

# Human Factors

New titles and key backlist 2012



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Welcome to the 2012 catalogue for Ashgate's Human Factors books, showcasing the most recently published, the forthcoming and the most popular titles from the list. The second edition of Sidney Dekker's *Just Culture* and Erik Hollnagel's *FRAM: The Functional Resonance Analysis Method* are two major new paperbacks that will find broad appeal. Don Harris has been busy authoring two excellent new books for HF students: *Human Performance on the Flight Deck* and *Writing Human Factors Papers*. Crucial topics such as patient safety, SMS, fratricide and safety culture are represented by new publications. You'll also notice the addition of two comprehensive new reference books, *The Handbook of Human-Machine Interaction* and *The Handbook of Operator Fatigue*, complemented by a collection of critical essays on *Situational Awareness*. I hope you'll find all of our books of great benefit to your work, research or study.

**Guy Loft, Publisher**



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## Cover illustration:

Human brain function represented by red and blue gears

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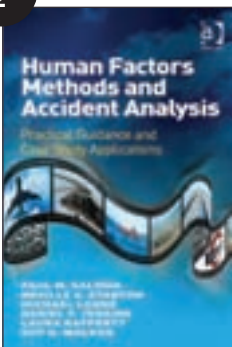
At the time of compilation, prices, publication dates and other details in this catalogue are correct to the best of our knowledge, but are subject to change. Up to date information is available by searching for the book on our website.

# Human Factors 2012

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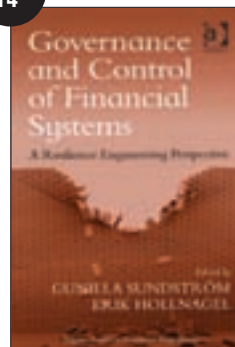
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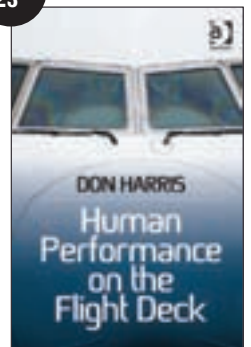
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NEW

## Human Factors Methods and Accident Analysis

Practical Guidance and Case Study Applications

Paul M. Salmon and Michael Lenné, both at the Monash University, Australia, Neville A. Stanton and Laura Rafferty, both at the University of Southampton, UK, Daniel P. Jenkins, Sociotechnic Solutions, UK and Guy H. Walker, Heriot-Watt University, UK

*'This very useful book will make a timely and valuable addition to Ashgate's excellent human factors list.'*

James Reason

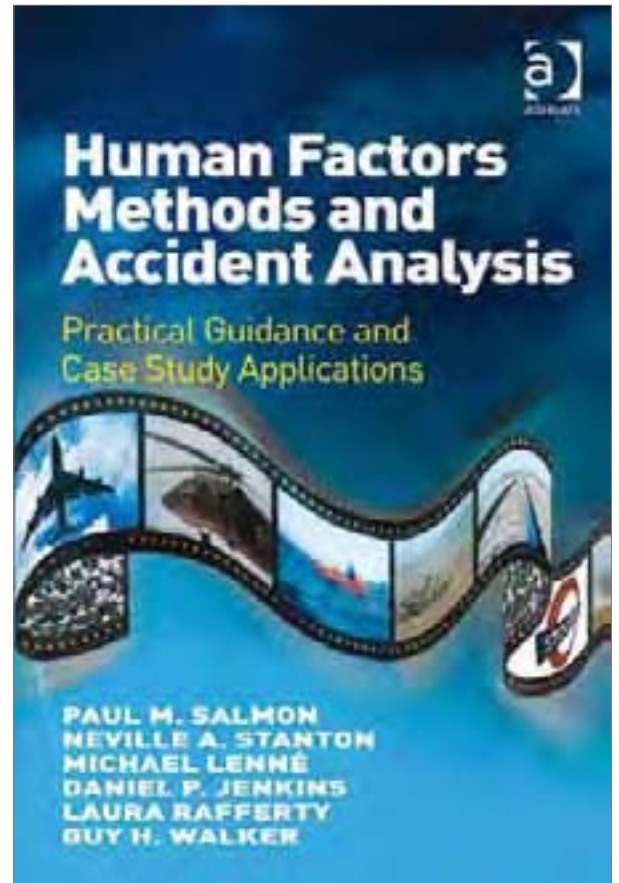
This book provides an overview of, and practical guidance on, the range of human factors (HF) methods that can be used for the purposes of accident analysis and investigation in complex sociotechnical systems. *Human Factors Methods and Accident Analysis* begins with an overview of different accident causation models and an introduction to the concepts of accident analysis and investigation. It then presents a discussion focussing on the importance of, and difficulties associated with, collecting appropriate data for accident analysis purposes. Following this, a range of HF-based accident analysis methods are described, as well as step-by-step guidance on how to apply them. To demonstrate how the different methods are applied, and what the outputs are, the book presents a series of case study applications across a range of safety critical domains. It concludes with a chapter focussing on the data challenges faced when collecting, coding and analysing accident data, along with future directions in the area.

