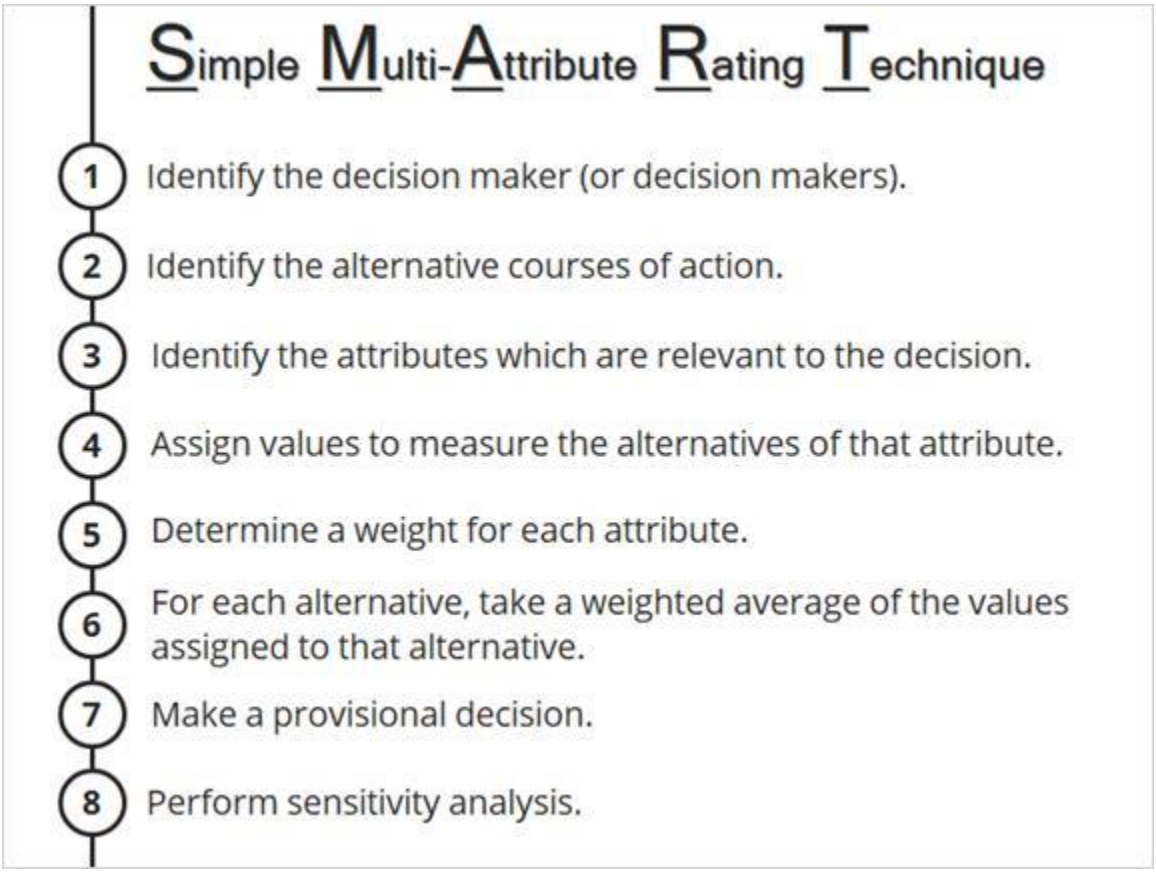
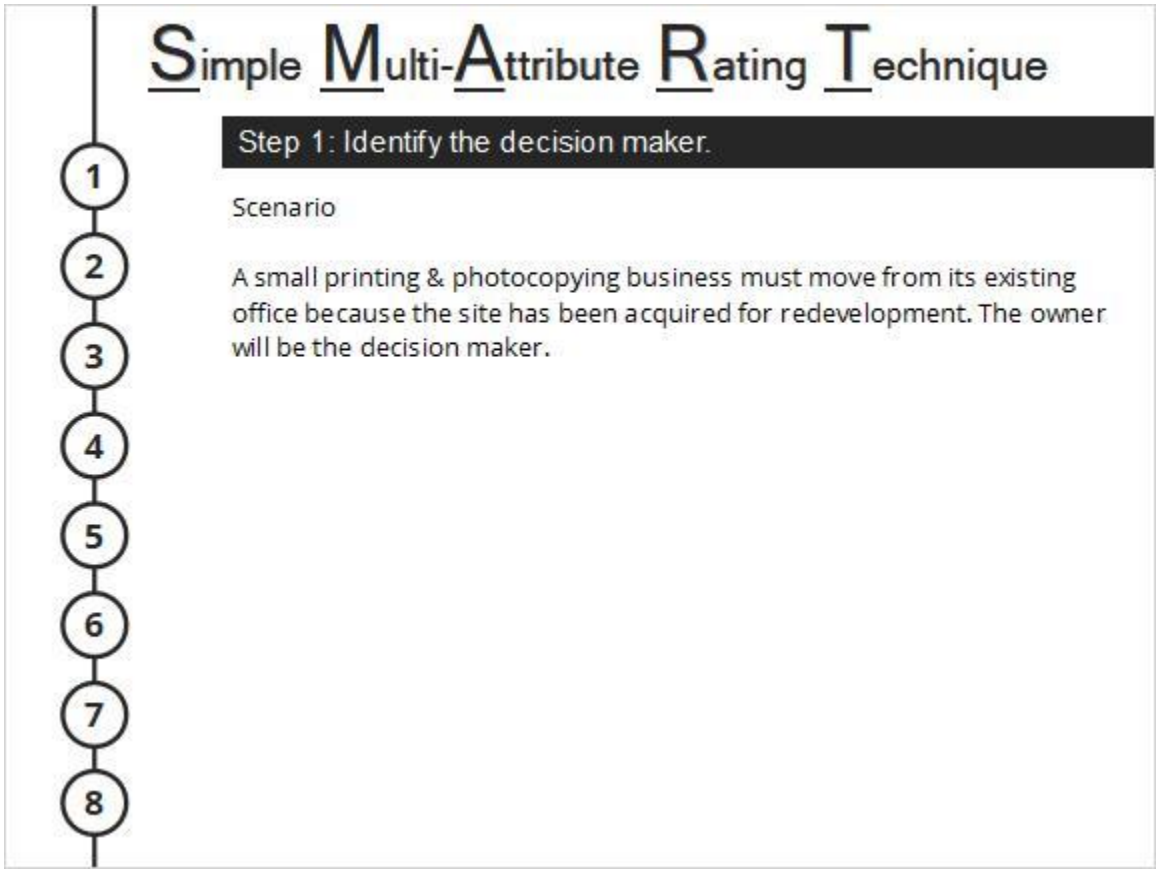
Simple Multi-Attribute Rating Technique



