Decision Making

A Human Resources Toolkit

Department of Human Resources

Learn... Grow... Lead... Excel

The Manager's Toolbox

Committed to Excellence

Acknowledgements

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The Washoe County Department of Human Resources would like to thank the managers and supervisors who participated in a series of forums and contributed ideas and suggestions that were used in creating this toolkit. Unfortunately, during the brainstorming process, we did not associate names of the supervisors with their comments so we are unable to ascribe the quotes to specific individuals. But we thank you all for your assistance in making this document one filled with our own Washoe County Best Practices!

You will find specific quotes from supervisors in the grey dialog boxes scattered throughout the toolkit. An entire page of their ideas for getting the input of others in decision making has been included along with their tips for communicating throughout the decision making process.

We hope this toolkit will provide you with useful tips and techniques to improve your decision making ability.

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Introduction

Decision making is an essential skill for effective leadership. Having the ability to make timely and well informed decisions has many benefits, not the least of which includes individual and team success. But before you can figure out how to make better decisions, you first need to understand what decision making is. And perhaps what it is not.
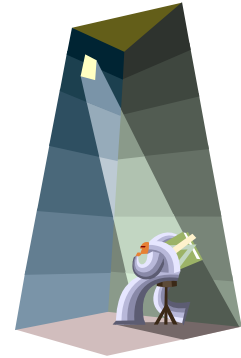
Simply put, decision making is a process of making choices or reaching conclusions, particularly on matters of importance or consequence. People often confuse decision making and problem solving. And although they are related, they are separate processes.

Problem Solving vs. Decision Making

Let's start with problem solving. Problem solving is the largest or overall process and decision making is a sub-process within it. Think of it this way. You've discovered you have a problem, an issue, or a challenge you need to resolve. You'll sit down; come up with an idea or a way to resolve the issue and then implement some action to take care of it. Problem solved! Well yes, but sometimes it's not quite that easy.

Problem solving is the whole enchilada. It's the process of identifying a problem, analyzing the situation and causes, and developing and implementing a solution to bridge the gap between the current and desired state.

Problem Analysis is the first sub-set in problem solving. Here is where you precisely identify the problem by looking at where you are today and where you want to be. You figure out what are the possible causes of the gap and identify ideas with the potential to close it. Problem analysis must be done first, and then the information gathered in that process may be used towards decision making.

Decision making follows on from gaining an understanding of the situation and can be considered an outcome of thought processes that lead to the selection of a course of action among several alternatives. Every decision making process produces a final choice. Hopefully, that choice will be the best one to produce the results that will solve your problem.

Decision Making

The Decision Making Process

All decisions are not created equal. There are some decisions you will be called upon to make that are relatively simple ones.   These typically require a simple decision making process. But very often in a leadership role, you will be called upon to make more difficult decisions.   These usually involve:

- Uncertainty — you may not have all of the facts

- Complexity — you may need to consider many interrelated factors

- High risk consequences — the decision may have significant impacts

- Alternatives — each one has its own set of uncertainties, complexities and consequences

- Interpersonal issues — you may find it difficult to predict how others will react

A systematic process will help your more complex decision making be more effective and of a higher quality. Here are 10 steps to help you make better choices in your decision making:

1. Establish the objectives of your decision making process.

2. Classify and prioritize your objectives in order of importance.

3. Determine the most appropriate decision making style for the situation. (see next section on Decision Making Styles, starting on pg. 6)

4. Develop alternative actions or solutions.

5. Evaluate each alternative against all of your objectives and other appropriate criteria (risk, consequences, available resources, etc.)

6. Choose a potential best alternative that is able to achieve all the objectives (see Decision Making Techniques on pg. 11 and the *Toolkit* beginning on page 17).

7. Evaluate the chosen alternative for additional possible consequences.

8. Communicate your decision — explain your rationale; provide information about risks and benefits; be sure to include all stakeholders in your communication.

9. Implement the choice.

10. Check that the action you have taken is effective and take any additional actions required to prevent adverse consequences from becoming problems and starting the whole cycle all over again.

Decision Making

Decision Making Styles

Everyone makes decisions. But when you are in a position of leadership you must make ones that are in the best interest of the whole organization. You cannot only think of how the decisions impact you but must consider others as well. It is a responsibility that can bring great reward but can also bring great pain and frustration.

Apart from the decisions themselves and how good or bad they are, leaders are often viewed favorably or unfavorably based on *HOW* their decisions are made. Your decision-making style can sometimes overshadow the decision itself! So even if the decision was ultimately a great one, people may forget about that and focus on the *way* you made it. Therefore, as a leader, you will need to consider not only what decision is made but how you make it, as both parts of that equation will be judged.