*Human Factors Methods and Accident Analysis* is the first book to offer a practical guide for investigators, practitioners and researchers wishing to apply accident analysis methods. It is also unique in presenting a series of novel applications of accident analysis methods, including HF methods not previously used for these purposes (e.g. EAST, critical path analysis), as well as applications of methods in new domains.

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### Contents

*Preface*; Accidents, accident causation models, and accident analysis methods; Human factors methods for accident analysis; AcciMap; Lyme Bay sea canoeing and Stockwell mistaken shooting case studies; The human factors analysis and classification system: Australian general aviation and mining case studies; The critical decision method: retail store worker injury incident case study; Propositional networks: Challenger II tank friendly fire case study; Critical path analysis: Ladbroke Grove case study; Human factors methods integration: Operation Provide Comfort friendly fire case study; *Discussion*; *References*; *Index*.



### Key Points

- The first text to provide practical guidance on a range of different HF methods for accident analysis and investigation.
- Presents an overview and then detailed practical guidance, in a step-by-step format, on how to apply the accident analysis method in question.
- Case studies are based on real-world accident analysis studies undertaken in a range of safety-critical domains.

Includes 46 b&w illustrations

December 2011	216 pages	
Hardback	978-1-4094-0519-1	£55.00
ebook	978-1-4094-0520-7	

[www.ashgate.com/isbn/9781409405191](http://www.ashgate.com/isbn/9781409405191)

### A Human Error Approach to Aviation Accident Analysis

The Human Factors Analysis and Classification System

Douglas A. Wiegmann, University of Illinois, USA and Scott A. Shappell, FAA Civil Aerospace Medical Institute, USA

This comprehensive book provides the knowledge and tools required to conduct a human error analysis of accidents. Serving as an excellent reference guide for many safety professionals and investigators already in the field.

July 2003	182 pages	
Hardback	978-0-7546-1875-1	£65.00
Paperback	978-0-7546-1873-7	£20.00
ebook	978-0-7546-8130-4	

[www.ashgate.com/isbn/9780754618737](http://www.ashgate.com/isbn/9780754618737)

### Investigating Human Error: Incidents, Accidents, and Complex Systems

Barry Strauch, Instructor and Government Accident Investigator

In this book the author applies contemporary error theory to the needs of investigators and of anyone attempting to understand why someone made a critical error, how that error led to an incident or accident, and how to prevent such errors in the future. Students and investigators of human error will gain an appreciation of the literature on error, with numerous references to both scientific research and investigative reports in a wide variety of applications, from airplane accidents, to bus accidents, to bonfire disasters.

February 2004	324 pages	
Paperback	978-0-7546-4122-3	£30.00

[www.ashgate.com/isbn/9780754641223](http://www.ashgate.com/isbn/9780754641223)



COMING SOON

## Pre-Accident Investigations

Human Performance and Reliability

Todd Conklin, Los Alamos National Laboratory, USA

For decades we have thought that a good safety program was reflected on how many days an organization went without having an accident. Wrong! This is a myth and an antiquated concept.

Accidents, incidents and potential disasters may lurk around every corner or may be staring you right in the face. *Pre-Accident Investigations: An Introduction to Organizational Safety* will help you to identify complex (the fatal and costly) incidents in your organization before they take place.

Is this the safety silver bullet we all have looked for? Hardly. This book is a set of new skills written for the managers that drive safety in their workplace. It is human performance theory made simple. If you are starting a new program, revamping an old program, or simply interested in understanding more about safety performance, this book will be extremely helpful. It is packed with advice based on years of tested programs. This is not ethereal academics; these are tested and practical concepts; advice, tools and programs have been proven in the field. *Pre-Accident Investigations* will assist you in making your organization the safest in your industry. It will save your organization money and, more importantly, save lives.

