Interactive Troubleshooting Flowchart

Target Audience: New FSEs in semiconductor industry

Learning Objectives:

1. Outline the steps of the troubleshooting process.
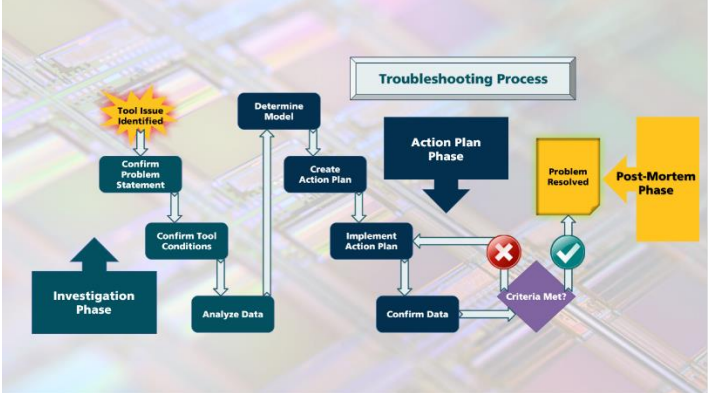
Seat Time: 3-5 minutes

Outline: Troubleshooting Process Flowchart

- Tool Issue Identified
- Investigation Phase
    - o Confirm Problem Statement
    - o Confirm Tool Conditions
    - o Analyze Data
- Action Plan Phase
    - o Determine Model
    - o Create Action Plan
    - o Implement Action Plan
    - o Confirm Data
    - o Criteria Met?
- Post-Mortem Phase
    - o Problem Resolved

Directions: [Notes for Reviewers] Modern player, slide setup 16:9, 960 x 540; hide menu, resources, glossary, notes; enable seekbar and all player functions except search. This interaction is part of a longer Articulate Rise course on Troubleshooting Skills, but can also be used as a standalone microlearning course.
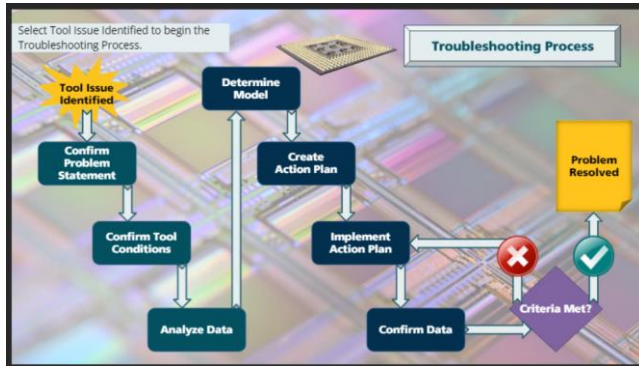
Module Resources/References: [none within Storyline interaction]

Slide [1.1]/ Menu Title: *[Troubleshooting Process Cover Slide-hide from menu]*			Objective: [1]
Visual / Display:	**Slide Text:**	**Narration / Voiceover:**	**Animation / Interaction:**
Background image of complete static troubleshooting process flow chart, built in PowerPoint and SL: Semi-transparent image of computer chips behind shapes/text of flowchart (see thumbnail) Semi-transparent black rectangle overlays background image to give grayed out/unplayed effect Large Black play icon button is centered on screen, overlays rectangle/bg image Transparent rectangle overlays play button to make entire play button icon clickable by user	[Slide Title] none/hidden from menu Slide text appears as shown in thumbnail	[*Insert Script Text*] none	Disable next/prev buttons Timeline is 1 second Jump to slide 1.2 when user clicks transparent rectangle over play button
Notes: This slide is designed to create a grayed out/unplayed effect of the interaction when user first encounters it within Rise.			

Slide [1.2]/ Menu Title: *[Troubleshooting Process Flowchart-hide from menu]*			Objective: [1]
Visual / Display:	**Slide Text:**	**Narration / Voiceover:**	**Animation / Interaction:**
Background image/video: created in PowerPoint using 3D morph; video of large semiconductor	[Slide Title] Troubleshooti	[*Narrator:*] Troubleshooting is a	**Background video plays when timeline starts on slide:** created in PowerPoint

