

The Root Cause Analysis Handbook

Do you have recurring problems that are costing you time and money? Unresolved problems do more than aggravate. They can increase costs, lower quality, and drive customers away. Plus, quality management processes, such as ISO 9001, require organizations to have a corrective and preventive action process in place. Root cause analysis is integral to the success of any corrective action or problem-solving process.

Unfortunately, root cause analysis is an often maligned, misunderstood, and misapplied process. Instead of viewing root cause analysis as an opportunity for improvement, many see it only as an admission that things have gone wrong. Root cause analysis should be seen as an opportunity, not a chore. This practical guide offers proven techniques for using root cause analysis in your organization. Inside you'll find: What root cause analysis is When (and when not) to use root cause analysis Who should participate in the root cause analysis process How to construct a root cause analysis checklist Examples of how a well-run root cause analysis process works And much more!

This book constitutes the refereed proceedings of 12 international workshops held in Tallinn, Estonia, in conjunction with the 10th International Conference on Business Process Management, BPM 2012, in September 2012. The 12 workshops comprised Adaptive Case Management and Other Non-Workflow

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Approaches to BPM (ACM 2012), Business Process Design (BPD 2012), Business Process Intelligence (BPI 2012), Business Process Management and Social Software (BPMS2 2012), Data- and Artifact-Centric BPM (DAB 2012), Event-Driven Business Process Management (edBPM 2012), Empirical Research in Business Process Management (ER-BPM 2012), Process Model Collections (PMC 2012), Process-Aware Logistics Systems (PALS 2012), Reuse in Business Process Management (rBPM 2012), Security in Business Processes (SBP 2012), and Theory and Applications of Process Visualization (TAProViz 2012). The 56 revised full papers presented were carefully reviewed and selected from 141 submissions.

Although there are many books on root cause analysis (RCA), most concentrate on team actions such as brainstorming and using quality tools to discuss the failure under investigation. These may be necessary steps during RCA, but authors often fail to mention the most important member of an RCA team—the failed part. *Root Cause Analysis: A Step-By-Step Guide to Using the Right Tool at the Right Time* provides authoritative guidance on how to empirically investigate quality failures using scientific method in the form of cycles of plan-do-check-act (PDCA), supported by the use of quality tools. Focusing on the use of proven quality tools to empirically investigate issues, the book starts by describing the theoretical background behind using the scientific method and quality tools for RCA. Next, it supplies step-by-step instructions for performing RCA with the tools discussed in the first section. The book's

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clear examples illustrate how to integrate PDCA with the scientific method and quality tools when investigating real-world quality failures. This RCA guide provides root cause investigators with a tool kit for the quick and accurate selection of the appropriate tool during a root cause investigation. It includes an appendix with a guide to tool selection based on the intended use of the tool. There is also an appendix that defines the terminology used in the book. After reading this book, you will understand how to integrate the scientific method, quality tools, and statistics, in the form of exploratory data analysis, to build a picture of the actual situation under investigation that will lead you to the true root cause of an event. The tools and concepts presented in the text are appropriate for professionals in both the manufacturing and service industries.

The answer is root cause analysis, a process that allows you to find the cause of single events/problems in the workplace. The Root Cause Analysis Handbook presents a walkthrough example that illustrates the method and shows how to implement it. Because poor initial problem definition can (and often does) undermine the problem-solving process, Ammerman places special emphasis on this area to build a solid foundation for effective analysis. He also provides guidance on preparing the final report. The need for clear documentation on dealing with problems makes this book especially valuable for quality managers, engineers, safety managers, and teams implementing the ISO or QS standards. Written in a simple, user-friendly style, you will grasp the core concepts quickly and begin applying them to your work.

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The book follows a proven training outline, including real-life examples and exercises, to teach healthcare professionals and students how to lead effective and successful Root Cause Analysis (RCA) to eliminate patient harm. This book discusses the need for RCA in the healthcare sector, providing practical advice for its facilitation. It addresses when to use RCA, how to create effective RCA action plans, and how to prevent common RCA failures. An RCA training curriculum is also included. This book is intended for those leading RCAs of patient harm events, leaders, students, and patient safety advocates who are interested in gaining more knowledge about RCA in healthcare.