Step 1: Identify the Decision Maker



Step 2: Identify the Alternative Courses of Action

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1
2
3
4
5
6
7
8

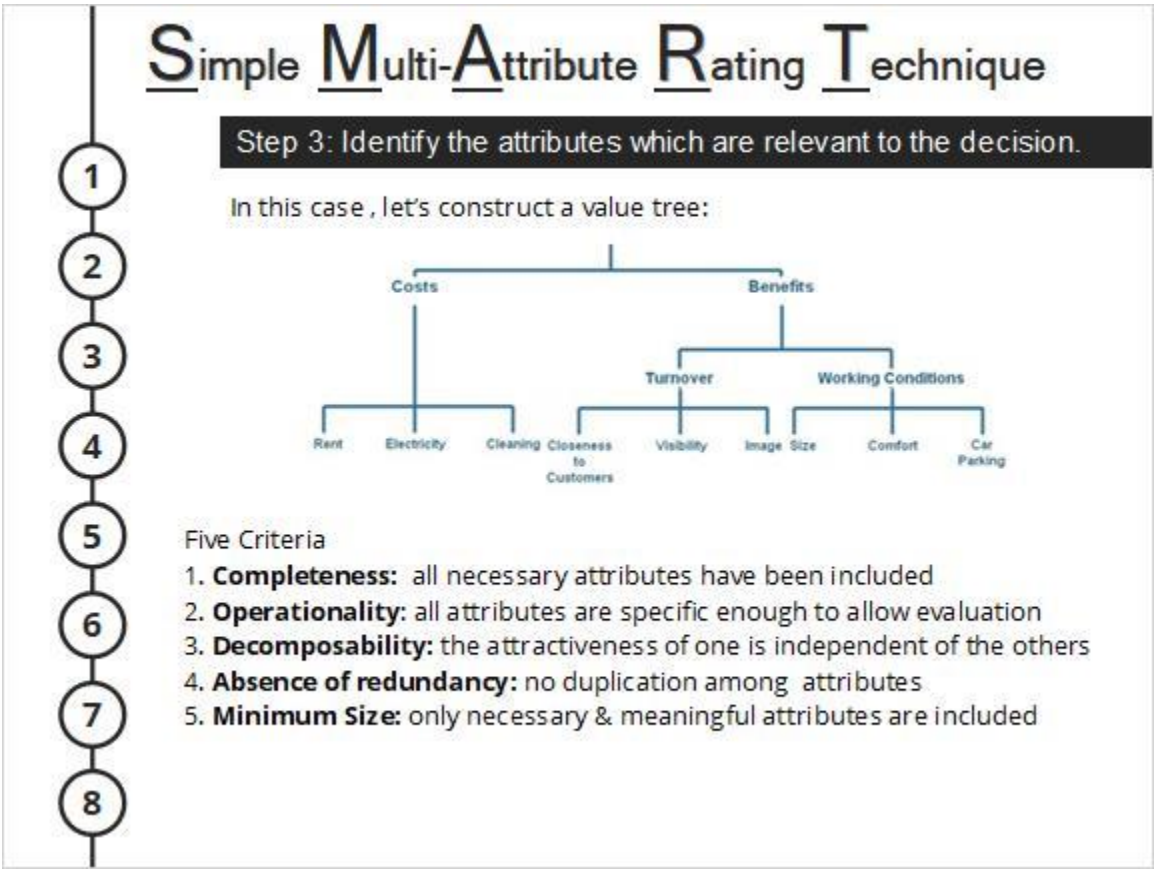
Step 2: Identify the alternative courses of action.

In this case, the owner is considering seven possible locations:

Location		Rent ($)
Addison Square	A	30 000
Bilton Village	B	15 000
Carlisle Walk	C	5 000
Denver Street	D	12 000
Elton Street	E	30 000
Filton Village	F	15 000
Gorton Square	G	10 000

Keeping costs low is important but there are other factors. For example, Addison is in a prestigious location but is expensive; it is also dark and not very comfortable. Bilton is new and the working conditions would be great but it is several miles from town and the customer base!

Step 3: Identify Relevant Attributes



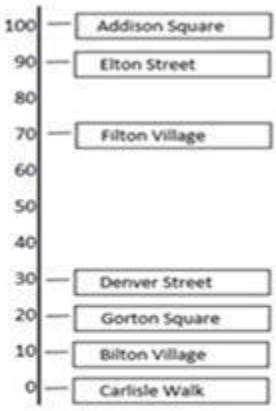
Step 4: Assign Values

Step 4: Method One - Direct Rating

Start by ranking the alternatives from most preferred to least preferred.
In this case, let's start with "image" and assume the following ranking:

(1) Addison Square
(2) Elton Street
(3) Filton Village
(4) Denver Street
(5) Gorton Square
(6) Bilton Village
(7) Carlisle Walk

Rank on an interval scale of 100



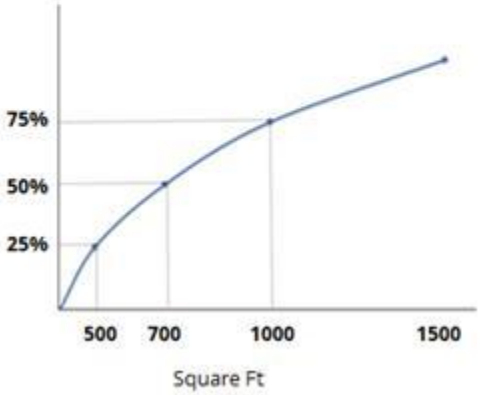
Repeat for all attributes:

