

Tip Top Markets

CASE



Tip Top Markets is a regional chain of supermarkets located in the Southeastern United States. Karen Martin, manager of one of the stores, was disturbed by the large number of complaints from customers at her store, particularly on Tuesdays, so she obtained complaint records from the store's customer service desk for the last eight Tuesdays.

Assume you have been asked to help analyze the data and to make recommendations for improvement. Analyze the data using a check sheet, a Pareto diagram, and run charts. Then construct a

cause-and-effect diagram for the leading category on your Pareto diagram.

On July 15, changes were implemented to reduce out-of-stock complaints, improve store maintenance, and reduce checkout lines/pricing problems. Do the results of the last two weeks reflect improvement?

Based on your analysis, prepare a list of recommendations that will address customer complaints.

June 1

- out of orange yogurt
- bread stale
- checkout lines too long
- overcharged
- double charged
- meat smelled strange
- charged for item not purchased
- couldn't find the sponges
- meat tasted strange
- store too cold
- light out in parking lot

- produce not fresh
- lemon yogurt past sell date
- couldn't find rice
- milk past sell date
- stock clerk rude
- cashier not friendly
- out of maple walnut ice cream
- something green in meat
- didn't like music
- checkout lines too slow

June 8

- fish smelled funny
- out of diet bread
- dented can
- out of hamburger rolls
- fish not fresh
- cashier not helpful
- meat tasted bad
- ATM ate card
- slippery floor
- music too loud

- undercharged
- out of roses
- meat spoiled
- overcharged on two items
- store too warm
- out of ice
- telephone out of order
- overcharged
- rolls stale
- bread past sale date

(continued)

(concluded)

June 15

wanted smaller size
 too cold in store
 out of Wheaties
 out of Minute Rice
 cashier rude
 fish tasted fishy
 ice cream thawed
 double charged on hard rolls
 long wait at checkout
 wrong price on item
 overcharged
 fish didn't smell right

overcharged on special
 couldn't find aspirin
 undercharged
 checkout lines too long
 out of diet cola
 meat smelled bad
 overcharged on eggs
 bread not fresh
 didn't like music
 lost wallet
 overcharged on bread

June 22

milk past sales date
 store too warm
 foreign object in meat
 store too cold
 eggs cracked
 couldn't find lard
 out of 42 oz. Tide
 fish really bad
 windows dirty

couldn't find oatmeal
 out of Bounty paper towels
 overcharged on orange juice
 lines too long at checkout
 couldn't find shoelaces
 out of Smucker's strawberry jam
 out of Frosty Flakes cereal
 out of Thomas' English Muffins

June 29

checkout line too long
 out of Dove soap
 out of Bisquick
 eggs cracked
 store not clean
 store too cold
 cashier too slow
 out of skim milk
 charged wrong price

restroom not clean
 couldn't find sponges
 checkout lines slow
 out of 18 oz. Tide
 out of Campbell's turkey soup
 out of pepperoni sticks
 checkout lines too long
 meat not fresh
 overcharged on melon

July 6

out of straws
 out of bird food
 overcharged on butter
 out of masking tape
 stockboy was helpful
 lost child
 meat looked bad
 overcharged on butter
 out of Swiss chard
 too many people in store
 out of bubble bath
 out of Dial soap

store too warm
 price not as advertised
 need to open more checkouts
 shopping carts hard to steer
 debris in aisles
 out of Drano
 out of Chinese cabbage
 store too warm
 floors dirty and sticky
 out of Diamond chopped walnuts

July 13

wrong price on spaghetti
 water on floor
 store looked messy
 store too warm
 checkout lines too long
 cashier not friendly
 out of Cheese Doodles
 triple charged
 out of Saran Wrap
 out of Dove Bars

undercharged
 out of brown rice
 out of mushrooms
 overcharged
 checkout wait too long
 shopping cart broken
 couldn't find aspirin
 out of Tip Top lunch bags
 out of Tip Top straws

July 20

out of cucumbers
 checkout lines too slow
 found keys in parking lot
 lost keys
 wrong price on sale item
 overcharged on corn
 wrong price on baby food
 out of 18 oz. Tide
 out of Tip Top tissues
 checkout lines too long
 out of romaine lettuce

out of Tip Top toilet paper
 out of red peppers
 out of Tip Top napkins
 out of apricots
 telephone out of order
 out of cocktail sauce
 water on floor
 out of onions
 out of squash
 out of iceberg lettuce
 out of Tip Top paper towels

July 27

out of bananas
 reported accident in parking lot
 wrong price on cranapple juice
 out of carrots
 out of fresh figs
 out of Tip Top napkins
 out of Tip Top straws
 windows dirty
 out of iceberg lettuce
 dislike store decorations
 out of Tip Top lunch bags
 out of vanilla soy milk

wanted to know who won the lottery
 store too warm
 oatmeal spilled in bulk section
 telephone out of order
 out of Tip Top tissues
 water on floor
 out of Tip Top paper towels
 out of Tip Top toilet paper
 spaghetti sauce on floor
 out of Peter Pan crunchy peanut butter

Pareto Analysis. Pareto analysis is a technique for focusing attention on the most important problem areas. The Pareto concept, named after the 19th-century Italian economist Vilfredo Pareto, is that a relatively few factors generally account for a large percentage of the total cases (e.g., complaints, defects, problems). The idea is to classify the cases according to degree of importance, and focus on resolving the most important, leaving the less important. Often referred to as the 80-20 rule, the Pareto concept states that approximately 80 percent of the problems come from 20 percent of the items. For instance, 80 percent of machine breakdowns come from 20 percent of the machines, and 80 percent of the product defects come from 20 percent of the causes of defects.