Root Cause Analysis Handbook A Guide to Efficient and Effective Incident Investigation Rothstein Publishing
OpRisk Awards 2020 Book of the Year Winner! The Authoritative Guide to the Best Practices in Operational Risk Management Operational Risk Management offers a comprehensive guide that contains a review of the most up-to-date and effective operational risk management practices in the financial services industry. The book provides an essential overview of the current methods and best practices applied in financial companies and also contains advanced tools and techniques developed by the most mature firms in the field. The author explores the range of operational risks such as information security, fraud or reputation damage and details how to put in place an effective program based on the four main risk management activities: risk identification, risk assessment, risk mitigation and risk monitoring. The book also examines some specific types

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of operational risks that rank high on many firms' risk registers. Drawing on the author's extensive experience working with and advising financial companies, *Operational Risk Management* is written both for those new to the discipline and for experienced operational risk managers who want to strengthen and consolidate their knowledge.

Root Cause Analysis, or RCA, "What is it?"

Everyone uses the term, but everyone does it differently. How can we have any uniformity in our approach, much less accurately compare our results, if we're applying different definitions? At a high level, we will explain the difference between RCA and Shallow Cause Analysis, because that is the difference between allowing a failure to recur or dramatically reducing the risk of recurrence. In this book, we will get down to basics about RCA, the fundamentals of blocking and tackling, and explain the common steps of any investigative occupation. Common investigation steps include: Preserving evidence (data)/not allowing hearsay to fly as fact Organizing an appropriate team/minimizing potential bias Analyzing the events/reconstructing the incident based on actual evidence Communicating findings and recommendations/ensuring effective recommendations are actually developed and implemented Tracking bottom-line results/ensuring that identified, meaningful metrics were attained We explore, "Why don't things always go as planned?"

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When our actual plans deviate from our intended plans, we usually experience some type of undesirable or unintended outcome. We analyze the anatomy of a failure (undesirable outcome) and provide a step-by-step guide to conducting a comprehensive RCA based on our 3+ decades of applying RCA as we have successfully practiced it in the field. This book is written as a how-to guide to effectively apply the PROACT® RCA methodology to any undesirable outcome, is directed at practitioners who have to do the real work, focuses on the core elements of any investigation, and provides a field-proven case as a model for effective application. This book is for anyone charged with having a thorough understanding of why something went wrong, such as those in EH&S, maintenance, reliability, quality, engineering, and operations to name just a few.

Wine has been around for thousands of years, grape growing and wine production is worldwide, and recipes are prolific. However, this approach to winemaking root cause analysis is original and cannot be found in any other winemaking publications. The book start with the basics, with the authors' own basic winemaking steps. This provides a winemaking process and common language. With this understanding and departure point, they describe Root Cause Analysis (RCA) methods as applied to winemaking. Though winemaking appears

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to have simple steps, problems or flaws inevitably arise. Instant access to online materials can provide ad-hoc answers to given conditions; however, the applicability of these solutions to one's own situation and particular conditions is not always clear. Selective changes may or may not solve the problem and in the winemaking world, it may take years to finish the wine and understand if the quality actually improved or not. A finished wine will have thousands of particular current and historical conditions that played some role in its quality. The root cause analysis (RCA) approach provides a path to sort these out and guide winemakers to the solution. It creates a problem statement and systematically divides the world into six discrete groups. This book tackles each and all of these, one group at a time. The text contains examples that prioritize the contributing factors. Observations are noted, possibilities identified, and likelihoods assessed. Actions and tests are identified to aid in assigning risk, corrective action, and preventive measures. Given limited time and resources, prioritized risks and actions improve the chance of solving the problem. The book provides problems exploring each of their respective six group characteristics. Each RCA step is described and illustrated in detail. The process is revealed and explained through multiple examples.