### Contents

*Preface; a context setting discussion;*

*Foreword;*

*Introduction; A story of failure; Why think of failure?; Case study: the Titanic;*

*Change the way your organization thinks about failure;*

*Pre-accident investigation tool; Case study: aviation accidents;*

*Workers don't cause failure, workers trigger failure;*

*Seven stitches, a broken finger, cardinal rules, and termination; managing the safety change; case study: nine senior managers;*

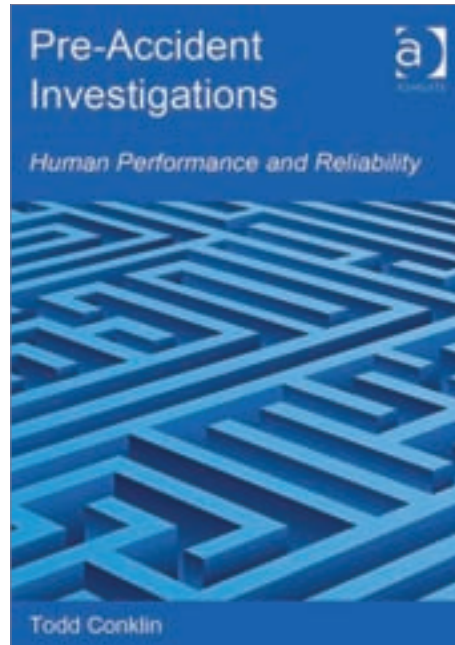
*Thinking about where failure will happen; A new view for the old crew; Case study: how to win friends, and influence people;*

*Starting the journey, the first steps; Things that matter;*

*Conclusion;*

*References; Suggested reading list;*

*Index.*



### Key Points

- Engaging, enjoyable and accessible guide to the 'new view' of system safety.
- Author is a renowned speaker and trainer on human performance and improving systems within safety-critical workplaces.
- Based on the established work of 'new view' human factors scientists and combined with the author's considerable experience in industry effecting system safety improvements.

Includes 5 b&w illustrations

September 2012	c. 150 pages	
Hardback	978-1-4094-4783-2	c. £65.00
Paperback	978-1-4094-4782-5	c. £20.00
ebook	978-1-4094-4784-9	

[www.ashgate.com/isbn/9781409447825](http://www.ashgate.com/isbn/9781409447825)

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## Behind Human Error

Second Edition

David D. Woods, Ohio State University, USA, Sidney Dekker, Griffith University, Australia, Richard Cook, University of Chicago, USA, Leila Johannesen, IBM Silicon Valley Lab, USA and Nadine Sarter, University of Michigan, USA

*'It is rare to come across the definitive book on any complex subject. But in the case of understanding the nature of "human error" this book is surely it. It is hard to think of any other volume that comes close. That is perhaps not that surprising given the history of the book, the eminence of the five authors, and the intellectual, industrial and academic traditions they come from. Nonetheless, it is a major achievement.'*

Human Factors & Ergonomics Society European Chapter Newsletter

Human error is so often cited as a cause of accidents that there is perception of a 'human error problem'. Solutions are thought to lie in changing the people or their role. The label "human error", however, is prejudicial and hides more than it reveals about how a system malfunctions.

This book takes you behind the label. It explains how human error results from social and psychological judgments by the system's stakeholders that focus only on one facet of a set of interacting contributors.

September 2010	292 pages	
Hardback	978-0-7546-7833-5	£65.00
Paperback	978-0-7546-7834-2	£25.00
ebook	978-0-7546-9650-6	

[www.ashgate.com/isbn/9780754678342](http://www.ashgate.com/isbn/9780754678342)



## Drift into Failure

From Hunting Broken Components to Understanding Complex Systems  
Sidney Dekker, Griffith University, Australia

*'Dekker's book challenges the current prevalent notions about accident causation and system safety. He argues that even now, what profess to be systemic approaches to explaining accidents are still caught within a limited framework of 'cause and effect' thinking, with its origins in the work of Descartes and Newton. Instead, Dekker draws his inspiration from the science of complexity and theorises how seemingly reasonable actions at a local level may promulgate and proliferate in unseen (and unknowable) ways until finally some apparent system "failure" occurs. The book is liberally illustrated with detailed case studies to articulate these ideas. As with all Dekker's books, the text walks a fine line between making a persuasive argument and provoking an argument. Love it or hate it, you can't ignore it.'*

Don Harris, HFI Solutions Ltd

This book explores complexity theory and systems thinking to understand better how complex systems drift into failure. It studies sensitive dependence on initial conditions, unruly technology, tipping points, diversity – and finds that failure emerges opportunistically, non-randomly, from the very webs of relationships that breed success and that are supposed to protect organizations from disaster. It develops a vocabulary that allows us to harness complexity and find new ways of managing drift.