microchip moving from center of slide to top right while shrinking with Troubleshooting Process title on gray bevel shape, shrinking/moves to top right corner Troubleshooting Process Flowchart shapes and arrows appear over video background image as shown below: Each step has a state change to highlight shape color Directions text box appears in upper left corner above first step	ng Process Flowchart - hide from menu Slide text on shapes appears as shown in thumbnail [Directions:] Select Tool Issue Identified to begin the Troubleshooting Process.	skill used in systems decision making and complex problem solving. Although troubleshooting is not always a linear process, the steps can be generally broken down into three phases: investigation. action plan, and post-mortem. Select Tool Issue Identified to begin the Troubleshooting Process Flow with the Investigation Phase. Select the arrows in sequence to learn more about each step.	using 3D morph; video of large semiconductor microchip moving from center of slide to top right while shrinking with Troubleshooting Process title on gray bevel shape, shrinking/moves to top right corner Create a T/F variable and set a trigger to true when video completes to allow the video to reset when user replays the slide Prev/Next buttons disabled Narrator audio begins at 2 sec to allow background video to complete 3D morph All troubleshooting process flowchart shapes are animated to begin when narrator audio begins: Step 1 Tool Issue Identified star **grows** in The following objects **float down** from top: All arrows pointing down Step 2 Confirm Problem Statement Step 3 Confirm Tool Conditions Step 4 Analyze Data Step 5 Determine Model Step 6 Create Action Plan Step 7 Implement Action Plan Step 8 Confirm Data All arrows pointing up **fly in from bottom**

			The following objects **fade in**: Step 9 Criteria Met Red X icon Green checkmark icon All arrows pointing sideways Step 10 Problem Resolved **Zooms in from object center** **Change state of steps to highlight color in sync w/vo:** When v/o begins **investigation,** change state to highlight steps 2-4, then back to normal when v/o begins **action plan,** highlight steps 5-9, then back to normal state; when v/o begins **post-mortem,** change state to highlight step 10, then back to normal state when v/o begins "Select Tool…" Directions textbox fades in when v/o begins :Select Tool…" Transparent rectangle over Tool Issue Identified prevents user from clicking star until v/o begins…"Select the arrows to…" Star shape has hover state which highlights red outline Show layer Confirm Problem Statement when user clicks Tool Issue Identified
Notes: This is the base layer for the interactive flow chart.			

Slide [1.2a]/ Menu Title: *Confirm Problem Statement layer-hide from menu*		Objective: [1]	
Visual / Display:	**Slide Text:**	**Narration / Voiceover:**	**Animation / Interaction:**
Same background image as base layer 1.2, but lighter transparency

Troubleshooting Process on gray bevel shape in upper right corner of slide

Directions text box in upper left side of slide

Tool Issue Identified star shape, same as base layer 1.2 with red glow

Notched down arrow **in same yellow** as star shape connects star to next step, Confirm Problem Statement rounded rectangle in teal color, same as base layer

White notched arrow points down from Confirm Problem Statement

Investigation Phase pentagon in same color as Confirm Problem Statement is below Troubleshooting Process bevel

Rounded rectangle with info text in same color as pentagon is below pentagon | **[Slide Title]** Confirm Problem Statement-hide from menu

[Directions rectangle:] Select the arrow to continue the process.

[Step 1 Star:] Tool Issue Identified

[Step 2 rounded rectangle:] Confirm Problem Statement

[Bevel:] Troubleshooting Process

[Pentagon:] Investigation Phase

[Rounded rectangle white text:]

- Create a problem statement.
- Confirm the initial problem statement, if one is already written.
- Rewrite the problem statement after gathering more information during the investigation phase, if necessary. | [Narrator:] The first step is to create a problem statement or confirm the initial problem statement, if one is already written. You may need to rewrite the problem statement after you gather more information during the investigation phase. Select Analyze Data to move to the Action Plan phase. | Hide all base layer objects

The following objects appear when timeline starts on slide:

Troubleshooting Process bevel Investigation Phase pentagon Tool Issue Identified star Yellow down arrow Confirm Problem Statement rounded rectangle

Rounded info rectangle wipes down from top as one object when v/o begins

Narrator v/o begins at .75 sec

White down arrow fades in 1.5 sec before audio ends

Show next layer (Confirm Tool Conditions 1.2b) when user clicks white down arrow |
| **Notes: all layers are set up similarly as 1.2a, but with each added steps/arrows and different info text displayed under pentagon phase** | | | |

Slide [1.2b]/ Menu Title: *Confirm Tool Conditions layer -hide from menu*	Objective: [1]