There are four widely accepted decision making styles. Chances are you use all of them; however, you may have one or two that are your most used, or default styles. What is important to keep in mind is that they are all appropriate when used under the right circumstances. So don't be a one trick pony! Learn the differences between the different styles and when the use of one is acceptable or is perhaps more appropriate to use than the others. Practice using the different styles to build your repertoire of decision making techniques.

The four styles are Autocratic, Participative, Consensus, and Democratic. Let's go through these in turn and consider the pros and cons of each.

Autocratic

The Autocratic or Authoritative decision making style is one in which the leader maintains

complete control and ownership of the decision. The leader is also completely responsible for the outcome of the decision…good or bad. The leader does not ask for any suggestions or ideas from others and decides from his own information and perception of the situation. This style is useful when the leader possesses all the necessary information and has the required expertise to make the best decision. He makes the decision and his subordinates are then informed of what the decision is. However, the authoritative decision making style is least useful when there is expertise available elsewhere that the leader could call on to make a more effective decision. And, in power driven individuals, it has the potential to become the only decision making style used.

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Advantages of this style include the ability to make a very fast decision and personal responsibility by the leader for the outcome. This style is usually the best choice when an emergency situation exists.

The disadvantage is most often in the effect of the decision on others. Sometimes the people who must carry out the decision will offer less than desired effort. In other cases, morale and effort may suffer in those who may be personally affected by the decision but not included when the decision was made.

When decisions produce less than desirable results, the autocratic decision-maker takes the heat and may lose credibility. Others may begin to think they could have done a better job themselves. But when the outcomes are successful, the autocratic decision maker can take the credit.

> *"Understand that there are times when you can't involve staff in the decision making process; not every decision can be made collaboratively; sometimes there is not time to involve others."*

Participative

Participative, sometimes called Collective or Consultative, decision making is when the leader involves others in the organization. The leader gains different perspectives of the situation by asking for advice and encouraging others to share their ideas, opinions, perceptions, knowledge, and information concerning the decision. The leader maintains total control of the decision because, although outside information is considered, the leader alone decides. If the others consulted have expertise or valuable information, it can help the leader make a more effective decision. And, as in the autocratic style, the leader is also completely responsible for the good or bad outcome as a result of the decision.

The advantage of this style is some group participation and involvement. This is especially valuable when employees will be negatively impacted by the decision. If the leader listens carefully to the information collected, she will usually have a more accurate understanding of the situation and make a better decision.

One disadvantage of this style is a fairly slow, time consuming decision making process. Additionally, disappointment, emotional upset, anger and resentment can occur in those who don't the understand decision or believe that their input was not factored into the decision made.

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Consensus

Consensus decision making occurs when the leader gives up control to a group that is involved in the decision making process. The leader is not individually responsible for the outcome; it rests with the organization or group. As responsibility for the decision is shared, this style can be very empowering to those involved. It is most useful when the risks of a poor decision are minimal and the benefits of including others are significant.
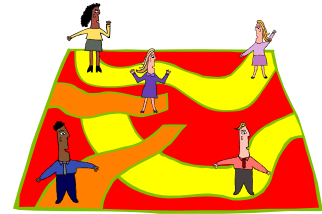
This style is a joint effort between leaders, subordinates, and/or other stakeholders who provide the input to make a shared decision. It is important for those involved in the process to have all the information needed to make the decision and some level of expertise and/or motivation to ensure the best decision is made. It is not a democratic style because everyone must agree and "buy into" the decision. Everyone must be at least 70% comfortable with the decision, believe their opinions have been heard, and agree to stand behind the decision 100%. If total commitment and agreement is not obtained the decision becomes democratic. This process can slow down the decision making and can therefore, be a disadvantage when speed is critical.

The advantages of consensus decision making include teamwork, group commitment and shared responsibility for the outcome. Everyone has a stake in the success of the decision. In many cases, a better decision is made, with a higher probability of success, because a larger number and wider variety of ideas, perspectives, and skills are involved in the process.

Democratic

In the Democratic style of decision making, the leader gives up ownership and control of the decision and leaves it to a group vote. A majority vote decides the course of action that is taken. Also called delegative decision making, the leader passes responsibility for the decision making and the decision to others. In many cases this includes one, several or even all of his subordinates. As organizations grow larger and/or the workforce becomes more capable, the leader does not necessarily have to be the one responsible for making all the decisions. But once again, the effectiveness of the process will be determined by the expertise and knowledge of those who are tasked with making the decision.