Feature 1: Organized systematic method for solving winemaking quality problems

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Feature 2: Applicable to amateur or commercial winemakers or any other product or system development activity and organization
Feature 3: Unique new application to the wine making world but similar methods historically used in complex aerospace product development
Feature 4: Teaching winemakers and producers how to think about uncertainty and error. It's possible that gold medal wine, or 95-point Wine Spectator score, or 93-point Robert Parker score was deserved for that particular wine and vintage. But it is also possible you were very lucky. It may not be earned again in next year's vintage. This book teaches approaches and methods to maintain and or improve the quality, every year.
Feature 5: Application of a potentially 'dry' rigorous root cause analysis approach in a world that enables the joy of creating and appreciating something very enjoyable. It will help you smile, at least once a year.

The purpose of this book is to share what the author has learned about effective problem solving by exposing the ineffectiveness of conventional wisdom and presenting a principle-based alternative called Apollo Root Cause Analysis that is robust, yet familiar and easy to understand. This book will change the way readers understand the world without changing their minds. One of the most common responses the author has received from his students of Apollo Root Cause Analysis is they have

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always thought this way, but did not know how to express it. Other students have reported a phenomenon where this material fundamentally "re-wires" their thinking, leading to a deeply profound understanding of our world. At the heart of this book is a new way of communicating that is revolutionizing the way people all around the world think, communicate, and make decisions together. Imagine a next decision-making meeting where everyone is in agreement with the causes of the problem and the effectiveness of the proposed corrective actions with no conflicts, arguments, or power politics! This is the promise of Apollo Root Cause Analysis.

This best-seller can help anyone whose role is to try to find specific causes for failures. It provides detailed steps for solving problems, focusing more heavily on the analytical process involved in finding the actual causes of problems. It does this using figures, diagrams, and tools useful for helping to make our thinking visible. This increases our ability to see what is truly significant and to better identify errors in our thinking. In the sections on finding root causes, this second edition now includes: more examples on the use of multi-vari charts; how thought experiments can help guide data interpretation; how to enhance the value of the data collection process; cautions for analyzing data; and what to do if one can't find the causes. In its guidance on solution identification, biomimicry and

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TRIZ have been added as potential solution identification techniques. In addition, the appendices have been revised to include: an expanded breakdown of the 7 M's, which includes more than 50 specific possible causes; forms for tracking causes and solutions, which can help maintain alignment of actions; techniques for how to enhance the interview process; and example responses to problem situations that the reader can analyze for appropriateness.

All organizations experience unintended variation and its consequences. Such problems exist within a broad range of scope, persistence, and severity across different industries. Some problems cause minor nuisances, others leads to loss of customers or money, others yet can be a matter of life and death. The purpose of this pocket guide is to provide you with easily accessible knowledge about the art of problem solving, with a specific focus on identifying and eliminating root causes of problems. Root cause analysis is a skill that absolutely everybody should master, irrespective of which sector you work in, what educational background you have, and which position in the organization you hold. The content in this little pocket guide can contribute to disseminating this skill a little further in the world.

Are you trying to improve performance, but find that the same problems keep getting in the way? Safety,

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health, environmental quality, reliability, production, and security are at stake. You need the long-term planning that will keep the same issues from recurring. Root Cause Analysis Handbook: A Guide to Effective Incident Investigation is a powerful tool that gives you a detailed step-by-step process for learning from experience. Reach for this handbook any time you need field-tested advice for investigating, categorizing, reporting and trending, and ultimately eliminating the root causes of incidents. It includes step-by-step instructions, checklists, and forms for performing an analysis and enables users to effectively incorporate the methodology and apply it to a variety of situations. Using the structured techniques in the Root Cause Analysis Handbook, you will: Understand why root causes are important. Identify and define inherent problems. Collect data for problem-solving. Analyze data for root causes. Generate practical recommendations. The third edition of this global classic is the most comprehensive, all-in-one package of book, downloadable resources, color-coded RCA map, and licensed access to online resources currently available for Root Cause Analysis (RCA). Called by users "the best resource on the subject" and "in a league of its own." Based on globally successful, proprietary methodology developed by ABS Consulting, an international firm with 50 years' experience in 35 countries. Root

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Cause Analysis Handbook is widely used in corporate training programs and college courses all over the world. If you are responsible for quality, reliability, safety, and/or risk management, you'll want this comprehensive and practical resource at your fingertips. The book has also been selected by the American Society for Quality (ASQ) and the Risk and Insurance Society (RIMS) as a "must have" for their members.

