Root Cause Analysis:
Enhancing the Value of the Audit Engagement
Course Objectives

This session is designed to enhance the new or experienced performance auditor’s skills in Root Cause Analysis (RCA) by demonstrating how to:

- Utilize a Root Cause Analysis mind frame during all phases of an audit engagement: planning, fieldwork and reporting;
- Implement some tools that can assist with RCA;
- Develop audit observations and recommendations to address ROOT CAUSE as well as condition and recovery (corrective action); and
- Identify and assess your personal competencies in areas such as critical thinking, creative problem solving, and collaboration.
PAMELA J. STROEBEL POWERS

Education

- BS in Accounting, Western Baptist College
- MBA, Willamette University–AGSM

Work Experience:

- 5 Years Non-Profit Accounting Experience
- 22 Years Government Auditing Experience
- 18 Years Experience Instructing Professional Auditors
- 9 Years Instructing at Willamette
- 5 Years Independent Contractor
Overview of Business Processes
Process

A continuous or repeated series of actions or steps taken in order to achieve a desired outcome
3 Types of Processes

- **Operating Processes**
  - Major Programs/Divisions of your Organization

- **Support Processes**
  - HR, IT, Accounting, Management

- **Project Processes**
  - IT System Implementation

Process mapping can be an integral step in understanding and improving key business processes that help us achieve and support our strategic and operational objectives.
Components of EVERY Process

- Objective
- Risk
- Control
- Accountability
Ways we can look at Processes: Approaches

- **Top-Down Approach**: Look at entity level objectives and identify key processes critical to the success of each.

- **Bottom-Up Approach**: Look at all processes directly at activity level and aggregate across organization.
Auditors may not be involved in the details, but often need clear answers to the following to thoroughly understand a process being audited:

1. **What** steps are involved in completing the work?
2. **Who** is doing the work?
3. **When** does the work happen?
4. **Where** are **errors or defects** being introduced?
5. **Where** are the **non-value adding** activities?
6. **How** do we **assess risks and ensure appropriate controls are in place** in our key processes?
7. **How do we improve** the process?
8. Are we fluent in the language and principles of **LEAN**?

*To accomplish our course objectives we will explore various process mapping tools, templates, and processes and learn how to utilize the important aspects of LEAN to fully derive the value of process mapping for improvement and to help us drive to Root Cause and improve audit recommendations.*
What is a process flowchart?

A diagram that graphically shows the steps required to get your desired outcome.
Basic tool: Flowchart
They can give different levels of view

High Level
- Start
- Draft POD
- Type POD
- Distribute POD
- End

Mid Level
- Start
- Get rough draft of POD
- Is it approved?
  - No
    - Get approval
  - Yes
    - Type smooth
    - End

Low Level
- Turn on computer
- Start word proc. applic.
  - No
    - Type rough POD
  - Yes
    - Are there any corrections?
      - Yes
        - Make corrections
      - No
        - Edit POD
          - Are there any corrections?
            - Yes
              - Make corrections
            - No
              - Print POD
There are three versions of every process

1. **What you think it is**
   - Interviews

2. **What it should be**
   - Redesigned future process

3. **What it actually is**
   - Observations of the “current process”
Steps in Process Mapping

- Identify Key Business Processes
- Determine the Key Objectives of the Process
- Understand inputs, activities and process outputs
- Identify and evaluate:
  - Business risks that could impede the accomplishment of objectives,
  - Controls currently in place to mitigate risks, and
  - Opportunities that may exist
Ways we can look at Processes: Tools

- Process Flowchart
- Gantt Chart
- Bubble Chart
- Critical Path Chart
- Suppliers, Inputs, Process, Outputs, Customers Diagram (SIPOC)
- Process Profile Worksheet
- Failure Modes and Effects Analysis (FMEA)
- The 5 Whys
- Value Steam Map
- Activities Breakdown
- Swim Lanes
- Cause/Effect Diagrams (Fishbone)
- I/O Process Map
- PERT Chart
- Fault Tree Analysis
- Pareto Chart
- Scatter Diagram
# Process map formats

