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## *Affinity Diagrams*

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### CONTENTS

Definition .....	11
User .....	12
Often Used in the Following Phases of the Innovative Process .....	12
Tool Activity by Phase .....	12
How to Use the Tool.....	13
Process to Prepare an Affinity Diagram .....	13
Example .....	14
Software .....	14
Reference .....	19
Suggested Additional Reading .....	19

Affinity diagram—very complicated but in reality quite simple to master.

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### DEFINITION

Affinity diagrams are a technique for organizing a variety of subjective data into categories based on the intuitive relationships among individual pieces of information. It is often used to find commonalties among concerns and ideas. It lets new patterns and relationships between ideas be discovered (Harrington and Lomax, 2000).

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## **USER**

This tool can be used by individuals, but its best use is with a group of four to eight people. Cross-functional teams usually yield the best results from this activity.

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## **OFTEN USED IN THE FOLLOWING PHASES OF THE INNOVATIVE PROCESS**

The following are the seven phases of the innovative cycle. An X after the phase name indicates that the tool/methodology is used during that specific phase.

- Creation phase X
- Value proposition phase X
- Resourcing phase X
- Documentation phase
- Production phase X
- Sales/delivery phase
- Performance analysis phase

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## **TOOL ACTIVITY BY PHASE**

- Creation phase—During this phase, this tool can be used to look at different options, comparing their advantages and disadvantages to select the best option.
- Value proposition phase—During this phase, this tool can be used to look at and evaluate the interrelationship between potential outputs and outcomes.
- Resourcing phase—During this phase, this tool can be used to compare different financing options so that the least risk and minimum use of assets are used related to obtaining the required funding.
- Production phase—During this phase, this tool can be used to optimize the decision-making process related to the many options for

producing the output. For example, should it be produced internally or should it be outsourced to Asia?

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## HOW TO USE THE TOOL

Affinity diagrams are used to organize the large numbers of ideas derived from brainstorming. While man has been combining ideas into relational groups for years, it was not until 1960 when Jiro Kawakita formalized the activity, coining the term *affinity diagram*. The process is sometimes referred to as the *KJ method* (Harrington and Lomax, 2000).

Start by defining the issue and gathering random ideas from a brainstorming session.

- Identify areas of concern.
- Organize the ideas into the concern categories.
- Prioritize the ideas in each category.
- Form subgroups as ideas are sorted.

The completed affinity diagram can be used as input to a cause-and-effect diagram.

The following are some of the typical times when affinity diagrams provide a useful tool.

- When you are confronted with many facts or ideas in apparent chaos
- When analyzing survey results
- When analyzing from a brainstorming exercise
- When a lot of complex data are available and need to be organized

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## PROCESS TO PREPARE AN AFFINITY DIAGRAM

- Start by ensuring that the materials are available to do an affinity diagram. You will need marking pens, a large working surface like a wall or a large table, and a good supply of white cards or posted notes.
- Have each individual on the team record each of his or her ideas on separate cards or posted notes.

- Have each member of the team lay out his or her recorded ideas in a random matter on a working surface.
- Have the team look for ideas that seem to be related in some way. Place them side by side. Repeat until all notes are grouped.
- Have the team discuss the layout of the chart, especially the reasons for moving notes into their specific groupings. This usually results in more changes to the diagram.
- When ideas are grouped, select a heading for each group. Often, it is necessary to make up a special card that summarizes the thought pattern for the entire grouping. It is useful to identify this name card for the grouping by putting it on a different color piece of paper or highlighting it in some manner.
- The team should now look at the title cards to see if some of them should be combined to minimize the number of issues being discussed.

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## EXAMPLE

- Start by defining the issue and gathering random ideas from a brainstorming session (see [Figure 2.1](#)).
- Identify areas of concern (see [Figure 2.2](#)).
- Form subgroups as ideas are sorted and organize the ideas into the concern categories (see [Figure 2.3](#)).
- Separate the concern categories into actionable categories (see [Figure 2.4](#)).
- Identify actionable areas (see [Figure 2.5](#)).

