Root Cause Analysis

The *Root Cause Analysis* pattern creates elements and a Decision Tree diagram using Five Why analysis where a series of questions (usually less than five) result in determining the root cause. The questions are recorded in the notes of the elements and color is used to show the path to the root cause.

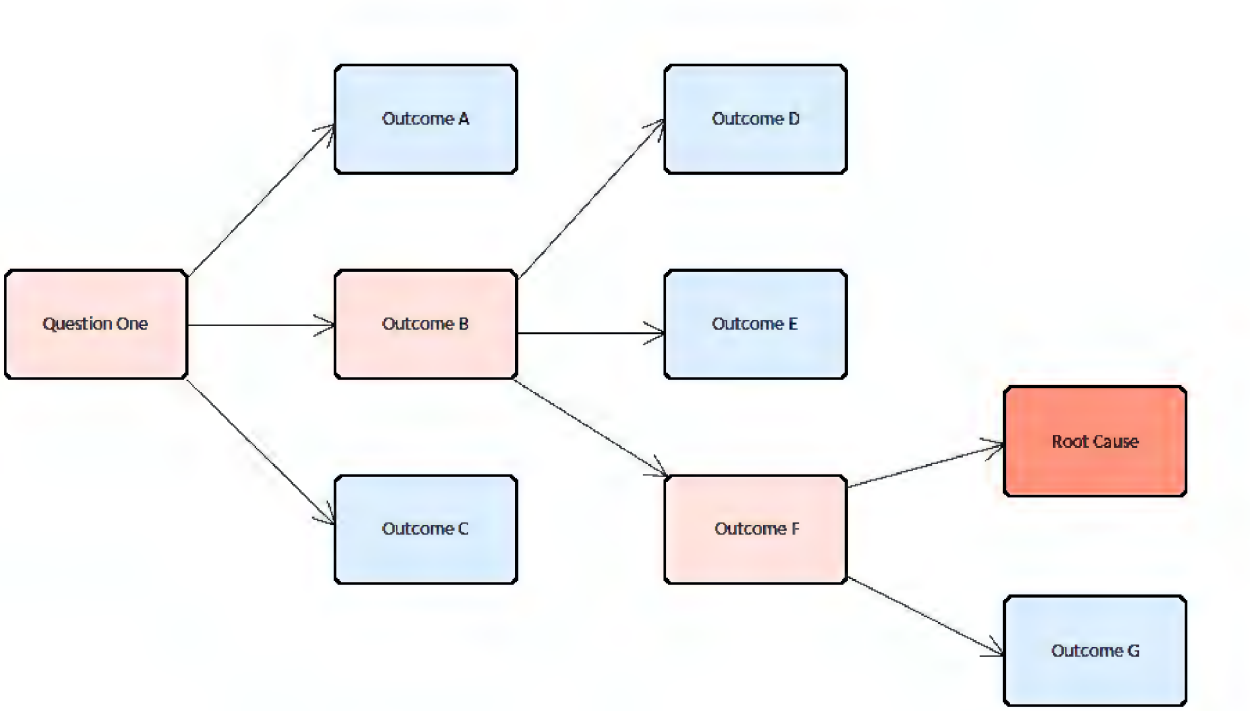

Figure 1. Shows a Five Whys diagram and allows the root cause to be visualized.

Discussion

The purpose of the pattern is to find the root cause of a problem by repeatedly posing a question and then determining the possible reasons until the Root Cause is determined. This method is called Five Whys Analysis and is particularly useful when their is a human error that is contributing to the problem.

The pattern can be used to provide a systematic analysis of an existing or potential problem and documentation of the steps in the analysis. It has two main uses as follows

- Reactive Analysis - where an existing problem is analyzed for the purposes of rectifying the cause of the problem.
- Proactive Analysis - where a potential problem is identified and preventative measures are invoked to ensure the problem does not eventuate.

The following is a list of some things you may want to do when working with this pattern.

- Rename the diagram.
- Rename the Question and the Outcome elements to suit the initiative.
- Add detailed notes that describe the business or system significance of the Outcomes.
- Update the properties of the elements to suit the initiative.