Visual / Display:	Slide Text:	Narration / Voiceover:	Animation / Interaction:
Layer is set up exactly the same as layer 1.2a, with the following additions: Connecting down arrows are same gold yellow Rounded rectangle Confirm Tool Conditions in teal color is connected below Confirm Problem Statement rounded rectangle with yellow arrow White notched arrow is pointing down below Confirm Tool conditions	[Slide Title] Confirm Tool Conditions-hide from menu [Directions rectangle:] Select the arrow to continue the process. [Step 1 Star:] Tool Issue Identified [Step 2 rounded rectangle:] Confirm Problem Statement [Step 3 rounded rectangle:] Confirm Tool Conditions [Bevel:] Troubleshooting Process [Pentagon:] Investigation Phase [Rounded rectangle white text:] Confirm the tool conditions: • What is the abnormality? • When, where, and for how long has the problem occurred? • What is the impact? • What is the urgency?	[*Narrator:*] The next step is to confirm the tool conditions. During this step of the investigation phase, you need to find answers to the questions: What is the abnormality? When, where, and for how long has the problem occurred? What is the impact? and What is the urgency?	**Animations and timings for additional shapes are set up similar to layer 1.2a** Hide all base layer objects Show next layer (Analyze Data 1.2c) when user clicks white down arrow

Slide [1.2c]/ Menu Title: *Analyze Data layer* – hide from menu			Objective: [1]
Visual / Display:	Slide Text:	Narration / Voiceover:	Animation / Interaction:
Layer is set up exactly the same as layer 1.2b, with the following additions:	[Slide Title] Analyze Data-hide from menu [Directions rectangle:] Select the arrow to continue the process.	[*Narrator:*] In this step of the investigation, you analyze the	**Animations and timings for additional shapes are set up similar to layer 1.2a**

| Connecting down arrows are same gold yellow

Rounded rectangle Analyze Data is connected below Confirm Tool Conditions rounded rectangle with yellow arrow

Long White notched arrow is pointing up from Analyze Data to connect with the next step/layer | **[Step 1 Star:]** Tool Issue Identified

[Step 2 rounded rectangle:] Confirm Problem Statement

[Step 3 rounded rectangle:] Confirm Tool Conditions

[Step 4 rounded rectangle:] Analyze Data

[Bevel:] Troubleshooting Process

[Pentagon:] Investigation Phase

[Rounded rectangle white text:]
Analyze:
• Current knowledge of the problem
• Physical observation
• Any relevant data logs | current knowledge of the problem, physical observation, and any relevant data logs. | Hide all base layer objects

Show next layer (Determine Model 1.2d) when user clicks **Long white up arrow** |

Slide [1.2d]/ Menu Title: *Determine Model layer -hide from menu*			Objective: [1]
Visual / Display:	**Slide Text:**	**Narration / Voiceover:**	**Animation / Interaction:**
Layer is set up exactly the same as layer 1.2c, with the following additions: Connecting down arrows and long up arrow are same gold yellow Rounded rectangle Determine Model in dark blue color is connected from below Analyze Data	[Slide Title] Determine Model-hide from menu **[Directions rectangle:]** Select the arrow to continue the process. **[Step 1 Star:]** Tool Issue Identified **[Step 2 rounded rectangle**:] Confirm Problem Statement	[*Narrator:*] Determining the model is the next step in the Action Plan Phase. It is critical to determine the model or models involved in the issue before	Hide all base layer objects **Animations and timings for additional shapes are set up similar to layer 1.2a** Show layer 1.2 e Create Action Plan

rounded rectangle with yellow arrow Short **white notched arrow is pointing down** from Determine Model to connect with the next step/layer Pentagon and rounded rectangle info in same blue color as Determine Model to signify different phase of process	**[Step 3 rounded rectangle:]** Confirm Tool Conditions **[Step 4 rounded rectangle:]** Analyze Data **[Step 5 rounded rectangle:]** Determine Model **[Bevel:]** Troubleshooting Process **[Pentagon:]** Action Plan Phase **[Rounded rectangle white text:]** Determine which model(s) are involved in the issue to create the action plan.	creating the action plan and implementing it.	when user clicks short white down arrow