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## SOFTWARE

Some commercial software available includes but is not limited to

- Edraw max: <http://www.edrawsoft.com>
- Smartdraw: <http://www.smartdraw.com>
- Affinity Diagram 2.1: <http://mobile.brothersoft.com/>
- QI macros: <http://www.qimacros.com>

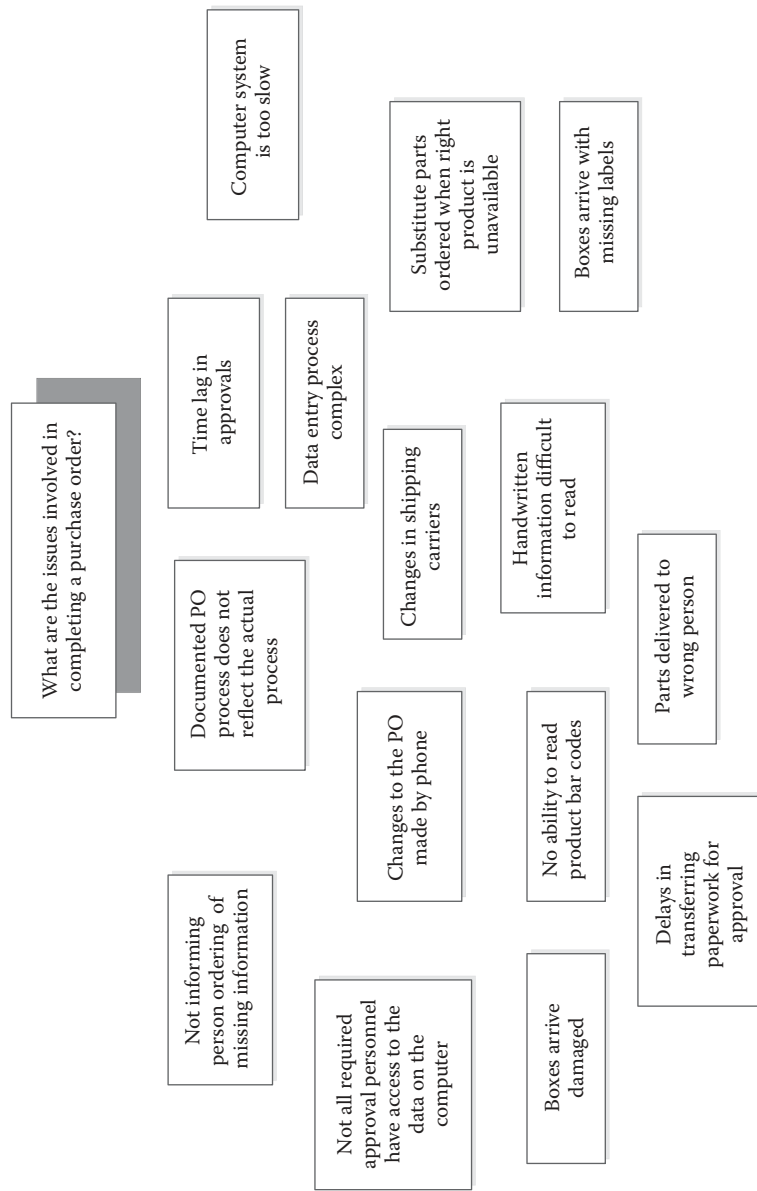
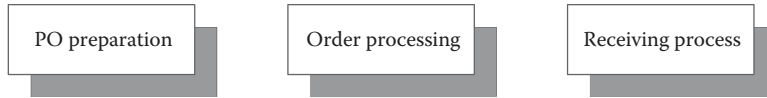
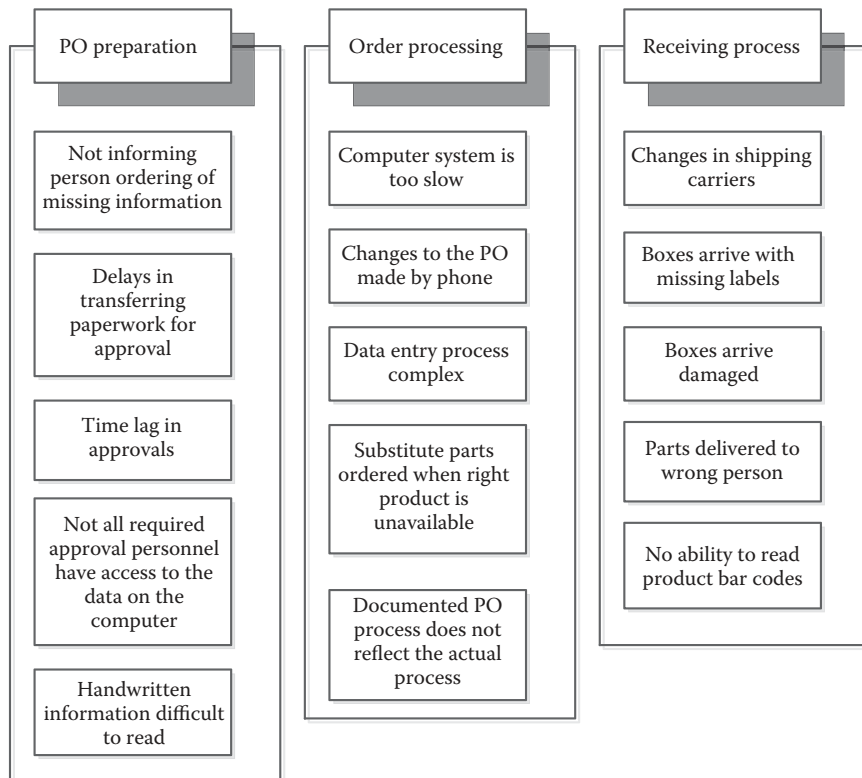