A failure or accident brings your business to a sudden halt. How did it happen? What's at the root of the problem? What keeps it from happening again? Good detective work is needed -- but how do you go about it? In this new book, industry pioneer Fred Forck's seven-step cause analysis methodology guides you to the root of the incident, enabling you to act effectively to avoid loss of time, money, productivity, and quality. From 30+ years of experience as a performance improvement consultant, self-assessment team leader, and trainer, Fred Forck, CPT, understands what you need to get the job done. He leads you through a clear step-by-step process of root cause evaluation, quality improvement, and corrective action. Using these straightforward tools, you can avoid errors, increase reliability, enhance performance, and improve bottom-line results -- while creating a resilient culture that avoids repeat failures. The key phases of this successful cause analysis include:

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Scoping the Problem Investigating the Factors
Reconstructing the Story Establishing Contributing
Factors Validating Underlying Factors Planning
Corrective Actions Reporting Learnings At each
stage, *Cause Analysis Manual: Incident Investigation
Method and Techniques* gives you a wealth of real-
world examples, models, thought-provoking
discussion questions, and ready-to-use checklists
and forms. The author provides: references for
further reading hundreds of illustrative figures,
tables, and diagrams a full glossary of terms and
acronyms professional index You know that
identifying causes and preventing business-
disrupting events isn't always easy. By following
Fred Forck's proven steps you will be able to
identify contributing factors, align organizational
behaviors, take corrective action, and improve
business performance! Are you a professor or leader
of seminars or workshops? On confirmed course
adoption of *Cause Analysis Manual: Incident
Investigation Method and Techniques*, you will have
access to a comprehensive, professional
Instructor's Manual.

This book comprehensively outlines what a holistic and
effective Root Cause Analysis (RCA) system looks like.
From the designing of the support infrastructure to the
measuring of effectiveness on the bottom-line, this book
provides the blueprint for making it happen. While
traditionally RCA is viewed as a reactive tool, the authors

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will show how it can be applied proactively to prevent failures from occurring in the first place. RCA is a key element of any successful Reliability Engineering initiative. Such initiatives are comprised of equipment, process and human reliability foundations. Human reliability is critical to the success of a true RCA approach. This book explores the anatomy of a failure (undesirable outcome) as well as a potential failure (high risks). Virtually all failures are triggered by errors of omission or commission by human beings. The methodologies described in this book are applicable to any industry because the focus is on the human being's ability to think through why things go wrong, not on the industry or the nature of the failure. This book correlates reliability to safety as well as human performance improvement efforts. The author has provided a healthy balance between theory and practical application, wrapping up with case studies demonstrating bottom-line results. Features Outlines in detail every aspect of an effective RCA 'system' Displays appreciation for the role of understanding the physics of a failure as well as the human and system's contribution Demonstrates the role of RCA in a comprehensive Asset Performance Management (APM) system Explores the correlation between Reliability Engineering and Safety Integrates the concepts of Human Performance Improvement, Learning Teams, and Human Error Reduction approaches into RCA

The world is losing species and biodiversity at an unprecedented rate. The causes go deep and the losses are driven by a complex array of social, economic,

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political and biological factors at different levels. Immediate causes such as over-harvesting, pollution and habitat change have been well studied, but the socioeconomic factors driving people to degrade their environment are less well understood. This book examines the underlying causes. It provides analyses of a range of case studies from Brazil, Cameroon, China, Danube River Basin, India, Mexico, Pakistan, Philippines, Tanzania and Vietnam, and integrates them into a new and interdisciplinary framework for understanding what is happening. From these results, the editors are able to derive policy conclusions and recommendations for operational and institutional approaches to address the root causes and reverse the current trends. It makes a contribution to the understanding of all those - from ecologists and conservationists to economists and policy makers - working on one of the major challenges we face. Don't jump from problem to solution without first investigating root causes. This book helps you more accurately focus on school improvement issues, so you can avoid wasting precious time and resources. It is clearly written, contains lots of real examples, and is presented in a style and format designed for the non-expert. It will help you make decisions which will improve learning for all students.