Slide [1.2e]/ Menu Title: *Create Action Plan layer-hide from menu*		Objective: [1]	
Visual / Display:	**Slide Text:**	**Narration / Voiceover:**	**Animation / Interaction:**
Layer is set up exactly the same as layer 1.2d, with the following additions: Connecting down arrows and long up arrow are same gold yellow Rounded rectangle Create Action Plan in dark blue color is connected from Determine Model rounded rectangle with short down yellow arrow Short **white notched arrow is pointing down** from Create Action	[Slide Title] Create Action Plan-hide from menu **[Directions rectangle:]** Select the arrow to continue the process. **[Step 1 Star:]** Tool Issue Identified **[Step 2 rounded rectangle**:] Confirm Problem Statement **[Step 3 rounded rectangle:]** Confirm Tool Conditions **[Step 4 rounded rectangle:]** Analyze Data **[Step 5 rounded rectangle:]** Determine Model	[*Narrator:*] The next step is to actually write the action plans or plans, based on the models previously identified.	Hide all base layer objects **Animations and timings for additional shapes are set up similar to layer 1.2a** Show layer 1.2f Implement Action Plan when user clicks short white down arrow

Plan to connect with the next step/layer Pentagon and rounded rectangle info in same blue color as Create Action Plan to signify different phase of process	**[Step 6 rounded rectangle:]** Create Action Plan **[Bevel:]** Troubleshooting Process **[Pentagon:]** Action Plan Phase **[Rounded rectangle white text:]** Write the action plans(s), based on the models previously identified.		

Slide [1.2f]/ Menu Title: *Implement Action Plan layer-hide from menu*		Objective: [1]	
Visual / Display:	**Slide Text:**	**Narration / Voiceover:**	**Animation / Interaction:**
Layer is set up exactly the same as layer 1.2e, with the following additions: Connecting down arrows and long up arrow are same gold yellow Rounded rectangle Implement Action Plan in dark blue color is connected from Create Action Plan rounded rectangle with short down yellow arrow Short **white notched arrow is pointing down** from Implement Action Plan to connect with the next step/layer	[Slide Title] Implement Action Plan-hide from menu **[Directions rectangle:]** Select the arrow to continue the process. **[Step 1 Star:]** Tool Issue Identified **[Step 2 rounded rectangle**:] Confirm Problem Statement **[Step 3 rounded rectangle:]** Confirm Tool Conditions **[Step 4 rounded rectangle:]** Analyze Data **[Step 5 rounded rectangle:]** Determine Model **[Step 6 rounded rectangle:]** Create Action Plan	[*Narrator:*] After the action plan is created, now you get to try to fix the problem! This is the execution or implementation step of the action plan phase.	Hide all base layer objects **Animations and timings for additional shapes are set up similar to layer 1.2a** Show layer 1.2g Confirm Data when user clicks short white down arrow

Pentagon and rounded rectangle info in same blue color as Implement Action Plan to signify different phase of process	**[Step 7 rounded rectangle:]** Implement Action Plan **[Bevel:]** Troubleshooting Process **[Pentagon:]** Action Plan Phase **[Rounded rectangle white text:]** Implement or execute the action plan. Now you get to try to fix the problem!		

Slide [1.2g]/ Menu Title: *Confirm Data layer-hide from menu*			Objective: [1]
Visual / Display:	**Slide Text:**	**Narration / Voiceover:**	**Animation / Interaction:**
Layer is set up exactly the same as layer 1.2f, with the following additions: Connecting down arrows and long up arrow are same gold yellow Rounded rectangle Confirm Data in dark blue color is connected from Implement Action Plan rounded rectangle with short down yellow arrow **White notched arrow is pointing right** from Confirm Data to connect with the next step/layer	[Slide Title] Confirm Data-hide from menu **[Directions rectangle:]** Select the arrow to continue the process. **[Step 1 Star:]** Tool Issue Identified **[Step 2 rounded rectangle**:] Confirm Problem Statement **[Step 3 rounded rectangle:]** Confirm Tool Conditions **[Step 4 rounded rectangle:]** Analyze Data **[Step 5 rounded rectangle:]** Determine Model **[Step 6 rounded rectangle:]** Create Action Plan **[Step 7 rounded rectangle:]** Implement Action Plan	[*Narrator:*] During this step, confirm whether the action plan resolved the issue by direct observation and analyzing the data again.	Hide all base layer objects **Animations and timings for additional shapes are set up similar to layer 1.2a** Show layer 1.2h Criteria Met when user clicks white right arrow

Pentagon and rounded rectangle info in same blue color as Confirm Data to signify different phase of process	[Step 8 rounded rectangle:] Confirm Data [Bevel:] Troubleshooting Process [Pentagon:] Action Plan Phase [Rounded rectangle white text:] Confirm whether the action plan resolved the issue by direct observation and analyzing the data again.		