Includes 3 b&w illustrations

February 2011	234 pages	
Hardback	978-1-4094-2222-8	£65.00
Paperback	978-1-4094-2221-1	£20.00
ebook	978-1-4094-2223-5	

www.ashgate.com/isbn/9781409422211

## The ETTO Principle: Efficiency-Thoroughness Trade-Off

Why Things That Go Right Sometimes Go Wrong  
Erik Hollnagel, MINES ParisTech, France

*'With characteristic flair, Erik Hollnagel has cleverly captured in The ETTO Principle the pervasive problem of how we balance efficiency with thoroughness in our working life. Deftly 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

Accident investigation and risk assessment have for decades focused on the human factor, particularly 'human error'. This bias towards performance failures leads to a neglect of normal performance. It assumes that failures and successes have different origins so there is little to be gained from studying them together. Erik Hollnagel believes this assumption is false and that safety cannot be attained only by eliminating risks and failures. The alternative is to understand why things go right and to amplify that.

*The ETTO Principle* looks at the common trait of people at work to adjust what they do to match the conditions. It proposes that this efficiency-thoroughness trade-off (ETTO) is normal. While in some cases the adjustments may lead to adverse outcomes, these are due to the same processes that produce successes.

June 2009	162 pages	
Hardback	978-0-7546-7677-5	£65.00
Paperback	978-0-7546-7678-2	£20.00
ebook	978-0-7546-9349-9	

www.ashgate.com/isbn/9780754676782

**BEST SELLER**

## The Field Guide to Understanding Human Error

Second Edition  
Sidney Dekker, Griffith University, Australia

*'...Sid's Guide presents important ideas for those who regulate human factors investigation and research, making it an essential read for the academician, the research analyst, and the government regulator.'*

International Journal of Applied Aviation Studies

The old "Bad Apple Theory" of human error promotes the idea that a system is basically safe, with the exception of a few unreliable people. Breaking new ground beyond its successful predecessor, *The Field Guide to Understanding Human Error* guides you through the traps and misconceptions of the old view. Sidney Dekker presents the view that human error is an organizational problem, and suggests how to apply new theories to your organization, handling questions about accountability and constructing meaningful countermeasures.

Includes 30 b&w illustrations

June 2006	252 pages	
Hardback	978-0-7546-4825-3	£65.00
Paperback	978-0-7546-4826-0	£20.00

www.ashgate.com/isbn/9780754648260

## The Human Contribution Unsafe Acts, Accidents and Heroic Recoveries

James Reason, University of Manchester, UK

*'While humans are normally treated as a hazard and an unsafe system component, this book looks at the human as a hero – as the single force that on a significant number of occasions has saved systems from disaster. Instead of seeing humans as a source of risk, they should be seen as an indispensable resource for safety. Reason lucidly argues for this more balanced view using many examples from the past and the present, switching effortlessly from domain to domain. Elegantly and entertainingly written, it is an invaluable supply of information and inspiration, as well as a pointer to how the thinking about safety should develop.'*

Erik Hollnagel, MINES ParisTech, France

*The Human Contribution* is vital reading for all professionals in high-consequence environments and for managers of any complex system. The book draws its illustrative material from a wide variety of hazardous domains, with the emphasis on healthcare reflecting the author's focus on patient safety over the last decade. All students of human factors – however seasoned – will also find it an invaluable and thought-provoking read.

December 2008	310 pages	
Hardback	978-0-7546-7400-9	£65.00
Paperback	978-0-7546-7402-3	£20.00

www.ashgate.com/isbn/9780754674023

## Managing Maintenance Error

A Practical Guide

James Reason, The University of Manchester, UK and Alan Hobbs, NASA Ames and San Jose State University USA

*'...written by two world renowned experts, its contents are applicable to all technologically driven industries. The reader will find it rewarding and it will undoubtedly provide a valuable resource for the understanding and investigation of human error contribution to accidents...should be recommended reading for all involved with management, supervision, training and front line duties involving maintenance, repair and overhaul activities.'*

The Aerospace Professional

May 2003	198 pages	
Hardback	978-0-7546-1590-3	£65.00
Paperback	978-0-7546-1591-0	£20.00

www.ashgate.com/isbn/9780754615910

**BEST SELLER**

## Managing the Risks of Organizational Accidents

James Reason, University of Manchester, UK

This lucid book presents a set of common principles to further our knowledge of the causes of major accidents in a wide variety of high technology systems. It describes tools and techniques for managing the risks of such organizational accidents that go beyond those currently available to system managers and safety professionals.