<table>
<thead>
<tr>
<th>Type of flowchart</th>
<th>Detail view</th>
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<tr>
<td>1. Value stream map</td>
<td>50,000 foot level</td>
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<td>2. SIPOC</td>
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<td>3. Activities breakdown</td>
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<td>4. Flow chart - Activity diagram</td>
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<td>5. Gantt view</td>
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<td>6. Critical path PERT chart</td>
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<td>7. Swim lanes - ID people or departments</td>
<td>Ground level</td>
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# Examples of Ways to Apply

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<thead>
<tr>
<th>LEAN TENANT</th>
<th>TECHNIQUE/CONCEPT</th>
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<tbody>
<tr>
<td>Create Service Value</td>
<td>Eliminate Muda (Waste)</td>
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<td>ID, Study and Improve Value Stream</td>
<td>Value Stream Mapping</td>
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<tr>
<td>Ensure Simple, Smooth &amp; Error-free Flow</td>
<td>Takt Time</td>
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<td>Produce only what is “Pulled” by Customer</td>
<td>Signaling upstream and supplier Relationships</td>
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<tr>
<td>Strive for Perfection</td>
<td>5S’s or 5 Whys KAIZEN!!! (Continuous Improvement)</td>
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## Process Mapping Tools Comparison Table

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Root Cause Analysis
ROOT CAUSE ANALYSIS (RCA):
- An objective, structured approach employed to identify the most likely underlying causes of a problem or undesired events within an organization.
- Includes factors that resulted in the nature, magnitude, location and timing of harmful outcomes or risk events, used to identify what needs to be changed to prevent recurrence.
- Focuses on generating corrective actions to mitigate those causes to improve performance at the earliest point.
Root Causes Are ...

- Specific underlying causes
- Those that can reasonably be identified
- Those management has control to fix
- Those for which effective recommendations for preventing recurrences can be generated
Audit Risk and RCA

If we stop at the identification of physical and process components as the root cause such as technology systems, policies, components and training – our work may not be complete!

True RCA seeks to understand why good people make bad or inadequate decisions.

Auditors need to search for situational awareness and try to understand all the circumstances those executing the process faced that led them to make their decisions.
“Auditors often conduct a root cause analysis to identify the underlying reason for the occurrence of an error, problem, missed opportunity or instance of noncompliance. Root cause analyses enable internal auditors to add insights that improve the effectiveness and efficiency or the organization’s governance, risk management and control processes.”
Steps for Performing RCA

1. Define the Problem
2. Identify the Contributing Factor
3. Identify the Root Cause(s)
4. Formulate and Implement Corrective Actions to Eliminate the Root Cause(s)
Compare RA to RCA

Risk Assessment
1. Objective
2. Risk(s)
   a. Identification
   b. Measure
   c. Prioritize
3. Risk Response

Root Cause Analysis
1. Problem
2. Root Cause(s)
   a. Identification
   b. Measure
   c. Prioritize
3. Recommendation/Corrective Action
I NEED A VOLUNTEER to share an implemented audit finding/recommendation (and specifically the cause) you are familiar with.

Let’s discuss whether the corrective action taken actually got to the root cause…
Barriers to RCA

- Skill Sets
- Time Commitment
- Resistance from Management
- Subjectivity
- Independence
RCA in the Phases of an Audit
2200 – Engagement Planning

*Internal Auditors must develop and document a plan for each engagement, including the engagement’s objectives, scope timing and resource allocations. The plan must consider the organization’s strategies, objectives, and risks relevant to the engagement.*

2201 – Planning Considerations

*In planning the engagement, internal auditors must consider:*  
- Strategies and objectives  
- Significant risks  
- Adequacy and effectiveness of governance, risk management and control processes  
- Opportunities for improvement

2130 – Control

*The internal audit activity must assist the organization in maintaining effective controls by evaluating their effectiveness and efficiency and by promoting continuous improvement.*
We plan to develop the overall audit strategy and develop the audit work plan, by:

