cost. You like this space because it's adjacent to your present location, so the staff would not be inconvenienced. The cost of your move to Location A would be $1,500. This space is available in 30 days, at which time you'll be committed to paying rent (assuming you decide on this spot).

Location B

This site is on the opposite side of town from your existing office, about eight miles away, and will take ten extra minutes each way during rush hour traffic. The space consists of 12,000 square feet. A three-year lease is required at $10,000, with an option for two additional years at $10,500 a year. Location B will be available in 90 days for you to move in. Refurbishing costs run about $2,000. The move itself will require an estimated $2,000. Since your present lease will expire before Location B is available, the owner has offered to pay the extra month's rent at your current location.

Location C

Location C is 6,000 square feet and costs $8,000 per year. It will be available in 60 days. You can sign any length lease you want, up to ten years. The move here will cost $1,500, but the landlord has offered to absorb the cost of the move if you sign a five-year lease. You'll have to pay for your own refurbishing, however; a cost of $1,200. This location is a five minutes' drive from your present facility.

Location D

This location is a good buy and close to the airport, which is a plus for you. The space available is 12,000 square feet. You estimate your refurbishing costs at $3,000. Location D is in reasonable proximity to your present site (about five minutes away). The cost of the space is $9,500 a year. The owner can only give you a three-year lease since the entire area will be torn down and redeveloped by the city at that time. The cost of the move is $1,500.

The cost of moving and/or repairs in all cases will be charged against your first year's lease.

Test Your Knowledge

Based on the above information, decide which of the office sites is the best move.

Score: _____

Decision Two: Reproduction Backlog

One of the problems you have observed is a consistent back-up, or bottleneck, created by the reproduction station. Your Reproduction Aid can handle approximately 500 copies per day, since each one requires about one minute for processing. (It takes about 30 seconds to remove each document from its file, position in copier, return to file, and about 30 seconds for machine to process the copy.) Each file contains an average of 15 documents (ten of 8 1/2 x 11, and five of 5 x 8). At the current rate of 40 files per day there is a substantial accumulation of copy work throughout the week; when the operator is out sick, or the equipment is down, the problem becomes more acute. The cost per copy on your present copier is six cents per page. It's completely paid for and in good working condition.

You've considered two broad courses of action. One would be to add another Reproduction Aid at the same pay level as the first. This would expedite the operation, increasing production 50%, to about 750 copies per day. The other course is to replace the present equipment with a more sophisticated copier which, hopefully, would enable you to keep reproduction in concert with the rest of the operation. To pursue this further, you invited three copy machine manufacturers to demonstrate their hardware. Your notes follow.

Transfax

Each copy takes ten seconds of machine time; handling time is cut in half, to 15 seconds. Cost per copy comes to four cents. The Transfax is sold at a price of $1,500 with a year's free service guarantee. After the first year, a service contract of $250 per year is required.

Reprodata

Makes a copy in five seconds and cuts handling time to 10 seconds. Machine is leased rather than sold outright. Three-year lease would be $3,000. Cost per copy determined by monthly volume: first 10,000 copies at 10 cents, next 10,000 at five cents, any additional copies above 20,000 made during month would cost three cents each. A service contract is desirable: it is $500 a year, and would be needed immediately.

Flocopy

This unit works on a different principle than the two previous copiers. It cuts each copy to size rather than producing everything on 8 1/2 x 11. This paper is stored on an 8 1/2 inch roll and each copy is cut automatically to the exact length of the original. The cost per copy is therefore based on a per-inch basis. Copies that are 8 1/2 inches wide would be costed at 1/2 cent per inch. For example, an original 8 1/2 x 11 costs 5.5 cents to reproduce. Flocopy takes eight seconds for machine processing and eight seconds for handling each copy. It sells for $3,600. Service is free as long as manufacturer's paper and supplies are used.

NOTE: It is company policy to pay off all office equipment over the first three years of its life.

Test Your Knowledge

On the basis of the above information, what would be your decision?

Score: _____

Decision Three: Improving Supervision

One of your more urgent situations is related to supervising staff appropriately. Your personal preference is to look after day-to-day operations and supervision yourself, but you obviously don't have the time to do an adequate job of it. The person previously in your role tried to do it all and it didn't work because they spread themselves too thin. Your staff really need a personable, high quality, full-time supervisor, and this need for someone strong will become more important as the operation grows and the staff numbers increase.