Typically, root cause analysis is taught by explaining a variety of tools that require users to gain considerable experience before being able to apply them correctly in the proper settings. What's Your Problem? Identifying and Solving the Five Types of Process Problems

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simplifies process problem solving and outlines specific techniques to help you

When the challenge is to get to the heart of a problem, you need a simple and efficient cause investigation methodology. And what would make a real difference would be an interactive map to lead you to the answer every time. Chester Rowe's *Simplifying Cause Analysis: A Structured Approach* is your instruction book combined with the included downloadable Interactive Cause Analysis Tool you have been looking for. The author intends this book for professionals like you, who have some familiarity with cause analysis projects and are looking for a simple and efficient cause investigation methodology –is a more effective and insightful way of asking “why?” Introducing his multi-function event investigation tool, Chester Rowe says, “There are already many scientific tools to help us understand the physical causes for machine failures; the challenge now is to find a way of investigating human performance failure modes...humans are often a major source of slips, lapses, and mistakes.” Supporting his instructions with diagrams, charts, and real-world examples from companies like yours, the author takes you step-by-step through planning, completing, and documenting your investigation: Chapter 1 gives you a process to determine the level of effort that your investigation should encompass, assess the level of effort needed, and determine the rigor needed. Your investigation needs to be as risk-informed as possible. Chapters 2 through 5 presents a new and innovative structure –rigorous yet intuitively easy to remember – to identify

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the underlying causes for the event (Cause Road Maps) and conduct the investigation. Chapter 6 introduces conceptual human performance models and tells you how to begin focusing on the human behaviors involved. Chapters 7 and 8 present you with methods, tools, and techniques for carefully interviewing personnel. Chapters 9 through 13 “put the pieces together,” showing you how to analyze and model the event, determine corrective action, and document the investigations and findings. Chester Rowe developed the Cause Road Map over many years to provide a comprehensive taxonomy for every cause investigation. However, fully implementing the Cause Road Map requires the use of other tools to organize, analyze, and present the final results of your investigation. To get you started, Rowe includes his downloadable Interactive Cause Analysis Tool – an easy-to-use tool in familiar spreadsheet format – free with your verified purchase of the book.

This book describes the methods and tools used to develop and implement an effective TQM program. It provides a practical explanation of root cause analysis and discusses the proactive use of analysis techniques for the prediction and prevention of problems. It emphasizes the basic concepts, various analysis techniques, and their common purpose in determining the true cause of problems.

This book is intended for anyone who wants to know about the 5 Whys and how to use them. The Five Whys tool is considered as the number one tool in ease of use in recognizing the truth of the problems and revealing its causing secrets, as it is considered a complement to

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many quality tools and systems. Although, there are few who can explain it well, and some even talk about it as if nothing. If you are a student, worker, manager, nurse, teacher, unemployed or anything else and you encounter problems and want to solve them from their roots in an easy and effective way, then this book will help you put your feet on the route of knowledge. As a help, I added templates to help you sort ideas and find causes. When I wrote this work, I tried to keep away from prolonged unhelpful explanation or the use of theorizing. I relied on my accumulated experience over more than 20 years in the field of quality to summarize this topic in an easy, smooth and possibly new way. In this book, you will learn about: - Definition of the problem.- How to represent the problem as a tree.- Learn about the Five Whys.- Types of the Five Whys: simple, tree, in an organization.- When to use each type or method.- Detailed usage steps.- When to stop asking questions.- How to know that you have reached the root of the problem.- Attributes that the problem-solving persons should have.- How to benefit you as a leader.- How to benefit you in your job.- Rocket and the fly theory in dealing with problems.- Examples, exercises, models, etc

Medical Device Use Error: Root Cause Analysis offers practical guidance on how to methodically discover and explain the root cause of a use error—a mistake—that occurs when someone uses a medical device. Covering medical devices used in the home and those used in clinical environments, the book presents informative case studies about the use

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errors

Are you ready and willing to get to the root causes of problems? As Medicare, Medicaid, and major insurance companies increasingly deny payment for never events, it has become imperative that hospitals and doctors develop new ways to prevent these avoidable catastrophes from recurring.