	Office						
Attribute	**A**	**B**	**C**	**D**	**E**	**F**	**G**
Closeness	100	20	80	70	40	0	60
Visibility	60	80	70	50	60	0	100
Image	100	10	0	30	90	70	20
Size	75	30	0	55	100	0	50
Comfort	0	100	10	30	60	80	50
Car Parking	90	30	100	90	70	0	80

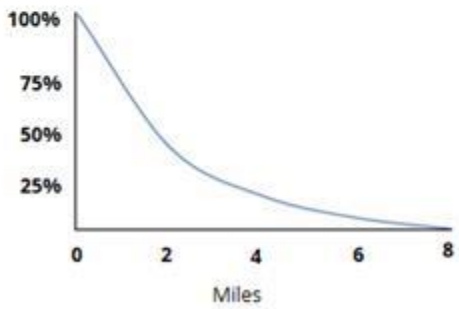
Step 4: Method Two - Value Functions

Using the attribute "size," determine the optimal value. In this case, assume the owner likes large offices so he would assign the optimal value, i.e. $v(1500)=100$, to Elton Street as it has 1500 square feet. Similarly, $v(400)=0$ as Carlisle has 400 square feet.

Determining the midpoint requires some subjectivity but assume that owner settles on $v(700)=50$. In order to plot this curve, you will need the quarter points. The owner selected the following quarter points (based on preference): $v(500)=25$ and $v(700)=75$.



Curves can be inverted;
here is the value curve for "closeness:"



Step 5: Determine Weights

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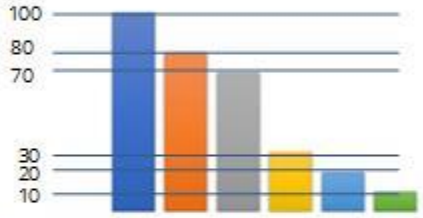
List the alternatives in descending order and determine the "swing" between attributes:

(1) Closeness to customers
(2) Visibility
(3) Image
(4) Size
(5) Comfort
(6) Car Parking