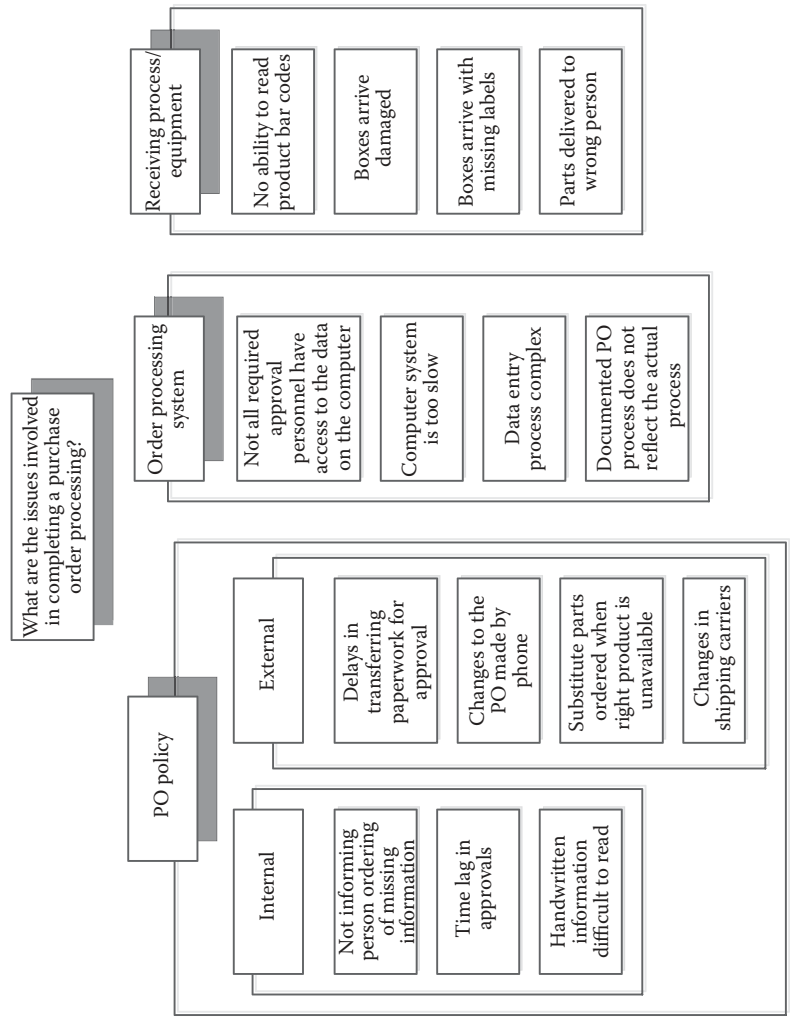
FIGURE 2.1  
Brainstorming session idea generation.



