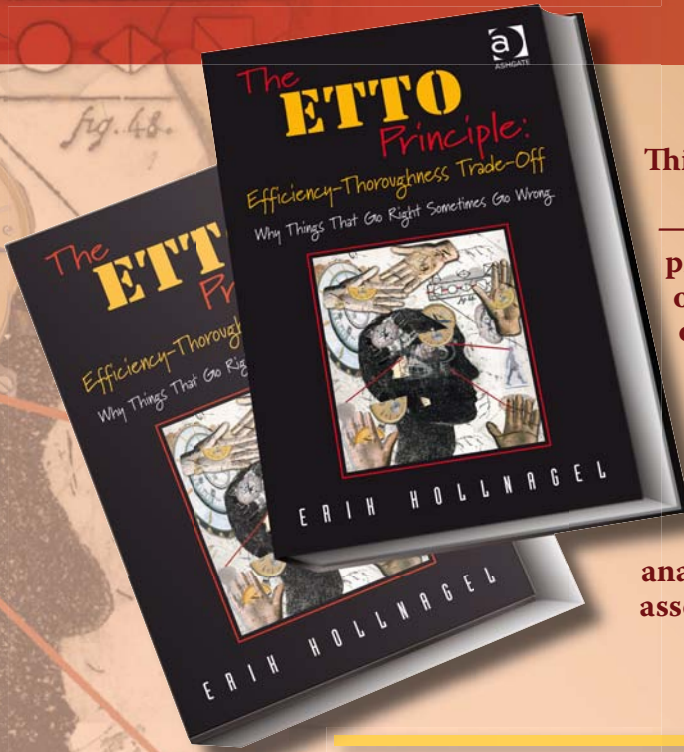


The ETTO Principle: Efficiency-Thoroughness Trade-Off



Why Things That Go Right Sometimes Go Wrong

Erik Hollnagel, MINES ParisTech, France



This easy-to-read book

— presents a new and practical perspective on human and organizational performance

— offers a useful alternative to human error – applicable to both accident analysis and safety assessment

'This is an impressive book, simultaneously bold and reasonable. Hollnagel, in his highly readable style, lays out a simple but profound principle – the trade-off between thoroughness and efficiency – and uses it to cut through all kinds of sterile debates in order to provide valuable insights about human behavior.'

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Why Things That Go Right Sometimes Go Wrong

Erik Hollnagel, MINES ParisTech, France

The ETTO Principle looks at the common trait of people at work to adjust what they do to match conditions. It argues that this efficiency-thoroughness trade-off (ETTO) – usually sacrificing thoroughness for efficiency – is normal rather than exceptional.

Yet while everyone applies the ETTO Principle few realize its implications for when processes go wrong.

This groundbreaking book makes us see complex systems in a new way. It reveals how success and failure are not polar opposites and that adverse outcomes can arise from the same processes that produce success.

The ETTO Principle turns on its head common assumptions about blame, responsibility, and human error. It removes the need for specialized theories and models of failure and offers a viable basis for effective and just approaches to both reactive and proactive safety management. This perspective delivers a more incisive view of systems failure; offers a more perceptive approach to accident investigation; and, most importantly, enables us to design more resilient systems.

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Contents

The author, Prof Erik Hollnagel, sets out his ideas in an easy-to-read style. He supports his theories with several examples from real life – from healthcare, aviation, the nuclear industry and other domains. This makes *The ETTO Principle* an accessible and invaluable read for all professionals involved in or responsible for risk assessment or safety investigation, or who want to improve the resilience of complex systems.

As the author says: 'Not only will people always *be* ETTOing but they *should* do so.' The ETTO Principle cannot be avoided but by understanding it you are far less likely to fall victim to its consequences.

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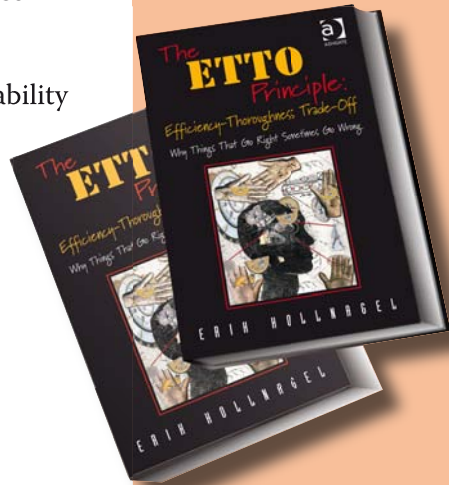
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About the Author

Erik Hollnagel (PhD, Psychology) is Professor and Industrial Safety Chair at MINES ParisTech (France), Professor Emeritus at University of Linköping (Sweden), and Visiting Professor at the Norwegian University of Science and Technology (NTNU) in Trondheim (Norway). Since 1971 he has worked at universities, research centres and industries in several countries and with problems from several domains, including nuclear power generation, aerospace and aviation, air traffic management, software engineering,

healthcare, and land-based traffic. His professional interests include industrial safety, resilience engineering, accident investigation, cognitive systems engineering and cognitive ergonomics.

Erik Hollnagel has published more than 250 papers and authored or edited 13 books, some of the most recent titles being *Resilience Engineering Perspectives: Remaining Sensitive to the Possibility of Failure* (Ashgate, 2008), *Resilience Engineering: Concepts and Precepts* (Ashgate, 2006), *Joint Cognitive Systems: Foundations of Cognitive Systems Engineering* (Taylor & Francis, 2005) and *Barriers and Accident Prevention* (Ashgate, 2004). He is Editor-in-Chief of the *Ashgate Studies in Resilience Engineering* series and, together with Pietro C. Cacciabue, Editor-in-Chief of the international journal *Cognition, Technology & Work*.

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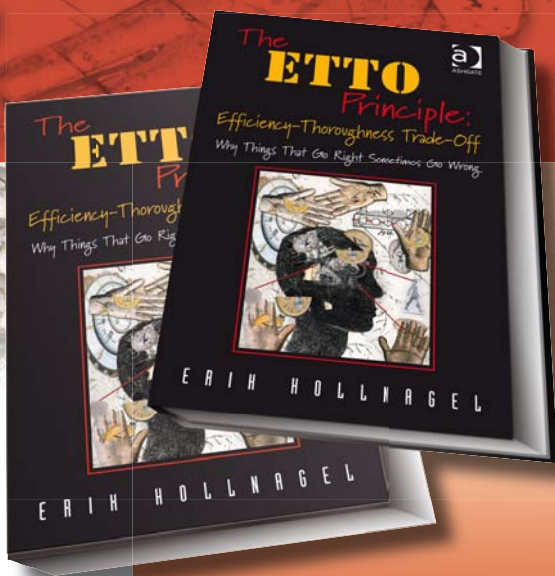
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'We're using the ETTO Principle in our Patient Safety Investigation (PSI) curriculum.

Clinicians will immediately recognize that they naturally adjust what they do to match the conditions by means of an efficiency-thoroughness trade-off (ETTO). My hope is that by framing patient safety investigations in this way, "sharp end" practitioners will be more likely to want to participate, especially if their intelligence is not insulted (from the get go) by overly simplistic accident causation models. Many thanks for this accessible, concise and useful text by a leader in the field.'

Wrae Hill - Director Quality Improvement & Patient Safety - Interior Health, British Columbia, Canada

'Defly blending material from decision science, accident analyses and risk management, he leads the reader through a fascinating series of adverse events, identifying the ETTO components to produce new insights into causal influences. Provocative reading for those interested in business efficiency and organisational safety.'

Rhona Flin, University of Aberdeen, UK

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