Proactive tools such as root cause analysis (RCA), basic failure mode and effects analysis (FMEA), and opportunity analysis (OA) are useful in preventing error, but in healthcare, such tools are often constrained by reticence to share information about mistakes and other problems inherent to the industry. ...well written and extremely applicable to health care. Every healthcare professional should have a copy. - Matthew C. Mireles, President / CEO, Community Medical Foundation for Patient Safety, Bellaire, Texas Patient Safety: The PROACT® Root Cause Analysis Approach addresses the proactive methodologies and organizational paradigms that must change in order to support and sustain such activities in the interest of patient safety. Written by reliability expert Robert J. Latino, this book provides a perspective on patient care from outside the health industry and culture. It teaches a proven approach that measures its effectiveness based on patient safety results, rather than compliance, and demonstrates the Return-On-Investment for using RCA to reduce and/or eliminate undesirable

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outcomes. Addressing the contribution of human error to physical consequences, Latino explores ways to identify conditions that are more prone to result in human error. It also uses FMEA to proactively identify unacceptable risks, and then uses the concepts of RCA to prevent risks from materializing. Are you ready to be tenacious in your approach and completely honest in your assessment? Root Cause Analysis requires courage and honesty. When properly applied RCA will point out the problems and lead you to solutions. Visit the author's website; find out if RCA is right for your organization Robert J. Latino has spent the past 10 years researching the differences in industrial culture versus the healthcare culture. In this book, he expertly makes the appropriate modifications to proven methodologies to successfully bridge the proactive technologies from industry to healthcare. Additional information, including an audio-visual presentation by the author, is available on the PROACT website at

<http://www.proactforhealthcare.com>

Root Cause Failure Analysis provides the concepts needed to effectively perform industrial troubleshooting investigations. It describes the methodology to perform Root Cause Failure Analysis (RCFA), one of the hottest topics currently in maintenance engineering. It also includes detailed equipment design and troubleshooting guidelines,

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which are needed to perform RCFA on machinery found in most production facilities. This is the latest book in a new series published by Butterworth-Heinemann in association with PLANT ENGINEERING magazine. PLANT ENGINEERING fills a unique information need for the men and women who operate and maintain industrial plants. It bridges the information gap between engineering education and practical application. As technology advances at increasingly faster rates, this information service is becoming more and more important. Since its first issue in 1947, PLANT ENGINEERING has stood as the leading problem-solving information source for America's industrial plant engineers, and this book series will effectively contribute to that resource and reputation. Provides information essential to industrial troubleshooting investigations Describes the methods of root cause failure analysis, a hot topic in maintenance engineering Includes detailed equipment-design guidelines

Root Cause Analysis Handbook: A Guide to Effective Incident Investigation presents a proven system designed for investigating, categorizing, and ultimately eliminating, rootcauses of incidents with safety, health, environmental, quality, reliability, and production-process impacts. Defined as a tool to help investigators describe what happened, to determine how it happened, and to understand why it

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happened, the Root Cause Analysis System enables businesses to generate specific, concrete recommendations for preventing incident recurrences. Using the factual data of the incident, the system also allows quality, safety, and risk and reliability managers an opportunity to implement more reliable and more cost-effective policies that result in major, long-term opportunities for improvement. Such process improvements increase a business' ability to recover from and prevent disasters with both financial and health-and-safety implications. Special features include a 17 inch by 22 inch pull-out Root Cause Map, a powerful tool for identifying and coding root causes. The book helps readers to understand why root causes are important, to identify and define inherent problems, to collect data for problem solving, to analyze data for root causes, and to generate practical recommendations.

- - - - - This edition is a reprinting of the 199 edition.