This is usually a fairly quick decision making process with a certain amount of group participation. But, there can be a lack of accountability for the outcome as no single person,

or often the group feels no real responsibility. Some group members may be inclined to say, "I didn't vote for that." But despite the seeming lack of group and personal responsibility, this can be an effective style of decision making and has a place in the work environment.

Deciding How to Decide

Now that you know about the different styles of decision making, you will need to take some time to understand which is your default style. A good leader and decision maker is able to analyze each decision making situation to determine which style would be most appropriate and effective and comfortably choose the style accordingly.

Deciding how to go about making a decision can sometimes involve as many choices as the decision itself! There will be times when you have to take charge and decide on your own. And at other times, it will be better to get group consensus. How do you decide which style to use in any given situation? Which one will be the best approach for reaching the decision?

You will not want to make autocratic decisions when team acceptance will be critical for a successful outcome. Neither will you want to involve the team in every decision you make. That would not always lead to the best decision, nor would it always be the best use of time and resources. You will need to be flexible enough to adapt your decision making style to the situation at hand.

The Vroom-Yetton-Jago decision model is one method to examine a situation and determine which style or level of involvement would be most effective. Using a series of seven questions, asked in sequence, the leader can determine which style is most appropriate. In addition to the timeframe in which you must make the decision, consider these seven factors to help choose the best style for the decision you are making:

1. The quality level of the decision required.

2. The level of your expertise and/or knowledge of the subject matter.

3. The expertise/knowledge of others you might include in the decision process.

4. The commitment needed from others for successful implementation.

5. The probable level of others' commitment to the decision and its outcomes.

6. The degree of alignment between the goal you and the organization expect to achieve with the decision and those tasked with accepting and /or carrying it out.

7. The level of potential conflict/disagreement between group members if tasked with reaching a decision themselves.

Decision Making

Fig. 1

Use this handy chart to help you decide how to decide.

Factor	Questions	Level of Group Involvement
Time Requirements	Do you have a comfortable amount of time to come to a decision? Do you need to make a decision quickly and move to action?	If the situation requires quick or immediate action, you may not want or be able to involve others.
Decision Quality Requirements	How important is the technical quality of the decision? Is high quality important here or is a good solution absolutely critical? Is this a case where it would not be acceptable having lots of equal alternatives?	If a single high quality decision is required, group involvement may provide too many alternatives from which to choose. Will need to consider time and own level of expertise.
Leader's Information and Expertise	Do you (the leader) have sufficient information to make a high quality decision on your own? As the leader, do you have enough information of your own to make a good decision?	If you have high levels of information and expertise, you may not need input from others to make a quality decision.
Group Information and Expertise	Do subordinates have sufficient information to make a high quality decision?	If the group possesses high levels of information and expertise, you may want to get their input and/or may delegate the decision making to them.
Group Commitment Requirement	How important is subordinate commitment to the decision? If you make this decision yourself, are you sure the group will accept it?	If you need the group to be committed to the decision or the implementation of actions, you may want to involve them.
Group Commitment Probability	If you were to make the decision by yourself, is it reasonably certain that the group would accept it and be committed to the decision?	If you believe the group will accept and act on your decision, you may not need to involve them.
Goal Congruence	Do subordinates share the organizational goals to be attained in solving the problem? Are the group members aligned with the same goals that you are trying to achieve?	If the group does not understand or feel commitment to the goals or outcomes of the decision, you may want to involve them.
Group Conflict	Is conflict among subordinates over preferred solutions likely? Is disagreement likely among group members in reaching a decision?	If members of the group are likely to disagree and have difficulty reaching conclusions, you may not want to involve them. Also consider the level of commitment you will need from them and the timeframe for reaching a decision needed.

Based on the Vroom-Yetton-Jago Normative Decision Model

Decision Making

Decision Making Techniques

Once you have collected all of the relevant information and ideas with potential for addressing the issue, it is time for the decision to be made. There are many ways to reach the final conclusion, some of the more common of which include:
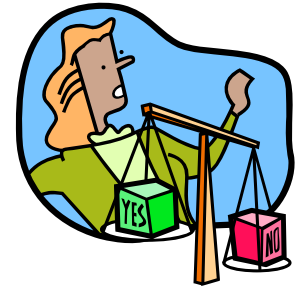
- **Cost/Benefit Analysis (CBA)** — also known as Business Case Analysis, this is a technique in which you add up the value of the benefits of a course of action, and subtract the costs associated with it to determine a net result. Because of this, it is often informally referred to as "running the numbers."

- **Force Field Analysis** — a technique for looking at all the forces for and against a decision. It differs from the pros and cons method by identifying ways to strengthen the forces that support your decision and reduce the impacts of the opposition to it.