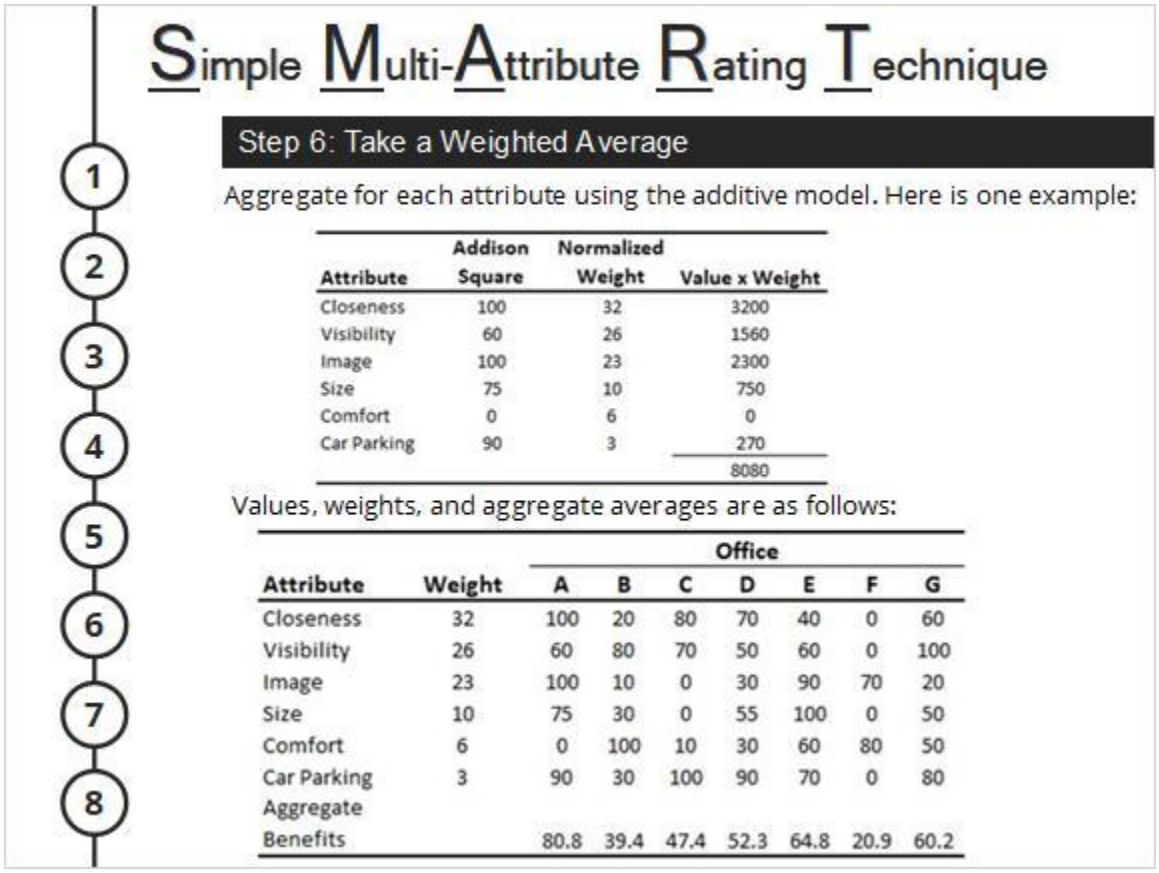


In this case, the "swing" in visibility is 80% as important as the swing in closeness; hence of value of 