December 1997	266 pages	
Hardback	978-1-84014-104-7	£65.00
Paperback	978-1-84014-105-4	£27.50

www.ashgate.com/isbn/9781840141054

## Understanding Human Error in Mine Safety

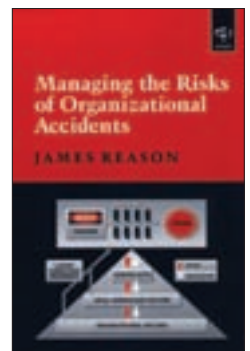
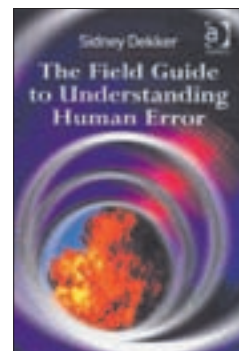
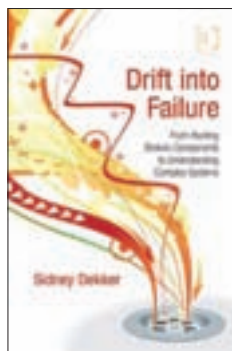
Geoff Simpson, Human Factors Solutions Ltd, UK, Tim Horberry and Jim Joy, both at the University of Queensland, Australia

*'Throughout this book there are some excellent figures and in-depth analysis of previous disasters. It should certainly be of value to the authors' intended audience.'*

RoSPA Occupational Safety & Health Journal

October 2009	174 pages	
Hardback	978-0-7546-7869-4	£65.00
ebook	978-0-7546-9716-9	

www.ashgate.com/isbn/9780754678694



NEW

## The Handbook of Operator Fatigue

Edited by Gerald Matthews and Catherine Neubauer, both at the University of Cincinnati, USA, Paula A. Desmond, Dell Inc, USA, and Peter A. Hancock, University of Central Florida, USA

Fatigue is a recognized problem in many facets of the human enterprise. It is not confined to any one area of activity but enters all situations in which humans have to perform for extended intervals of time. Most problematic are the circumstances in which obligatory action is continuous and the results of failure are evidently serious or even catastrophic. Therefore, the modern media especially highlights fatigue-related failures in industries such as transportation, materials processing and healthcare. It can be, and indeed is, no coincidence that most of the spectacular failures in process control that have resulted in the world's largest industrial accidents have occurred in the small hours of the morning when the circadian rhythm is lowest and operator fatigue itself peaks.

*The Handbook of Operator Fatigue* provides a comprehensive account of the subject to serve as the definitive reference work for researchers, students and practitioners alike. The volume features 30 chapters written by experts from around the world to address each important facet of fatigue, including: the scale of the fatigue problem (Section I), the nature of fatigue (Section II), how to assess fatigue (Section III), the impact of fatigue on health (Section IV), fatigue in the workplace (Section V), the neurological basis of fatigue (VI), sleep disorders (VII), and the design of countermeasures to fatigue (VIII).

### Contents

Part I Introduction to Operator Fatigue: A overview of operator fatigue, *Gerald Matthews, Paul A Desmond, Catherine Neubauer and Peter A. Hancock*; An historical view of operator fatigue, *James C. Miller*; Challenges in fatigue and performance research, *Bob Hockey*.

Part II The Nature of Fatigue: Defining and conceptualizing fatigue, *Peter A. Hancock, Paula A. Desmond and Gerald Matthews*; Individual differences in stress, fatigue and performance, *James L. Szalma*; Task characteristics and fatigue, *Phillip L. Ackerman, Charles Calderwood and Erin Marie Conklin*; Fatigue in sports psychology, *Timothy David Noakes*.

Part III Assessment of Fatigue: Approaches to the measurement of fatigue, *Christopher Christodoulou*; Dimensional models of fatigue, *Gerald Matthews, Paula A. Desmond and Edward M. Hitchcock*; Models of individual differences in fatigue for performance research, *Gerald Matthews, Peter A. Hancock and Paula A. Desmond*.

Part IV The Neuroscience of fatigue: Neuroscience of sleep and circadian rhythms, *Siobhan Banks, Melinda L. Jackson and Hans P.A. van Dongen*; The influence of fatigue on brain activity, *Ashley Craig and Yvonne Tran*; Cerebral hemodynamic indices of operator fatigue in vigilance, *Joel S. Warm, Lloyd D. Tripp, Gerald Matthews and William S. Helton*; Biochemical indices of fatigue for anti-fatigue strategies and products, *Yasuyoshi Watanabe, Hirohiko Kuratsune and Osami Kajimoto*.