- Gathering background information
- Gaining an understanding
- Defining audit objectives and scope
- Confirming plans with management
- Interviewing management and process owners
- Performing observation walkthroughs
- Documenting our understanding of processes
- Completing risks and control matrix
Questions We Might Ask

- What in the process is broken?
- Which steps in the process create roadblocks?
- Which steps require the most time to complete?
- Which steps cause the most delays?
- Are there any steps that cause costs or resources to go up?
- Are there any steps that cause quality to go down?
## Factors to Consider

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<thead>
<tr>
<th>Internal</th>
<th>External</th>
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<tbody>
<tr>
<td>Competence of Personnel</td>
<td>Environmental Condition i.e. Weather</td>
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<tr>
<td>Hiring Qualified Personnel</td>
<td>Competition</td>
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<td>Lack of or Insufficient Training</td>
<td>Laws and Regulations</td>
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<tr>
<td>Adequacy of Technology or Tools</td>
<td>Industry Trends</td>
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<td>Appropriateness of Organization or Departmental Culture</td>
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<td>Health of Organization or Departmental Morale</td>
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<td>Adequate/Available Resources</td>
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<td>Decision Making Processes</td>
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<td>Authority</td>
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SIPOC – A Planning RCA Tool
Suppliers – Inputs – Process – Outputs - Customers

Start with customer requirements and work towards suppliers
Audit Benefits of the SIPOC During Planning

- Allows the Auditor or Team to Visualize the Business Process at a High Level
- Assists in Locating where Problems, Failures or Control Weaknesses may Reside within the Process
- May be Used to help Scope the Audit
- Provides Information for the Background Section of the Audit Report

Options for Identifying Key Inputs and Outputs:
- Interview
- Team Brainstorming
Steps to Create a SIPOC

1. Clarify the Start and Stop (or boundaries) of the process.
2. In the Process column (bottom), map 5 – 7 major process steps in sequence.
3. Brainstorm the key Outputs and Customers for each major process step to answer:
   1. What product or service does this process create?
   2. Who uses the output?
4. List the key Outputs of each step of the process.
5. Identify the Customers that will receive the Outputs.
6. Brainstorm the key Inputs and Suppliers for each key output identified:
   1. What material or information is necessary to produce the Output?
   2. Where does it come from?
7. List the key Inputs for each key Output.
8. Identify the Suppliers that provide the Inputs.
9. Review the completed diagram to verify all key components are complete and analyze to determine the areas of focus for the audit.
## SIPOC Template

<table>
<thead>
<tr>
<th>Suppliers</th>
<th>Inputs</th>
<th>Process</th>
<th>Outputs</th>
<th>Customers</th>
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Fieldwork - Standards

- 2320 – Analysis and Evaluation

*Internal auditors must base conclusions and engagement results on appropriate analysis and evaluations.*

- 2330 – Documenting Information

*Internal auditors must document sufficient, reliable, relevant, and useful information to support the engagement results and conclusions.*
Key Tasks Performed During Fieldwork

- Documenting all testing performed
- Analyzing fieldwork and summarizing test results
- Testing controls to determine if they are in place and operating effectively
- Evaluating test results
- Determining if business objectives are being achieved and to what extent
- Analyzing business processes for economy, efficiency, and effectiveness and assessing performance
- Auditing client status updates
- Formulating tentative recommendations
Techniques Used to Improve Processes

- Perform tasks in parallel vs. in tandem or sequence
- Automate key steps that are currently manual
- Re-order process steps
- Push certain tasks upstream or downstream
- Eliminate unnecessary steps and process waste or steps that don’t add value
- Standardize key steps across areas and individuals for consistency
- Implement policies and procedures where lacking
- Conduct training
- Validate steps are being performed by the right people (authority, knowledge or skills)
- Eliminate the need to correct defects
The 5 Whys: A Fieldwork RCA Tool

- A question asking technique used to explore the cause and effect relationships underlying a particular problem.
- Goal is to determine a ROOT CAUSE of a problem.
- Process is to repeat the question “Why?” five times and through the process identify the nature of the problem (cause) and solutions should become clear.
- Alternate question: “What were the actors that directly resulted in the effect?”
- Should be used as a ‘rule of thumb’ – not meant to be prescriptive. (May be less or more than 5 ‘why’s’)


Why did the “virtually unsinkable” RMS Titanic sink?