80% is assigned to visibility.

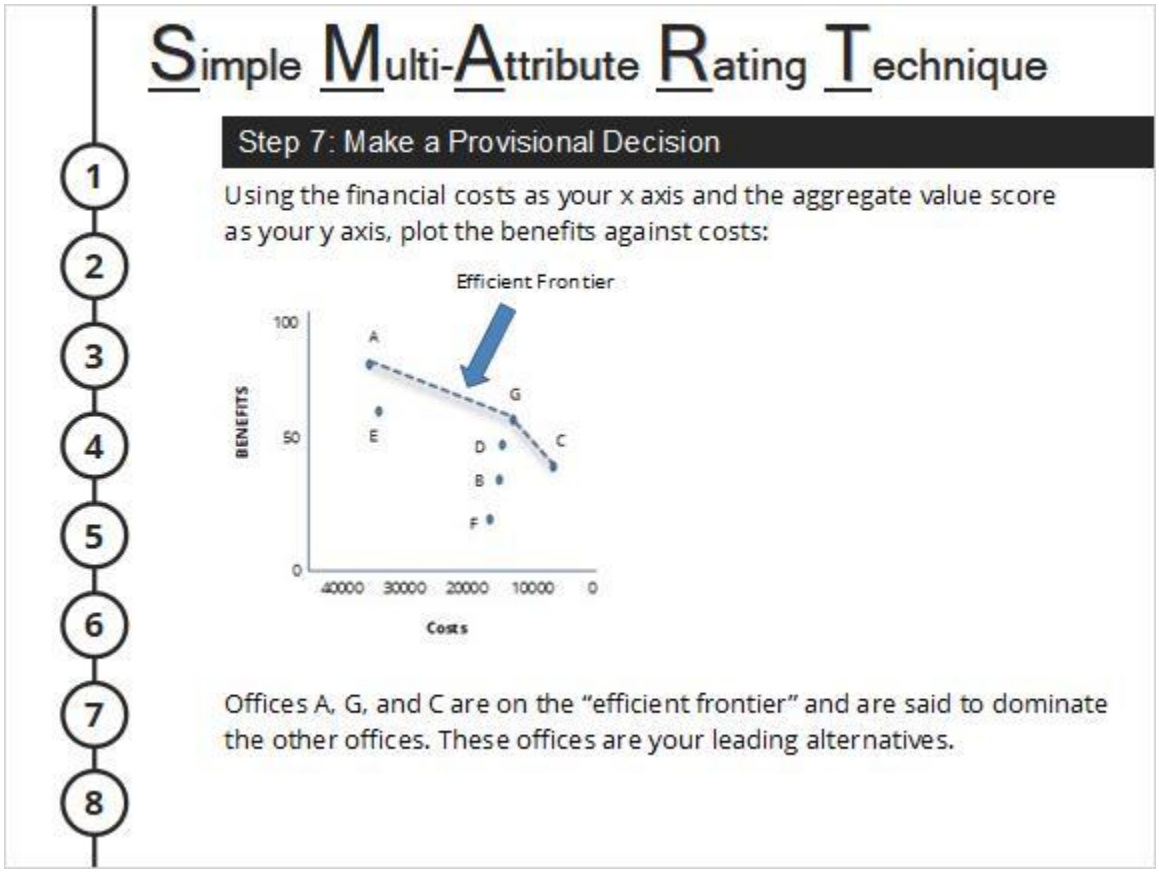
Now divide each raw weight by the sum of the raw weights and multiply by 100