- - - - - ORGANIZATION OF THE ROOT CAUSE ANALYSIS HANDBOOK

The focus of this handbook is on the application of the Root Cause Map to the root cause analysis process. The Root Cause Map is used in one of the later steps of the root cause analysis process to identify the underlying management systems that caused the event to occur or made the consequences of the event more severe. The first five chapters of this handbook are an overview of the root cause analysis

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process. These provide the context for use of the Root Cause Map. Chapter 6 provides references. Chapter 1, "Introduction to Root Cause Analysis," presents a basic overview of the SOURCE (Seeking Out the Underlying Root Causes of Events) root cause analysis process. Chapter 2, "Collecting and Preserving Data for Analysis," outlines the types of data and data sources that are available. Chapters 3, 4, and 5 describe the three major steps in the root cause analysis process. Chapter 3, "Data Analysis Using Causal Factor Charting," provides a step-by-step description of causal factor charting techniques. Chapter 4, "Root Cause Identification," explains the organization and use of the Root Cause Map. Chapter 5, "Recommendation Generation and Implementation," provides guidance on developing and implementing corrective actions. The references section, Chapter 6, provides additional information for those interested in learning more about specific items contained in the handbook. Appendix A, "Root Cause Map Node Descriptions," describes each segment of the Root Cause Map and presents detailed descriptions of the individual nodes on the map. Appendix B is the Root Cause Map itself. This book presents a proven system designed for investigating, categorizing, and ultimately eliminating root causes of incidents with safety, health, environmental, quality, reliability, and production-process impacts. Defined as a tool to help

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investigators describe what happened, to determine how it happened, and to understand why it happened, the Root Cause Analysis System enables businesses to generate specific, concrete recommendations for preventing incident recurrences.

This book provides a Root Cause Analysis methodology for process and equipment problems with a unique insight on sources and type of problems that appear in process lines.

Danica Heller-Krippendorf develops concepts and approaches optimizing the applicability of MVA on data sets from an industrial context. They enable more time-efficient MVA of the respective ToF/SIMS data. Priority is given to two main aspects by the author: First, the focus is on strategies for a more time-efficient collection of the input data. This includes the optimal selection of the number of replicate measurements, the selection of input data and guidelines for the selection appropriate data preprocessing methods. Second, strategies for more efficient analysis of MVA results are presented.

?About the Author: Danica Heller-Krippendorf did her research and dissertation at the University of Siegen, Germany, in collaboration with a German analytical service company. Now she is engineer in analytics at a DAX company.

A clinically oriented handbook providing up-to-date recommendations for mastering the practical aspects

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of patient management for venous thromboembolism

Venous thromboembolism (VTE) is associated with high morbidity and mortality both in and out of the hospital setting, and is one of the commonest reasons for hospital attendances and admissions. Designed as a practical resource, the Handbook of Venous Thromboembolism covers the practical aspects of venous thromboembolism management in short and easily followed algorithms and tables. This important text helps physicians keep up-to-date with the latest recommendations for treating venous thromboembolism in clinic-oriented settings. Experts in fields such as the radiological diagnosis of pulmonary embolism and thrombophilia testing, give a succinct summary of the investigation, diagnosis and treatment of venous thromboembolism and include evidence-based guidelines. With contributions from a team of internationally recognized experts, Handbook of Venous Thromboembolism is a source of information that specialists in the field can recommend to non-specialists and which the latter will be able to review to assist in their education and management of this wide-spread condition. This vital resource:

Comprises of a clinically focused handbook, useful as a daily resource for the busy physician Offers a handbook written by an international team of specialists offering their experience on the practical aspects of venous thromboembolism management

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Addresses venous thrombosis prevention, a major focus for healthcare providers Includes coverage on controversies in the management of venous thromboembolism so clinicians can understand how experts are practicing in real scenarios Written for hematology trainees, emergency and acute medicine physicians, junior doctors, and primary care physicians, Handbook of Venous Thromboembolism covers the basics for treating patients with venous thromboembolism and offers guidelines from noted experts in the field.

Lubrication Degradation: Getting into the Root Causes strives to break down the complex topic of Lubrication Degradation into its six most common failure mechanisms.