Why 1? It hit an iceberg.

Why 2? The captain ignored iceberg warnings.

Why 3? He was in a hurry to get the ship to NY.

Why 4? Management pressure to set a speed record.

Why 5? Wanted the publicity.
Why did the “virtually unsinkable” RMS Titanic sink?

Why 1? Water tight compartments flooded.


Why 3? The rivets were made of substandard material.

Why 4? There was a hurry to get the ship into service.

Why 5? The need to make money quickly.
<table>
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<tr>
<th>Proximate Cause</th>
<th>Intermediate Causes</th>
<th>Root Cause</th>
<th>Proposed Solution</th>
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2400 – Communicating Results

Internal auditors must communicate the engagement results.

2410 – Criteria for Communicating

Communications must include the engagement’s objectives and scope, as well as applicable conclusions, recommendations and action plans.

2420 – Quality of Communications

Communications must be accurate, objective, clear, concise, constructive, complete and timely.
Components of an Audit Observation

- **Condition (What Is)**
  - Include When or how often, who, what, why
- **Criteria (What Should Be)**
  - Standards, measures, or expectations used in making an evaluation
- **Cause (Why)**
  - Reason for the difference between the expected and actual conditions.
- **Consequences (Effect – So What)**
  - The risk or exposure the organization and/or others encounter because the condition is not consistent with the criteria.
- **Corrective Action (Recommendations - What is to be Done)**
  - Based on the auditor’s observations and conclusions, recommendations communicate opportunities for improvements; can also acknowledge satisfactory performance.
Ask: Why do the conditions exist? (Repeatedly!)
- Identify proximate, intermediate and root levels of cause.
- Identify which level of cause is actionable.

LEVELS OF CAUSE
Proximate Cause: The action or lack of action that led directly to the condition. (Causal Factor)

Intermediate Cause: The cause that led to the proximate cause; may be the actionable cause. (Apparent Cause)

Root Cause: The underlying cause that may also be the actionable cause.
Levels of Effect

The Effect is the Impact of the difference between the Condition (*what is*) and Criteria (*what should be.*)

By repeatedly asking “so what” you naturally move through a series of effects:
- Direct, one-time effect on the process.
- Cumulative effect on the process.
- Cumulative effect on the organization.
- High-level, systemic effect.

*Auditors should consider the effect the engagement observations & recommendations may have on the auditee’s overall operations & financial health!*
Recommendations and Action Plans

- Call for action to correct existing conditions OR
- Improve operations;
- May suggest approaches to correct or enhance performance to help achieve objectives;
- Can be generic or specific
Types of Recommendations and Action Plans

- **Cause-Focused**
  Address the identified actionable causes and describe what’s to be done to prevent reoccurrences of the condition. Essential or significant observations but may not be needed for more minor ones.

- **Condition-Focused**
  Address the condition found and describe what will be done to correct the condition. May not be required.

- **Recovery-Focused**
  Address the consequences of the condition and describe what will be done to correct errors caused by the condition. Not always appropriate to the condition and may not be required.
SMART Criteria for Action Plans

- **Specific**
- **Measurable**
- **Attainable or Achievable**
- **Relevant**
- **Time-bound**
Creative Problem Solving: Divergent and Convergent Thinking

- Control – imbed control activities to reduce risk
- Streamlining – LEAN the process
- Reframing – question the assumptions on which the problem itself is based
- Questioning – focus on open-ended, speculative and comparative questions
- Brainstorming – consider using group!
- Imaging – generating and manipulating images, colors and textures
- Inductive Reasoning – draw a conclusion based on evidence
- Deductive Reasoning – derive a conclusion based on general principles
- Repositioning
- Reverse Engineering – take it apart to learn how it works!
- Reengineering – applying the concepts of Six Sigma
- Mind Mapping – document various lines of thinking
- Nominal Group Technique – come to group consensus by ranking options
Payoff Matrix: A Reporting RCA Tool