- **Grid Analysis (Decision Matrix)** — also known as Multiple Criteria Decision Analysis, this tool helps you decide between your options, while taking several different factors into account.

- **Paired Comparison Analysis** — a framework for comparing each potential course of action against the others; helps you determine the relative importance or differences between your options.

- **Plus/Minus/Interest (PMI)** — a twist on the tried and true Pros and Cons. This tool adds a third dimension, 'Interest', to help you determine a course of action.

- **Pros and Cons** – probably the most simple and widely used method in which you simply list the advantages and disadvantages of each available option.

Of course you can always go with accepting the decision of an expert or someone else who is in authority. You could also flip a coin, or use a Ouija board, tarot cards, augers, or some other form of divination!

Decision Making

Timely Decision Making

Another key component of good decision making is the timeliness of the process from problem identification to action taking. No decision, regardless of how great it is, will achieve maximum efficacy if it is arrived at too late or leaves others waiting too long.

Not being able to make a timely decision can have wide ranging negative impacts. Aside from the missed deadlines and missed opportunities, resources can be wasted and a lot of last minute scrambling can occur as you implement the chosen actions. Additionally, a slow decision making process can result in frustration on the part of team members and others who are waiting for the decision and may be the ones who end up scrambling to make it happen.

To help us understand how to be timelier, let's examine some of the potential reasons why we fail to make timely decisions.

> *"Some decision-makers don't want to or find it difficult to make the hard decisions."*

Potential causes of failure to make timely decisions:

- The issue is too complex

- Decision-maker(s) wants to be certain they have gathered enough information

- Decision-maker(s) wants to be certain they have analyzed the information enough

- Conservatism and caution on the part of the decision-maker(s)

- Desire to be right

- Concern about adverse reactions

- Decision-maker(s) not well organized

- Avoidance due to the nature of the issue

The next time you find yourself reluctant or unable to come to a decision, think about this list and what might be holding you back. Find a way to force yourself to overcome this roadblock and move to a more timely decision.

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Here are some concrete steps you can take to make more timely decisions:

1. Ask yourself:
   - What additional information could be collected?
   - How long will it take to collect?
   - What information is absolutely necessary?
   - What information would make us feel better, but probably would not cause us to change the decision?

2. Avoid analysis paralysis:
   - Set a deadline to complete your information analysis.
   - Prioritize the greatest concerns.
   - Spend your analysis time on those.

3. Focus on generating options for dealing with problems that may arise, rather than on insisting on certainty in the decision.

4. Implement the decision.

5. Stand by your decision once it is made. Avoid revisiting the decision making process unless there is strong evidence that reconsideration is necessary.

Timely Decision Making in Teams

> *"Get a final decision made and seek employee buy-in. Then ask, "How's the solution working? Do we need to tweak it?"*

Making a timely decision by yourself is hard enough. But if you are using a Participative, Consensus or Democratic style of decision making, it can seem almost impossible! As we have learned, in general, the higher the level of commitment and buy-in to the ultimate decision required from the team, the more important it is to use a team approach for solving problems and making decisions. Team involvement in the decision making process helps increase acceptance of the final decision, more ownership of the decision, and shared responsibility for success. Team decision making can improve the quality of the decisions made because the group process generates a variety of ideas, perspectives and opinions that lead to more creative and effective results. However, be careful of seeking to build consensus in making a decision when building support for a decision may be more appropriate.

Remember that the team approach works best when:
- Effective execution depends on full acceptance of the decision

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- Information from more than one person is required to make the decision

- A higher-quality result is desired

- A creative solution is required

- The decision does not have to be made quickly

Team approach may not be appropriate when:

- The decision involves a routine or simple task

- The decision needs to be made quickly

- The majority of team members are not likely to agree

- Consensus or buy-in is not important

- Compliance with the decision is fairly certain

When using a team approach, be sure to watch out for potential roadblocks. For example, a team may have difficulty making timely decisions because the team members are unclear, confused or in disagreement about certain elements of the process such as the problem to be solved and their roles and responsibilities. As a leader, you can increase the effectiveness of team decision making by clarifying:

"When giving input to decision making, be sure to give the decision-maker some options to select from."

1. The issue, problem or challenge to be solved.

2. Those who should be involved in the decision making process.
    - Who has the knowledge to ensure the decision is logical and sound?
    - Who will be involved in implementing the decision?
    - Who must approve the decision?

3. How each person should be involved.
    - Who is directly involved in making the decision? Who is indirectly involved?
    - Who should be consulted-provide resources, information or opinions?
    - Who makes the final decision?
    - Who will champion the decision?