Slide [1.2h]/ Menu Title: *Criteria Met layer-hide from menu*			Objective: [1]
Visual / Display:	Slide Text:	Narration / Voiceover:	Animation / Interaction:
Layer is set up exactly the same as layer 1.2g, with the following additions: Connecting down arrows and long up arrow, and right arrow are same gold yellow **Purple Diamond Criteria Met** is connected from Confirm Data rounded rectangle with right yellow arrow **White notched arrow is pointing up with green checkmark icon button over arrow** from right top side of purple diamond Criteria Met to connect with the next step/layer	[Slide Title] Criteria Met-hide from menu [Directions rectangle:] Select green check button to proceed to the final step. [Step 1 Star:] Tool Issue Identified [Step 2 rounded rectangle:] Confirm Problem Statement [Step 3 rounded rectangle:] Confirm Tool Conditions [Step 4 rounded rectangle:] Analyze Data [Step 5 rounded rectangle:] Determine Model [Step 6 rounded rectangle:] Create Action Plan [Step 7 rounded rectangle:] Implement Action Plan	[*Narrator:*] Was the criteria met? You may need to go back to the Implement Action Plan or Create Action Plan step if the criteria for the action plan was not met. If the criteria was met, select the green checkmark button to proceed to the final step.	Hide all base layer objects **Animations and timings for additional shapes are set up similar to layer 1.2a, with the following differences:** **Red x mark icon and white arrows pointing up fades in when v/o begins "you may need …"** **White arrow pointing left back to Implement Action Plan step, flies in from right when v/o begins "back to the Implement Action Plan…"**

White notched arrow points up from left top side of purple diamond, then 90* turn left pointing back at Implement Action Plan; red x icon is placed over where arrow bends at left turn Pentagon in same blue color as Confirm Data , but 3 purple diamonds overlay each other below pentagon with Criteria Met text	**[Step 8 rounded rectangle:]** Confirm Data **[Step 9 diamond:]** Criteria Met? **[Bevel:]** Troubleshooting Process **[Pentagon:]** Action Plan Phase **[Purple Diamonds below pentagon white textbox:]** Was the criteria met? Inform the appropriate parties of the results. Create and/or implement new action plans if the criteria was not met.		**White arrow pointing up to the next step layer and green checkmark icon button fade in when v/o begins "Select the green checkmark button"** Show layer 1.2i Post-Mortem phase when user clicks green checkmark icon button

Slide [1.2i]/ Menu Title: *Post-Mortem layer-hide from menu*			Objective: [1]
Visual / Display:	**Slide Text:**	**Narration / Voiceover:**	**Animation / Interaction:**
Layer is set up exactly the same as layer 1.2h, with the following additions: ALL connecting arrows are now same gold yellow Yellow Problem Resolved Folder Paper shape is connected from Purple Diamond Criteria Met with up yellow arrow Pentagon Post-Mortem Phase in same yellow	[Slide Title] Post-Mortem Phase-hide from menu **[Step 1 Star:]** Tool Issue Identified **[Step 2 rounded rectangle**:] Confirm Problem Statement **[Step 3 rounded rectangle:]** Confirm Tool Conditions **[Step 4 rounded rectangle:]** Analyze Data **[Step 5 rounded rectangle:]** Determine Model **[Step 6 rounded rectangle:]** Create Action Plan **[Step 7 rounded rectangle:]** Implement Action Plan	[*Narrator:*] In the final step, the post-mortem phase, the problem has been resolved. Write the post-mortem, which is a written record of the incident; its impact; actions taken to mitigate or resolve it; the root causes; and follow-up actions needed to prevent the incident from reoccurring. Select	Hide all base layer objects Animations and timings for additional shapes are set up similar to layer 1.2a Jump to this slide when user clicks on Troubleshooting Process bevel Complete course as completed/passed when timeline ends on this layer

color as yellow arrows, with yellow rounded rectangle below pentagon with Post-Mortem phase text Troubleshooting Process bevel has hover state that glows and hover text on bevel says Replay Troubleshooting Process	**[Step 8 rounded rectangle:]** Confirm Data **[Step 9 diamond:]** Criteria Met? **[Step 10 folder corner:]** Problem Resolved **[Bevel:]** Troubleshooting Process **[Pentagon:]** Post-Mortem Phase **[Yellow rounded rectangle with black textbox below pentagon:]** Write the post-mortem. Create a case study where applicable, which is a written record of the incident.	the troubleshooting process button to replay the flowchart, or select continue.	Set reset video variable to false when user clicks on Troubleshooting process bevel to reset video
Notes: This is the final layer of the interaction, but user can replay interaction or continue within Rise course			