Attribute	Raw Weight	Normalized Weight
Closeness	100	32
Visibility	80	26
Image	70	23
Size	30	10
Comfort	20	6
Car Parking	10	3
	310	100

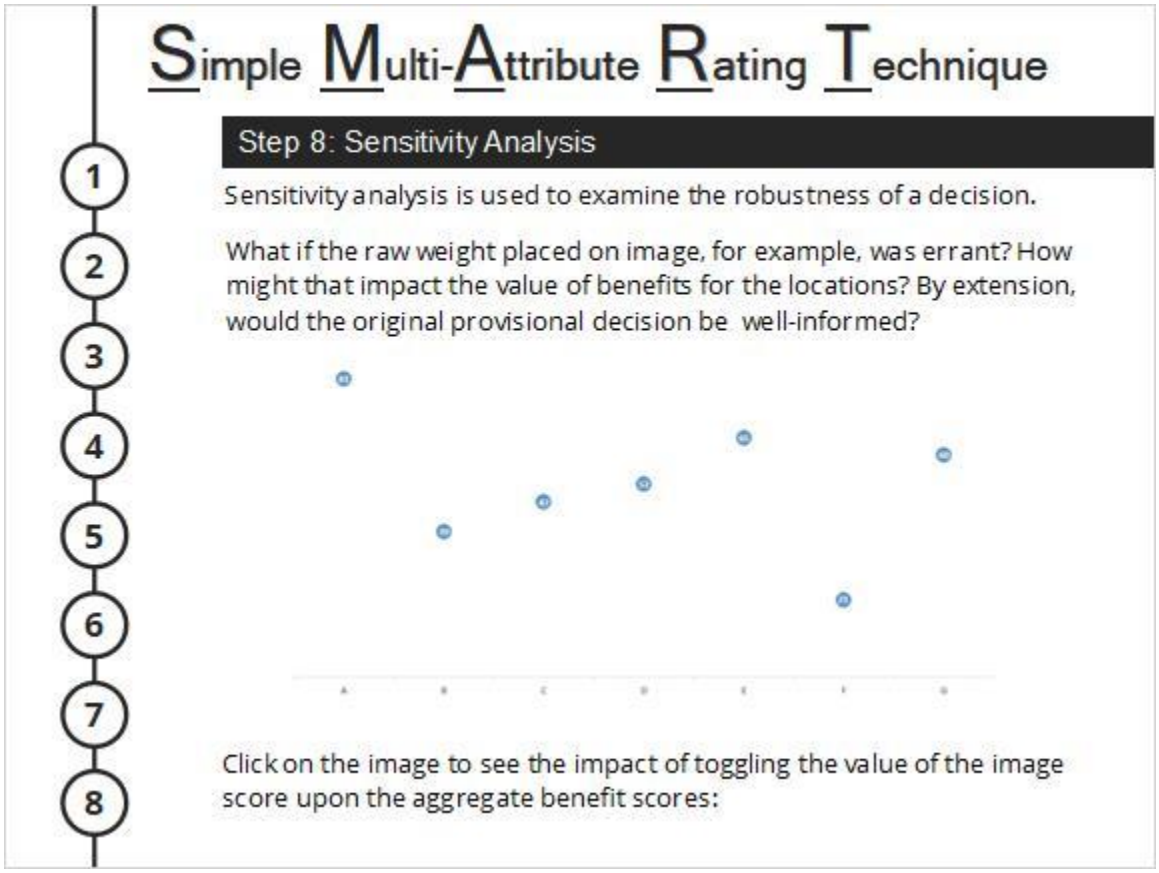
Step 6: Take a Weighted Average



Step 7: Make a Provisional Decision



Step 8: Perform Sensitivity Analysis



Sensitivity