4. The deadline for when the decision must be made.

5. Who is responsible for the outcome?
    - Who will do the work?
    - Who else needs to know about the decision? When do they need to know?

Fig. 2

Bright Ideas from Washoe County Supervisors:
Seeking Input from Others

Encourage others to give input to decision-making

- Empower front-line employees to make some decisions within the scope of their authority, contribute to process improvements; help them turn complaints and concerns into action around solutions.

- Staff needs to be made more aware of what their boundaries are, i.e., where they have authority and where they don't.

- Ask each department, division, work unit where they think cuts can be made. Get staff to contribute ideas when you are working on your budget - they are closest to the work.

- Get input from all levels of employees.

- Have the right people/expertise at the table for the decision being made, whether inside or from outside the department.

- When making decisions, consider others impacted outside of the department, such as technical, financial, and/or political impacts.

- Include the people who will be impacted or who will be implementing in the decision-making process.

- Find out what the citizens really want.

Find new ways to get input

- Hold idea generating sessions with supervisors so they can come up with cost savings ideas. Listen to and implement some of the ideas of first line supervisors.

- Put together a committee of different employees to work on an issue and let them run it and resolve it. Stay out of it - delegate.

- Department Heads should attend meetings with staff to hear their ideas, etc.

- Send employees a questionnaire or use an anonymous tool like Survey Monkey to solicit feedback and ideas from employees.

- Hold regular small and large group meetings with employees; ask them for their ideas/input/ways to improve processes.

- Start a "suggestion box" (if they seem effective for the team).

- Initiate a "Steering Committee" of representatives from all levels of the organization to solicit and share inputs. All ideas are directed to management and Department Head returns a written response.

Decision Making

Communication and Decision Making

As with every other leadership or business process, a key ingredient in its success or failure depends on the communication effort at all stages. These communication strategies will help you, not only when you are problem solving and making decisions, but every day in your role as a manager or supervisor at Washoe County.

<u>Messaging the Audience</u>

- Ensure more communication from department management down to front-line employees in the organization.

- Make sure you understand and communicate how decisions will impact others.

- Be careful of language used so you don't create panic among employees.

<u>Open and Honest Messaging</u>

- Be clear with employees when decisions are final and when they can still change, "We're skill working on it." "It's a work in progress." "We're going to try this and learn from it."

- Communicate even when you don't have all the information; balance transparency with lack of information; "I don't have any news right now, but I want to hear your questions."

- Give feedback to those who are delivering messages so they know how they can improve their communication skills.

- Be ready to talk about and address rumors.

- Admit to mistakes; when a decision made goes bad, own up to it.

<u>Message Clarity</u>

- Provide concrete information; don't say things could maybe be this way or maybe be that way; deliver facts not supposition ("might happen" vs. "will happen").

- Be prepared to answer questions, help employees understand what is going on, and allay fears.

- Provide clarity about what is policy, what is contractual, what is practice and procedure.

- Provide as much data as possible to make good decisions; especially critical when the impacts of decisions cross departmental lines.

- Fully explain decisions made and why using in-person and written (email) communications.

- Try to ensure everyone hears the same message by asking questions, checking for understanding, following up with an email summary, and monitoring behavior and addressing it as needed.

- Ensure that messages are clear, reliable and timely.

SECTION TWO:

Tools for Decision Making

Decision Making

Cost Benefit Analysis

A cost benefit analysis is used to determine how well a planned action will turn out. Although it can be used for almost anything, it is most often used on financial decisions. Since it relies on adding positive factors and subtracting negative ones to determine a net result, it is also known as running the numbers.

To complete a Cost Benefit Analysis:
1. Determine all of the positive factors (Benefits).
2. Quantify each factor and add them up.
3. Identify all of the negative (Costs).
4. Quantify and subtract the negatives.

The difference will indicate whether the planned action is viable. The most common mistake in completing a cost benefit analysis is not including all of the costs and benefits.

Example:

As the Print Shop Manager, you are proposing the purchase of a new $250,000 printing machine to increase output and quality. You need to run the numbers before presenting your proposal to senior management.

The new machine will produce 1000 more documents per hour and they will be of higher quality. The newer equipment will have less down time and be more energy efficient to operate. Only one operator will be needed to run the equipment and complete jobs.

All numbers are calculated on an annual basis.