- Effort (Cost) is on the X-axis and Payoff (Benefit) is on the Y-axis.
- Each potential solution should be assessed and classified based on:
  - Impact or Benefit
  - Effort or Cost of Implementation
- If a solution requires minimum effort and is expected to yield a good payoff, it should be implemented!
- If a solution will yield a small payoff, it should most likely still be done because it doesn’t require much effort.
- If a solution requires a lot of effort with minimum payoff it shouldn’t be attempted.
Payoff Matrix Template

<table>
<thead>
<tr>
<th>Impact of Solution</th>
<th>Difficulty of Implementation</th>
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<tbody>
<tr>
<td>Low</td>
<td>Low</td>
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<tr>
<td>High</td>
<td>High</td>
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</table>
More Tools
Process Profile Worksheet - Planning

- Tools for recording what you have gathered (alternative or supplemental to flowchart/process map.)
- Helps ensure all pertinent data is gathered.

TIPS:
- Trigger and Input can be the same.
- A true objective speaks to what will be done NOT how it will be accomplished.
- A risk is NOT just the opposite of an objective, NOR is it what will happen if the objective is not reached.
- Good measures of results should include the source of the data as well as the quantifiable results.
# Trigger:

## Process Description:

<table>
<thead>
<tr>
<th>Start</th>
<th>Task</th>
<th>Actions</th>
<th>Input</th>
<th>Output</th>
<th>Measures of Success</th>
<th>Ranking 1=Low 2=High</th>
<th>Results</th>
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Ishikawa (Cause-and-Effect) Diagram

- **Hardware**
  - dirty lens
  - wrong lens
  - wrong exposure
  - out of focus
  - wrong mode

- **Environment**
  - subject moving too fast
  - too dark
  - shaky hands
  - not following instruction

- **Method**

- **User**

- **Result**: blurry photo
Visual representation of each individual’s role in the accomplishment of the process. Focuses on the WHO.

**Responsible:** The individual who actually works on the activity (can be more than one person!)

**Accountable:** The individual with the actual authority over the activity – should only be one person; but they can be BOTH responsible and accountable.

**Consult:** An individual who is consulted prior to the activity moving forward; 2-way communication.

**Inform:** An individual who is consulted as the activity moves forward; doesn’t stop the process; can be a number of people.
# RACI Matrix

<table>
<thead>
<tr>
<th>Business Process Steps</th>
<th>Responsible</th>
<th>Accountable</th>
<th>Consult</th>
<th>Inform</th>
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Personal Competencies
CRITICAL THINKING: Skepticism; evaluating evidence to form a conclusion – a level beyond basic operational audits; applying problem solving techniques

BUSINESS ACUMEN: How well do you know both your agency’s business (employees, processes, culture, specific organizational factors) but also the business environment, industry and the overall economy/market?

COLLABORATION: Ability to persuade and motivate others through teamwork and cooperation

COMMUNICATION: Effectively and clearly convey thoughts, ideas and suggestions during meetings, presentations, interviews and negotiations with audit customers and executives.
Competencies Critical to RCA

1. Critical Thinking
2. Business Acumen
3. Creative Problem Solving
4. Collaboration
5. Communication
6. Technical Skills (Audit Topic Dependent)

TAKEAWAY: Consider your personal level of competency for 1-5 as ‘Limited’, ‘Moderate’, or ‘High’

WIIFM: Make a note of a competency area you want to focus on improving! How specifically will you do that?
Wrap-up / Summary

- Did we fulfill objectives?
- Any questions?
- Takeaways to share?
Pamela J. Stroebel Powers, CPA, MBA, CIA, CRMA, CPM
Oregon Military Department – Chief Audit Executive

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