Pareto analysis Technique for classifying problem areas according to degree of importance, and focusing on the most important.

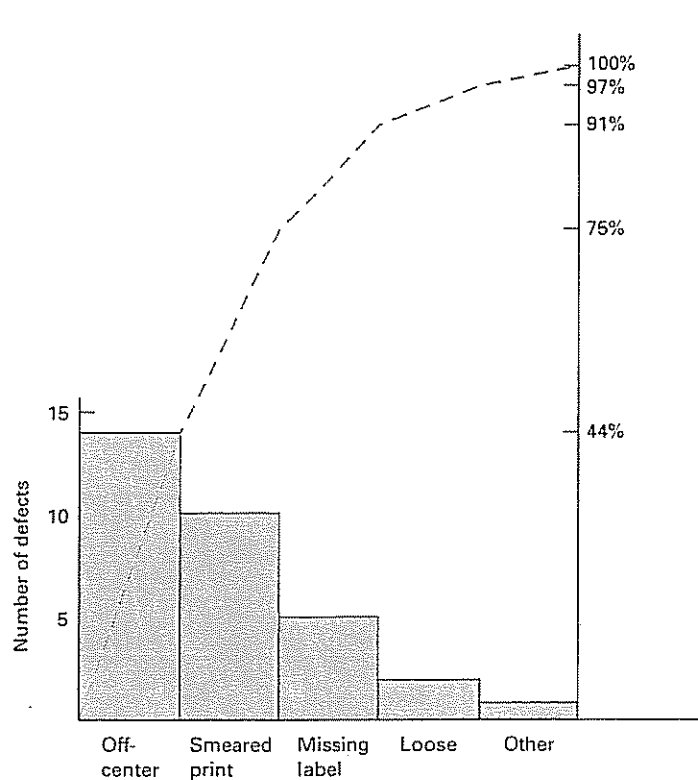


Often, it is useful to prepare a chart that shows the number of occurrences by category, arranged in order of frequency. Figure 9.9 illustrates such a chart corresponding to the check

Day	Time	Type of Defect				Total	
		Missing label	Off-center	Smeared print	Loose or folded		Other
M	8-9					6	
	9-10					3	
	10-11					5	
	11-12					1 (Torn)	
	1-2					1	
	2-3					6	
	3-4					8	
Total		5	14	10	2	1	32

FIGURE 9.6
An example of a check sheet

FIGURE 9.9
A Pareto diagram based on data in Figure 9.6



sheet shown in Figure 9.6. The dominance of the problem with off-center labels becomes apparent. Presumably, the manager and employees would focus on trying to resolve this problem. Once they accomplished that, they could address the remaining defects in similar fashion; "smeared print" would be the next major category to be resolved, and so on. Additional check sheets would be used to collect data to verify that the defects in these categories have been eliminated or greatly reduced. Hence, in later Pareto diagrams, categories such as "off-center" may still appear but would be much less prominent.

Cause-and-Effect Diagrams. A cause-and-effect diagram offers a structured approach to the search for the possible cause(s) of a problem. It is also known as a *fishbone diagram* because of its shape, or an *Ishikawa diagram*, after the Japanese professor who developed the approach to aid workers overwhelmed by the number of possible sources of problems when problem solving. This tool helps to organize problem-solving efforts by identifying *categories* of factors that might be causing problems. Often this tool is used after brainstorming sessions to organize the ideas generated. Figure 9.12 illustrates one form of a cause-and-effect diagram.

Cause-and-effect diagram: A diagram used to search for the cause(s) of a problem; also called *fishbone diagram*.

An example of an application of such a cause-and-effect diagram is shown in Figure 9.13. Each of the factors listed in the diagram is a potential source of ticket errors. Some are more likely causes than others, depending on the nature of the errors. If the cause is still not obvious at this point, additional investigation into the *root cause* may be necessary, involving a more in-depth analysis. Often, more detailed information can be obtained by asking *who, what, where, when, why, and how* questions about factors that appear to be the most likely sources of problems.

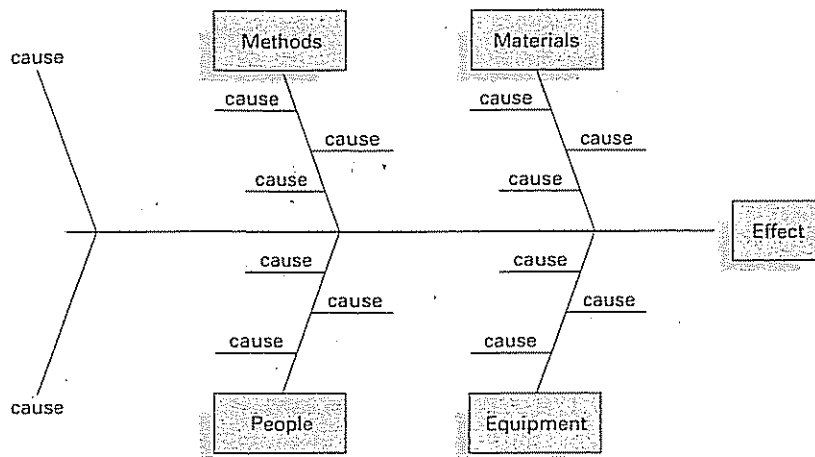


FIGURE 9.12
One format of a cause-and-effect diagram

FIGURE 9.13
Cause-and-effect diagram for airline ticket errors

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