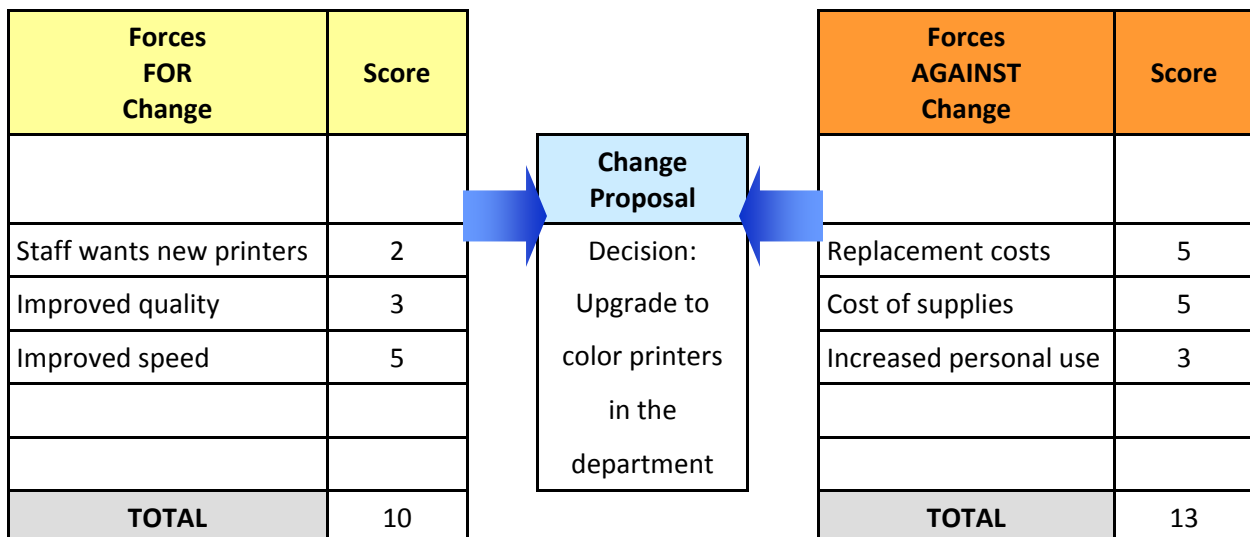|	
Purchase machine…………………………..-$250,000	Increased revenue…………………………..$104,000
Installation………………………………….. -3,400	(Annual net value of additional 1000 documents/hour for a 40 hour week)
Single operator cost………………………. -42,500	Quality increase revenue…………………. 4,200
Operator training…………………………… -3,000	(Calculated at 75% of current reject rate)
Insurance premium increase…………… -1000	Reduced material costs…………………….. 1,200
Additional square footage cost………… -345	(Purchase of bulk supply reduces cost by $.08 per hundred)
	Reduced labor costs………………………... 85,000
	(2 FTE can be redeployed)
	Utilities savings…………………………….… 2000
Net annual savings/revenue………………………$44,655	

Decision Making

Force Field Analysis

In cases where you have decided to carry out a plan of action, Force Field Analysis helps you to identify changes you could make to improve it.

To complete a force field analysis follow these simple steps:

1. Describe your plan or proposal for change in the middle.
2. List all forces for change in one column and all forces against change in another column.
3. Assign a score to each force, from 1 (Weak) to 5 (Strong).
4. Total the scores to see if the plan is viable.
5. Find ways to increase the forces pushing for the change.
6. Find ways to reduce the strength of the forces opposing the change.

Example:

A department head is deciding whether to install new printers. She is thinking it would be great to use color printers because documents can look so much more professionally done. She draws up a worksheet like the one below.

Forces FOR Change	Score		Change Proposal	Forces AGAINST Change	Score
			Decision:		
Staff wants new printers	2		Upgrade to	Replacement costs	5
Improved quality	3		color printers	Cost of supplies	5
Improved speed	5		in the	Increased personal use	3
			department		
TOTAL	10			TOTAL	13

The result reveals that purchasing color printers may not be the best solution. If the need for new printers is real, perhaps simply upgrading to newer, higher quality and more efficient black & white printers is the answer. They will cost less initially (lowers replacement costs to 4) and have lower maintenance and supplies costs down the road (lowers supplies cost to 3). If printing in color is still a need, perhaps investing in one for the department and strategically locating it, will be an option (lowering personal use score to 1). These changes would switch the balance from 13:10 against the plan, to 8:10 in favor of it.

Decision Making

Grid Analysis

The Grid Analysis is a tool for reviewing each of your options as related to the various factors you need to consider in order to come to a decision.

For this analysis, list your options as rows on a table, and the factors you need to consider as columns. Each option is rated by how well it satisfies the factors. Weights are allocated to show the importance of the factors and these are multiplied by the ratings given to each option. These scores are totaled to determine the highest scoring option.

Factors:	A	B	C	D	E	Total
Weights:	#	#	#	#	#	
Option 1						
Option 2						
Option 3						

Here's a step-by-step guide, followed by an example.