Behind heart disease and cancer, medical error is now listed as one of the leading causes of death. Of the many medical errors that may lead to injury and death, diagnostic failure is regarded as the most significant. Generally, the majority of diagnostic failures are attributed to the clinicians directly involved with the patient, and to a lesser extent, the system in which they work. In turn, the majority of errors made by clinicians are due to decision making failures manifested by various departures from rationality. Of all the medical environments in which patients are seen and diagnosed, the emergency department is the most challenging. It has been described as a "wicked" environment where illness

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and disease may range from minor ailments and complaints to severe, life-threatening disorders. The Cognitive Autopsy is a novel strategy towards understanding medical error and diagnostic failure in 42 clinical cases with which the author was directly involved or became aware of at the time. Essentially, it describes a cognitive approach towards root cause analysis of medical adverse events or near misses. Whereas root cause analysis typically focuses on the observable and measurable aspects of adverse events, the cognitive autopsy attempts to identify covert cognitive processes that may have contributed to outcomes. In this clinical setting, no cognitive process is directly observable but must be inferred from the behavior of the individual clinician. The book illustrates unequivocally that chief among these cognitive processes are cognitive biases and other flaws in decision making, rather than knowledge deficits.

Corporate Restructuring is a practical approach to rescuing troubled companies and driving underperforming companies to top performance. It combines proven restructuring strategies with rigorous theoretical analysis. This book explains how to set and achieve asset, staffing, sales and profit goals. Topics include diagnostic tools to identify the root cause of problems, the human dynamics that cause a company to thrive or wither, customer service and relationship marketing, customer

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intelligence systems, new product development, process mapping, continuous process improvement and re-engineering as well as integrating IT into corporate strategy. It is also discussed how to find the resources needed to keep a company alive during restructuring and how to use bankruptcy offensively and defensively. Corporate Restructuring emphasizes execution. All the restructuring theories in the world weigh less than a simple plan, well executed.

Provides information for software engineers on ways to prevent software defects.

Root Cause Failure Analysis Provides the knowledge and failure analysis skills necessary for preventing and investigating process equipment failures Process equipment and piping systems are essential for plant availability and performance. Regularly exposed to hazardous service conditions and damage mechanisms, these critical plant assets can result in major failures if not effectively monitored and assessed—potentially causing serious injuries and significant business losses. When used proactively, Root Cause Failure Analysis (RCFA) helps reliability engineers inspect the process equipment and piping system before any abnormal conditions occur. RCFA is equally important after a failure happens: it determines the impact of a failure, helps control the resultant damage, and identifies the steps for preventing future problems. Root Cause

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Failure Analysis: A Guide to Improve Plant Reliability offers readers clear understanding of degradation mechanisms of process equipment and the concepts needed to perform industrial RCFA investigations. This comprehensive resource describes the methodology of RCFA and provides multiple techniques and industry practices for identifying, predicting, and evaluating equipment failures. Divided into two parts, the text first introduces Root Cause Analysis, explains the failure analysis process, and discusses the management of both human and latent error. The second part focuses on failure analysis of various components such as bolted joints, mechanical seals, steam traps, gearboxes, bearings, couplings, pumps, and compressors. This authoritative volume: Illustrates how failures are associated with part integrity, a complete system, or the execution of an engineering process Describes how proper design, operation, and maintenance of the equipment help to enhance their reliability Covers analysis techniques and industry practices including 5-Why RCFA, fault tree analysis, Pareto charts, and Ishikawa diagrams Features a detailed case study of process plant machinery and a chapter on proactive measures for avoiding failures Bridging the gap between engineering education and practical application, Root Cause Failure Analysis: A Guide to Improve Plant Reliability is an important reference and guide

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for industrial professionals, including process plant engineers, planning managers, operation and maintenance engineers, process designers, chemical engineers, and instrument engineers. It is also a valuable text for researchers, instructors, and students in relevant areas of engineering and science.

This updated and expanded edition discusses many different tools for root cause analysis and presents them in an easy-to-follow structure: a general description of the tool, its purpose and typical applications, the procedure when using it, an example of its use, a checklist to help you make sure it is applied properly, and different forms and templates (that can also be found on an accompanying CD-ROM). The examples used are general enough to apply to any industry or market. The layout of the book has been designed to help speed your learning. Throughout, the authors have split the pages into two halves: the top half presents key concepts using brief language—almost keywords—and the bottom half uses examples to help explain those concepts. A roadmap in the margin of every page simplifies navigating the book and searching for specific topics. The book is suited for employees and managers at any organizational level in any type of industry, including service, manufacturing, and the public sector.

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