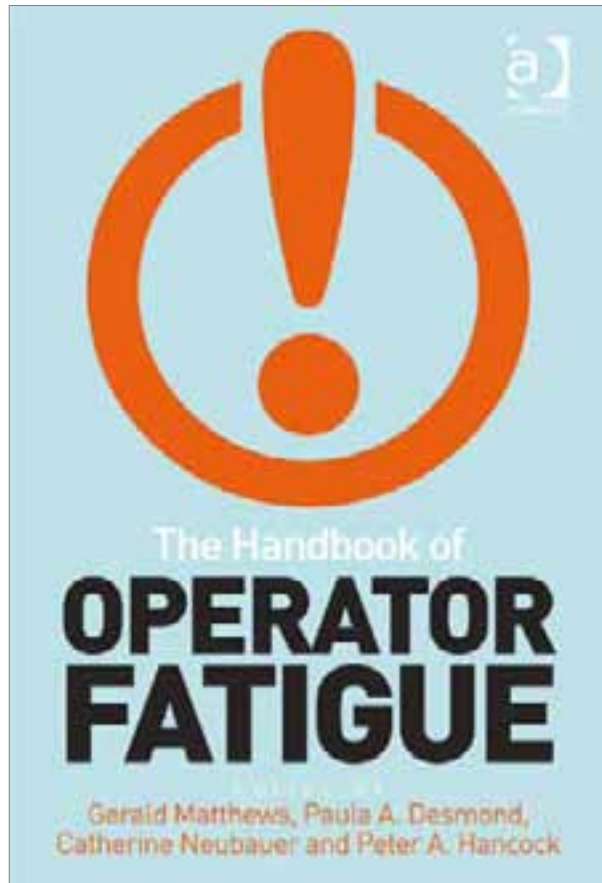
Part V Performance Effects of Sleep Loss and Circadian Rhythms: Socio-emotional and neurocognitive effects of sleep loss, *William D.S. Killgore*; Circadian rhythms and mental performance, *Jim Waterhouse*; Sleep loss and performance, *Valerie J. Gawron*.

Part VI Fatigue and Health: Differentiating fatigue in Chronic Fatigue Syndrome and psychiatric disorders, *Leonard A. Jason, Molly Brown, Meredyth Evans and Abigail Brown*; Chronic Fatigue Syndrome, *Diane L. Cox*; Upper respiratory tract illnesses and fatigue, *Andrew P. Smith*.

Section VII Applied Contexts for operator Fatigue: Long work hours, fatigue, safety and health, *Roger R. Rosa*; Fatigue and road safety: identifying crash involvement and addressing the problem within a safe systems approach, *R.F. Soames Job, Andrew Graham, Chika Sakashita and Julie Hatfield*; Driver fatigue and safety: a transactional perspective, *Catherine Neubauer, Gerald Matthews and Dyani J. Saxby*; Understanding and managing fatigue in aviation, *John A. Caldwell*; Soldier fatigue and performance effectiveness: yesterday, today and tomorrow, *Gerald P. Krueger*.

Part VIII Operational Countermeasures: Adaptive automation for mitigation of hazardous states of awareness, *Chad L. Stephens, Mark W. Scerbo and Alan T. Pope*; Countermeasures for driver fatigue, *Ann Williamson*; Work scheduling, *Philip Tucker and Simon Folkard*; Avoiding the impact of fatigue on human effectiveness, *Jonathan French and Kelly J. Neville*; Model-based fatigue risk management, *Hans P.A. van Dongen and Gregory Belenky*.

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### Key Points

- Comprehensive, state-of-the-field reference on operator fatigue.
- Top-flight editors and contributors.
- Valuable resource for researchers, legislators, students and practitioners
- Applicable to all environments and industries.

Includes 65 figures and 28 tables

May 2012	c. 450 pages	
Hardback	978-0-7546-7537-2	c. £75.00
ebook	978-1-4094-4265-3	

[www.ashgate.com/isbn/9780754675372](http://www.ashgate.com/isbn/9780754675372)

COMING SOON

## Just Culture

Balancing Safety and Accountability

Second Edition

Sidney Dekker, Key Centre for Ethics, Law, Justice and Governance, Griffith University, Australia

A just culture protects people's honest mistakes from being seen as culpable. But what is an honest mistake, or rather, when is a mistake no longer honest? It is too simple to assert that there should be consequences for those who 'cross the line'. Lines don't just exist out there, ready to be crossed or obeyed. We – people – construct those lines; and we draw them differently all the time, depending on the language we use to describe the mistake, on hindsight, history, tradition, and a host of other factors.