1. List all of your options as the row labels on the table and list the factors that you need to consider as the column headings.

2. Work your way down the columns of your table, scoring each option for each of the factors in your decision. Score each option from 0 (poor) to 5 (very good) according to how well it meets that criteria. Note that you do not have to have a different score for each option and if any do not meet a particular factor in your decision, you should score it "0."

3. Next determine the relative importance of the factors in your decision. Show these as numbers from 0 to 5, where 0 means that the factor is absolutely unimportant in the final decision and 5 means that it is very important. More than one factor can have the same importance. Use these to weight your preferences by the importance of the factor. The values may be obvious but if they are not, use a technique such as Paired Comparison Analysis (page 22) to estimate them.

4. Multiply each of your scores from step 2 by the values for relative importance you calculated in step 3. This will give you weighted scores for each option/factor combination.

5. Finally, add up the weighted scores for each option. The option with the highest total score is your best choice.

Example:

A surfing enthusiast is getting ready to buy a new car. He needs one that will carry his surfboard but will also be good for business travel. He has always loved and wanted a convertible sports car. So far, no one car he has looked at seems to fit all three criteria.

The vehicles he is considering are an SUV/4x4, a comfortable 'family car', a station wagon, and a convertible sports car. His decision criteria are cost, ability to carry a surfboard safely, ability to store his equipment securely, comfort over long distances, attractive look, and fun.

He draws up a table with the vehicle options labeling the rows and the decision factors labeling the columns as shown below. He then scores each option, 0-5, by how well it satisfies each factor. At this point he does not consider the relative weights of the factors.

Factors:	Cost	Board	Storage	Comfort	Fun	Look	Total
Weights:							
Sports Car	1	0	0	2	5	5	
SUV/4x4	2	5	4	3	2	1	
Family Car	3	2	1	4	0	0	
Station Wagon	3	5	5	5	1	1	

Next he determines the relative weights for each of the factors. He multiplies these by the scores already entered and totals them as shown below.

Factors:	Cost	Board	Storage	Comfort	Fun	Look	Total
Weights:	**4**	**5**	**1**	**2**	**3**	**4**	
Sports Car	4	0	0	4	15	20	**43**
SUV/4x4	8	25	4	6	6	4	**53**
Family Car	12	10	1	8	0	0	**31**
Station Wagon	12	25	5	10	3	4	**59**

This gives an interesting result. Despite its lack of fun and aesthetic appeal, a station wagon may be the best choice. If the surfer still feels unhappy with the decision, maybe he has underestimated the importance of one of the factors. If not, perhaps he should find an old station wagon "woody" to carry his board!

Decision Making

Paired Comparison Analysis

Paired Comparison Analysis helps you to determine the importance of a number of options relative to each other. It is particularly useful when priorities are not clear, you do not have hard, objective data upon which to base a decision, where there are conflicting demands on your resources, or where there are simply too many or too similar items to mentally rank. It is an ideal tool for comparing "apples with oranges" – completely different options such as whether to invest in a new IT system or complete a customer relations survey. A decision like that is usually much harder than comparing three possible new IT systems, for example. And since it is a subjective, opinion-based technique, it is useful in situations where precise cause and effect linkages are difficult to measure and when dealing with feelings and opinions.

You can use this to compare each option with each other option, one-by-one. For each comparison, you will decide which of the two options is most important, and then assign a score to show how much more important it is.

Follow these steps to use the technique:

1. List the options you will compare. Assign a letter to each option.

2. Mark the options as row and column headings on the worksheet.

3. Note that the cells on the table where you will be comparing an option with itself have been blocked out - there will never be a difference in these cells!

4. The cells on the table where you will be duplicating a comparison are also blocked out.

5. Within the remaining cells compare the option in the row with the one in the column. For each cell, decide which of the two options is more important. Write down the letter of the more important option in the cell, and score the difference in importance from 0 (no difference) to 3 (major difference).

6. Finally, consolidate the results by adding up the total of all the values for each of the options. You may want to convert these values into a percentage of the total score.

Example:

You have just completed interviewing candidates for a job opening in your work group. To help you and your interview panel prioritize and build consensus to determine who is the most qualified, you complete a paired comparison analysis.

You start by filling in the names of each candidate being compared in the columns and rows corresponding to the order in which you interview them.

Decision Making

A– Avery

- Compare Avery to Bruce. Avery is the preferred candidate so the letter A is written in column B. A difference weight of 2 is determined between the two candidates' qualifications.
- Continuing across the row, Avery is compared to Cara and Cara is chosen with a qualifications difference rating of 2. A C, 2 is recorded under column C.
- Now comparing Avery to Diego, Diego is preferred with a difference rating of 2.
- Comparing Avery to Ellen, Avery is the preferred candidate and a qualifications difference of 3 is determined. An A, 3 is indicated in column E.
- Avery is compared to Fran and Avery is again preferred with a difference of 3.