The following is a list of some of the next steps available when applying the pattern.

- Create Discussions and Reviews and engage in Chat to collaborate with team members, Requirement owners, Product Managers and other stakeholders.
- Create high quality documentation generated automatically from the model.

Reference

The following help topics will assist you learn about how to work with this pattern.

Root Cause Analysis

Decision Tree

Decision Table Editor

Business Analysis Body of Knowledge (BABOK)

Traceability Tools

Documentation

The following are some of the tools that will be helpful when working with this pattern.

Decision Tree

A Decision Tree is a diagram that is part of the Strategic Modelling Technology and uses a visual notation to represent a series of decisions and possible outcomes. It can be used in either a descriptive or predictive manner to visualize outcomes and decision points. The Decision Tree diagram can be used to create a Five Whys diagram starting with the problem and fanning out. For more details see the Decision Tree help topic.

Decision Tables

The Decision Table Editor can be used simply to record the conditions and the conclusions that form the basis of decision making. Alternatively, implementation code can be generated using the Enterprise Architect Simulation Library (EASL) code generation macros. It uses a clear and understandable interface allowing the analyst to enter conditions, condition value columns, defined values that act as a decision point, and one or more conclusions. For more details see the Decision Table Editor help topic.

Hand Drawn and Whiteboard Diagrams

The Hand Drawn and Whiteboard Mode are display options available for any diagram that changes a system-drawn diagram to appear as though it was drawn by hand and, optionally, hand drawn on a whiteboard. It is a powerful device to engage an audience by presenting the diagram in a rough and more immediate style giving the impression that it is just a sketch that can be changed. For more details see the Hand Drawn and Whiteboard Mode help topic.

Alternate and Images for Diagram Elements

Most standard elements allow an alternate image to be defined for an element that will be used in place of the graphical notation for the element either on a selected diagram or as a default on all diagrams. For more details see the Using the Image Manager help topic.

Diagram Layout

The Diagram Layout tool allows you to layout an entire diagram, selected elements or sections of a diagram to make it more visually appealing or meaningful to a particular audience. There are a wide range of layout types to choose from and some types have filters that can be applied. For more details see the Diagram Layout help topic.

Pan and Zoom

The Pan and Zoom facility is one of the tools that can be used to navigate around a large diagram. Often the resolution of a diagram must be reduced to ensure it is wholly visible but by using the Pan and Zoom window you can leave the diagram at a readable

resolution and pan around to areas of interest zooming in when necessary. For more details see the Pan and Zoom help topic.

Diagram Legends

The Diagram Legend facility is useful for manually or automatically changing the appearance of elements and connectors on a diagram. A legend can be added from the Common Toolbox and configured to codify the fill and line color and line thickness. This is a powerful way to add meaning and expression to a diagram and is particularly expressive when applied automatically based on element or connector properties. It can be used with a number of specialized diagrams such as roadmaps to create a powerful visualization. For more details see the Diagram Legends help topic.

Document Generator

The Document Generator is a powerful facility in Enterprise Architect that allows a Database Engineer or other stakeholder to create high quality corporate or technical documentation directly from the model, suitable for internal or external audiences. For more details see the Documentation help topic or the more general topic on Model Publishing.

Element Discussions

The Element Discussion facility is a fully featured collaboration tool allowing modelers and model viewers and reviewers to communicate with each other directly inside the repository. Modelers using the full client or occasional viewers using WebEA can both post and reply to discussions and communicate and engage in chat. For more details see the Element Discussions help topic.

Specification View

The Specification View can be used as a way of working with any element type in a spreadsheet or word process view. It is particularly useful when there are a large number of elements as is typically the case when describing a system of any appreciable size. For more details see the Specification View help topic.

Traceability Window

The Traceability Window automatically displays the relationships that exist between Use Cases and other model elements including up-process and down-process elements. The traceability tree view can be conveniently expanded to see deeper relationships and elements displayed in the window can be located in all diagrams in which they appear. For more details see the Traceability Window help topic.