What matters is not where the line goes – but who gets to draw it. If we leave that to chance, or to prosecutors, or fail to tell operators honestly about who may end up drawing the line, then a just culture may be very difficult to achieve.

The absence of a just culture in an organization, in a country, in an industry, hurts both justice and safety. Responses to incidents and accidents that are seen as unjust can impede safety investigations, promote fear rather than mindfulness in people who do safety-critical work, make organizations more bureaucratic rather than more careful, and cultivate professional secrecy, evasion, and self-protection. A just culture is critical for the creation of a safety culture. Without reporting of failures and problems, without openness and information sharing, a safety culture cannot flourish.

Building on the enormous success of the 2007 original, Dekker revises, enhances and expands his view of just culture for this second edition, additionally tackling the key issue of how justice is created inside of organizations. The goal remains the same: to create an environment where learning and accountability are fairly and constructively balanced.

### Contents

*Preface;*

*Prologue;*

What is the right thing to do?;

'You have nothing to fear if you've done nothing wrong'' Between culpable and blameless;

Are all mistakes equal?;

Report, disclose, protect, learn;

A just culture in your organization;

The criminalization of human error;

Is criminalization bad for safety?;

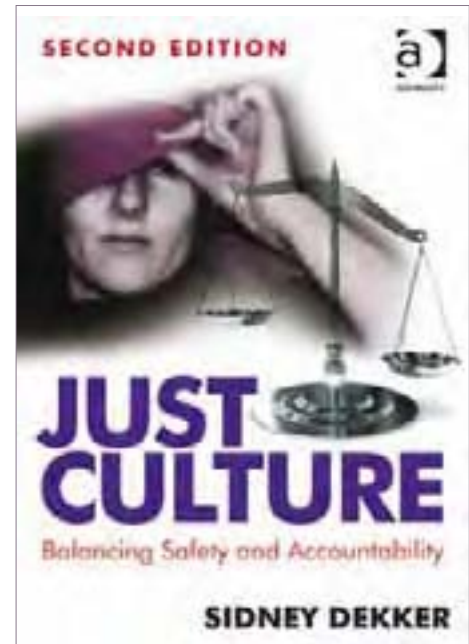
Without prosecutors there would be no crime;

Three questions for your just culture;

Why do we blame?;

*Epilogue;*

*Index.*



### Key Points

- Sidney Dekker refines the post-structuralist view on just culture, additionally tackling the key issue of how justice is created inside of organizations.
- Highly accessible, especially for practitioners and students.
- Draws on author's own experience with practitioners in nursing, ATC and commercial aviation.
- Global perspective, not bound by any one country's legal system.
- Offers practical steps to developing a genuinely just culture that will serve as the foundation to an effective safety culture.

June 2012	c. 190 pages	
Hardback	978-1-4094-4061-1	c. £65.00
Paperback	978-1-4094-4060-4	c. £20.00
ebook	978-1-4094-4062-8	

[www.ashgate.com/isbn/9781409440604](http://www.ashgate.com/isbn/9781409440604)

### ALSO OF INTEREST

## Ethical Issues in Aviation

Edited by Elizabeth A. Hoppe, Lewis University, USA

*Ethical Issues in Aviation* focuses on current concerns and trends, to reflect the changes that have occurred in this deregulated era. The book provides the reader with an overview of the major themes in civil aviation ethics. It begins with theoretical frameworks, followed by sections on the business side of aviation, employee responsibility, diversity in aviation, ground issues regarding airports, air traffic control and security, as well as health and the environment.

May 2011	314 pages	
Hardback	978-1-4094-1786-6	£60.00
ebook	978-1-4094-1787-3	

[www.ashgate.com/isbn/9781409417866](http://www.ashgate.com/isbn/9781409417866)





## Culture at Work in Aviation and Medicine

National, Organizational and Professional Influences

Robert L. Helmreich and Ashleigh C. Merritt

*'The strength in the book lies in the numerous case histories that serve to reinforce key principles. Readers from both the aviation and medical occupations will readily identify with the examples provided and, thus, come to better appreciate the commonality the two disciplines share...this book is recommended reading for human factors researchers and practitioners alike.'*

Aviation, Space and Environmental Medicine

In this book the authors report the results of their ongoing exploration of the influences of culture in two professions – aviation and medicine. Within these two environments, they show the effects of professional, national and organizational cultures on individual attitudes, values and team interactions.