Option	A: Avery	B: Bruce	C: Cara	D: Diego	E: Ellen	F: Fran
A: Avery		A,2	C,2	D,2	A,3	A,3
B: Bruce			C,3	D,3	B,1	B,1
C: Cara				D,1	C,3	C,3
D: Diego					D,3	D,3
E: Ellen						E,0
F: Fran						

B– Bruce

Moving down to the next row, begin comparing Bruce to the remaining candidates. You have already compared him to Avery and indicated a preference for Avery.

- Bruce is compared to Cara and Cara is chosen with a major qualifications difference indicator of 3. Therefore C, 3 is written in column C.
- Compare Bruce to Diego. Diego is preferred with a difference of 3, so D, 3 is indicated.
- Comparing Bruce to Ellen, Bruce is chosen with a difference between the two rated a 1.
- Bruce is compared to Fran. Bruce is again preferred and a difference of 1 is written.

C– Cara

Compare Cara to Diego, Ellen and Fran by indicating the preference and difference in qualifications between candidates by writing the appropriate letter and number in the column under each.

D-Diego, E-Ellen, & F-Fran

For each of the remaining candidates, continue to evaluate them, indicate the preference, and rate the difference in qualifications between each pair. Write the letter preference and the number in the corresponding column.

Decision Making

Once all the comparisons have been completed, it is time to total and rank.

- Count how many times each candidate is preferred and fill in that number in their box under the Preference Score column. In the example, Avery, was preferred three times, so "3" is placed in the corresponding box. Candidate Bruce was preferred two times so a 2 is placed in the score box. Total the rest of the rows by counting the number of times each candidate was preferred and their corresponding letter was written down.

- Next, add the numbers given when comparing differences in qualifications between each pair of candidates and indicate the total in the Difference Values column. For example, Diego received difference ratings of 2, 3, 1, 3, and 3, for a total of 12. Twelve is written in his Difference Value box.

Candidate	Preference Score	Difference Values	Percentage of Total	Rank
A: Avery	3	8	24%	3
B: Bruce	2	2	6%	4
C: Cara	4	11	33%	2
D: Diego	5	12	36%	1
E: Ellen	1	0	0	5
F: Fran	0	0	0	6

- Determine the Percentage of Total in the difference in qualifications between candidates by converting the difference values into a percentage of the total. In the example, the total of Difference Values is 33 (add the column). Cara obtained a difference value of 11 which equates to 33% of the total.

- The candidate with the highest total is ranked #1; the next highest is #2; and so on. If candidates have the same percentage, look at the box where they are compared to each other and rank the preferred candidate higher.

Diego is the candidate of choice with Cara a close second.

Decision Making

Plus/Minus/Interesting (PMI)

PMI stands for Plus/Minus/Interesting. It is a valuable improvement to the pros and cons technique that allows you to do a check on whether or not a course of action will actually improve the situation and is worth taking.

To use the technique:

1. Draw up a table with three columns headed Plus, Minus and Interesting
2. Underneath 'Plus', write down all the positive results of taking the action
3. Underneath 'Minus' write down all the negative effects
4. In the 'Interesting' column write down the implications and possible outcomes of taking the action, whether positive, negative, or uncertain.

By this stage it may already be obvious whether or not you should implement the decision. If not, consider each of the points you have written down and assign a positive or negative score to it. The scores you assign may be quite subjective. Next total the scores. A strongly positive score shows that an action should be taken, a strongly negative score that it should be avoided.   If the decision is still not obvious, you can then score the table to show the importance of individual items. The total score should show whether it is worth implementing the decision.

Example:

A recent college graduate is deciding whether to get her own apartment in the city.

Plus	Minus	Interesting
More activities (+5)	Have to pay rent (-8)	Easier to find new job? (+1)
Easier to see friends (+4)	More pollution (-3)	Meet more people? (+2)
Easier to get places (+3)	Less space (-3)	More responsibility (-4)
	No countryside (-2)	Need to stick to a budget (-3)
	Have to buy furniture (-4)	
+12	-20	-4

She scores the table as +12 (Plus); - 20 (Minus); - 4 (Interesting) = - 12. For her, staying in suburbia with her parents outweighs the call of getting her own place. For right now, it would be much better for her to continue to live outside the city, but close enough to travel in when she wants or needs to do so. Perhaps in time she'll feel more comfortable with paying rent and city living!