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Australian/New Zealand Standard™

Root cause analysis (RCA)

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Institution of Professional Engineers New Zealand
New Zealand Institute of Safety Management
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee QR-005, Dependability.

The objective of this Standard is to specify the steps that root cause analysis (RCA) should include and explain some techniques for identifying root causes. The Standard identifies a number of attributes of RCA techniques which assist with the selection of an appropriate technique. It describes each RCA technique and its relative strengths and weaknesses.

This Standard is identical with, and has been reproduced from IEC 62740:2015, *Root cause analysis (RCA)*.

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text 'this International Standard' should read 'Australian/New Zealand Standard'.

(b) A full point substitutes for a comma when referring to a decimal marker.

The term 'informative' has been used in this Standard to define the application of the annexes to which it applies. An 'informative' annex is only for information and guidance.

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INTRODUCTION

Root cause analysis (RCA) refers to any systematic process that identifies factors that contributed to a particular event of interest (focus event). RCA is performed with the understanding that events are addressed by understanding the root causes, rather than the immediately obvious symptoms. RCA aims to reveal root causes so that either the likelihood of them occurring, or their impact if they do occur, can be changed.

An important distinction to make is that RCA is used to analyse a focus event that has occurred and therefore analyses the past (a posteriori). However, knowledge of the root causes of past events can lead to actions that generate improvements in the future.

This International Standard is intended to reflect current good practices in the conduct of RCA. This standard is general in nature, so that it may give guidance across many industries and situations. There may be industry specific standards in existence that establish preferred methodologies for particular applications. If these standards are in harmony with this publication, the industry standards will generally be sufficient.

This standard is a generic standard and does not explicitly address safety or accident investigation although the methods described in this standard may be used for this purpose.

NOTES

AUSTRALIAN/NEW ZEALAND STANDARD

Root cause analysis (RCA)

1 Scope

This International Standard describes the basic principles of root cause analysis (RCA) and specifies the steps that a process for RCA should include.

This standard identifies a number of attributes for RCA techniques which assist with the selection of an appropriate technique. It describes each RCA technique and its relative strengths and weaknesses.

RCA is used to analyse the root causes of focus events with both positive and negative outcomes, but it is most commonly used for the analysis of failures and incidents. Causes for such events can be varied in nature, including design processes and techniques, organizational characteristics, human aspects and external events. RCA can be used for investigating the causes of non-conformances in quality (and other) management systems as well as for failure analysis, for example in maintenance or equipment testing.

RCA is used to analyse focus events that have occurred, therefore this standard only covers a posteriori analyses. It is recognized that some of the RCA techniques with adaptation can be used proactively in the design and development of items and for causal analysis during risk assessment; however, this standard focuses on the analysis of events which have occurred.

The intent of this standard is to describe a process for performing RCA and to explain the techniques for identifying root causes. These techniques are not designed to assign responsibility or liability, which is outside the scope of this standard.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050 (all parts), *International Electrotechnical Vocabulary*

3 Terms, definitions and abbreviations

For the purposes of this document, the definitions given in IEC 60050-192, as well as the following, apply.

3.1 Terms and definitions

3.1.1
cause
circumstance or set of circumstances that leads to failure or success

Note 1 to entry: A cause may originate during specification, design, manufacture, installation, operation or maintenance.

[SOURCE: IEC 60050-192:2014, 192-03-11 modified – addition of the words “circumstance or” and "or success" in the term]