There are lots of ways that you can fulfill this need. You could promote Brad Matters to the role of Supervisor; he has been working as your Expediter. Brad knows all the staff well, and also has a strong

working knowledge of the different roles within the warehouse. Brad has been with the company for five years and is well liked by his colleagues. He's trustworthy, reliable, and would probably enjoy the raise in salary that comes with the job ($6000 per year). When you initially interviewed Brad before the take-over, you noted that he was quite content with his job, and though he didn't have any clear career goals that he shared with you, he has a good knowledge of the operation, and got along well with his peers. Brad is in his late forties, a committed family men, and active member of the community.

A second option would be to hire a suitable candidate from an outside source. The human resources department keeps a list of people who have appropriate strengths and could be candidates, including Peter Hunt who works as an Assistant Supervisor at a large and successful operation although is at quite a distance being over 2,000 miles away. Peter is 40, and comes with good recommendations. You met him once at a conference and were impressed by his experience, personality, and ambition. If you decide to hire Peter, you'll have to wait about two months before he can start so that he can get moved to a new city with his family, plus you'll have to be prepared to pay his $5000 in relocation expenses. Since he's already at the supervisory level he'll also want a raise from $53,000 to $59,000 for his new job.

A third option available is for you to hire someone locally. There is a possibility that you could find a suitable supervisor with some experience that you could poach from another company. The chance you take with this includes a limited number of competitors in the region, so you'd be more likely to find someone in a related field who would require training, but there are probably some great potential candidates. You estimate that the recruiting, hiring, and training would take 50% of your time for the next three months. Assuming you can find the right person, the starting salary is $55,000 - $60,000.

Test Your Knowledge

What will be your hiring decision?

Score: _____

Decision Four: Job Enrichment

The morale problem that plagued you when you first took over has improved, but it's far from being solved. Part of it, no doubt, stems from the specialized and often monotonous nature of the jobs. You would like to cross-train certain staffers so that instead of handling a piece of a process, they can get more involved in different activities; this will provide greater responsibility and sense of achievement. You feel that job enrichment will also provide substantial production gains. You have now reached a level of 50 files per day (1,000 per month) and estimate that a successfully implemented job enrichment program will enable you to reach 60 a day at a gross profit of $15 each. As a result, you are planning to combine four jobs (Coordinator, Researcher, Adjuster, and Reporter) into one new position called Programmer. The four programmers would do their own coordinating, researching, adjusting, and reporting; they would also share the two secretaries, who will transcribe their reports on an equal-time basis.

In implementing this new program, one of your major problems will be training. A number of alternatives are available. One would be to have your new supervisor, Peter Hunt, do it. Peter did a study and came up with the following projections. It will take him three months of on-the-job training to accomplish the transition; production can be expected to drop by 10% during this period. After the training phase, he estimates that it will take three months of adjustment, during which time production will function at current levels (50 per day). After six months, a permanent increase of 60 files per day should be achieved.

On the other hand, you can have the home office staff do the training for you. They could accomplish the training faster since they are running intensive one-day schools continuously. For example, on Monday of each week they conduct a Coordinator's school, on Tuesday they cover the Researcher's job, Wednesday is devoted to Adjusters, and on Thursday they concentrate on the Reporter's function. You could only send one staffer at a time to the appropriate schools.

During the week you have incomplete staff on hand; you can expect a 25% drop in productivity. When your four staffers are trained, the production level should rise to normal in a week, maintain that level for a month, and then gradually improve at a rate of 40 files a month until you reach your objective of 60 files per day.

A third alternative would involve handing off the job to a consulting firm specializing in job enrichment. Their fee for taking care of the entire job would be $6,000. To accomplish the task, they plan to make a

study of the jobs involved, and then construct a program that would permit the involved employees to learn on the job. By using their own personnel as backup during the training period, the consulting firm will guarantee to maintain the current production level. Their timetable is as follows: one month to make the study and preparations (they can start immediately), one month to accomplish the training, and then a 20% increase in production (which will be permanently maintained).

Test Your Knowledge

What is your decision?

Score: _____

Decision Five: Staff Expansion

You've now achieved a production level of 60 files per day, reaching the company-wide average of six files produced for each employee (excluding supervisors). Your geographic area of operation is capable of generating 75 accounts (files) per day, however, and you'd like to step up to this new level as quickly as possible. Since many of your people are apparently operating at, or near, capacity, you'll have to increase your staff to accomplish this new performance objective. Your decision concerns the number of

people required and the jobs which the additional staffers will perform. The addition of extra people will not affect your own personal workload or that of Peter Hunt, your Supervisor.

A recent study of workload/production utilization made by Peter Hunt showed how close to operating capacity some of the staffers were:

Staff	Operating Capacity
Four Programmers	90% each
Quality Controller	75%
Expediter	80%
Data Entry Clerk	75%

Test Your Knowledge

How would you proceed?

Score: _____

Further Reading:

✓