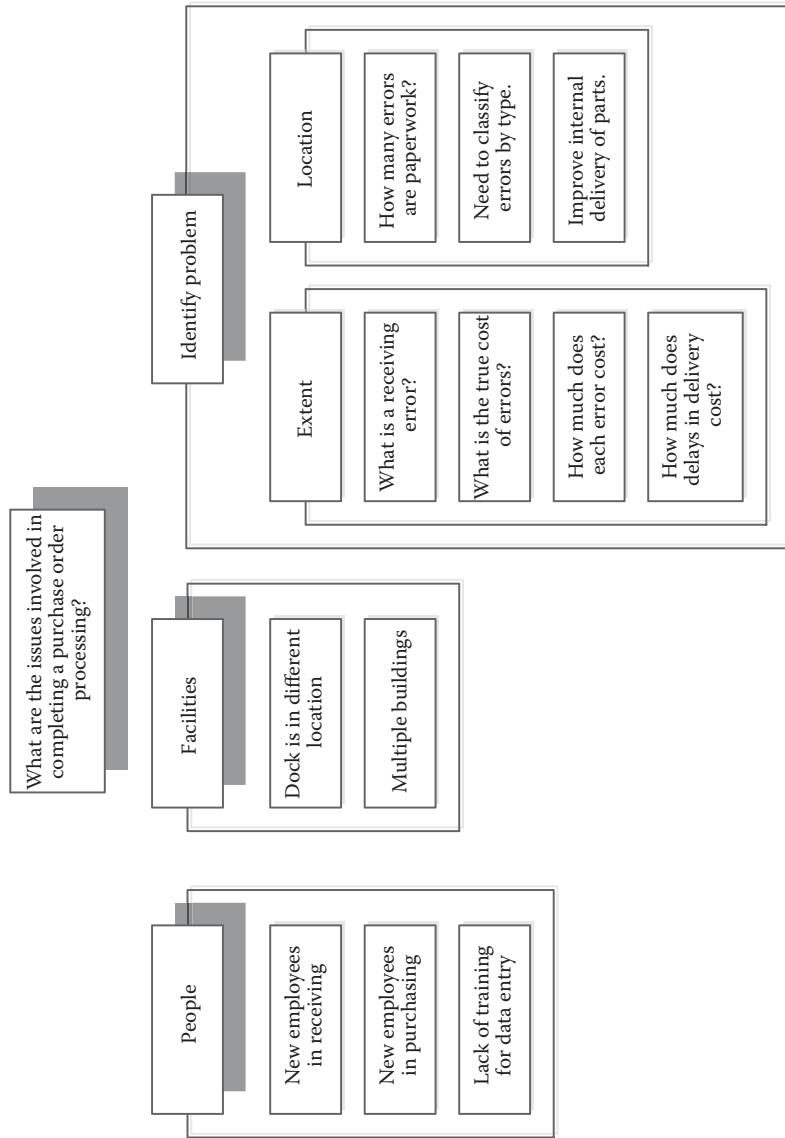
**FIGURE 2.2**  
Areas of concern identified.



**FIGURE 2.3**  
Concern categories.



**FIGURE 2.4**  
Concern categories separated into actionable categories.



**FIGURE 2.5**  
Actionable categories identified.

## REFERENCE

Harrington, H.J. and Lomax, K. *Performance Improvement Methods*. New York: McGraw-Hill, 2000.

## SUGGESTED ADDITIONAL READING

Asaka, T. and Ozeki, K., eds. *Handbook of Quality Tools: The Japanese Approach*. Portland, OR: Productivity Press, 1998.

Brassard, M. *The Memory Jogger Plus*. Milwaukee, WI: ASQ Quality Press, 1989.

Eiga, T., Futami, R. Miyawama, H., and Nayatani, Y. *The Seven New QC Tools: Practical Applications for Managers*. New York: Quality Resources, 1994.

King, B. *The Seven Management Tools*. Methuen, MA: Goal/QPC, 1989.

Mizuno, S., ed. *Management for Quality Improvement: The 7 New QC Tools*. Portland, OR: Productivity Press, 1988.



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