October 2001	332 pages	
Paperback	978-0-7546-1904-8	£30.00

[www.ashgate.com/isbn/9780754619048](http://www.ashgate.com/isbn/9780754619048)

## Maritime Risk and Organizational Learning

Michael Ekow Manuel, Regional Maritime University, Ghana

*'This is a truly fascinating and insightful book, driven by an author who clearly feels deeply about his subject matter. Hopefully its readership will not be restricted to those who make their living from the sea – though those that do should make it a priority.'*

RoSPA Occupational Safety & Health Journal

Based on an extensive research project, this book investigates how shipping companies learn from, filter and give credence/acceptability to differing risk perceptions and how this influences the work culture with special regard to group/team dynamics and individual motivation.

The work is presented in the context of the literature regarding conceptual links between risk and the theoretical and operational themes of organizational learning, and in light of interviewees' comments.

Includes 51 b&w illustrations

July 2011	356 pages	
Hardback	978-1-4094-1963-1	£70.00
ebook	978-1-4094-1964-8	

[www.ashgate.com/isbn/9781409419631](http://www.ashgate.com/isbn/9781409419631)

## Safety Culture

Assessing and Changing the Behaviour of Organisations

John Bernard Taylor

PSYCHOLOGICAL AND BEHAVIOURAL ASPECTS OF RISK SERIES

*'This book presents a seductively simple but tremendously powerful testimony: prioritise working safely, or suffer intolerable human and business costs. Not only exemplary in its academic thoroughness and in its practical guidance, the author's passionate belief in the responsibilities of leaders in creating and maintaining a safe working environment also shines through the pages, and his brilliantly presented illustrations provide a devastating indictment of those who would ignore the central truths he presents. Read, learn and apply – this book can not only save businesses, but can also save Lives.'*

Dr John M. Hobson, Principal Safety and Risk Management Consultant, Risktec Solutions Ltd

Safety culture is a complex social/scientific concept and Taylor demystifies it with reference to theory normally associated with mainstream business development and change processes. Sections of the book deal with using safety culture theory as a predictive model, the assessment of safety culture, and how to influence culture change to produce the desired organisational behaviours.

This is a practically focused book from an author with vast experience at the top level of high hazard industries.

November 2010	230 pages	
Hardback	978-1-4094-0127-8	£60.00
ebook	978-1-4094-0128-5	

[www.gowerpublishing.com/isbn/9781409401278](http://www.gowerpublishing.com/isbn/9781409401278)

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[www.gowerpublishing.com/psychologicalriskseries](http://www.gowerpublishing.com/psychologicalriskseries) and also view pages 10, 13 and 26 of this catalogue

## SEE ALSO

Occupational Health and Safety Page 10

Risky Business Page 13

## Safety Culture: Theory, Method and Improvement

Stian Antonsen, Norwegian University of Science and Technology, Norway

*'The book brings a critical, interdisciplinary perspective to the field of safety culture research, and provides a much-needed coupling between safety research and organization science. It is of great value for both researchers and practitioners. In my opinion, it is the first book to give an overall and balanced account of safety culture research.'*

Jan Hovden, Norwegian University of Science and Technology (NTNU), Trondheim, Norway

The aim of this book is to show how a cultural approach can contribute to the assessment, description and improvement of safety conditions in organizations. The relationship between organizational culture and safety, epitomized through the concept of 'safety culture', has undoubtedly become one of the hottest topics of both safety research and practical efforts to improve safety. By combining a general framework and five research projects, the author explores and further develops the theoretical, methodological and practical basis of the study of safety culture.

What are the theoretical foundations of a cultural approach to safety? How can the relationship between organizational culture and safety be empirically investigated? What are the links between organizational culture and safety in actual organizations? How can a cultural approach contribute to the improvement of safety? These are the key questions the book seeks to answer with a unified and in-depth account of the concept of safety culture.

December 2009	184 pages	
Hardback	978-0-7546-7695-9	£65.00
ebook	978-0-7546-9394-9	

[www.ashgate.com/isbn/9780754676959](http://www.ashgate.com/isbn/9780754676959)

## Safety Ethics

Cases from Aviation, Healthcare and Occupational and Environmental Health

Manoj S. Patankar, Saint Louis University, USA, Jeffrey P. Brown, System Safety Group, Peterborough, USA and Melinda D. Treadwell, Keene State College, Keene, USA

*'This user-friendly book should be within easy reach of students, teachers, and professionals who have an interest in safety ethics...It presents a very exciting educational instrument about the ethics of safety in three distinct fields that share very similar ethical challenges: aviation, health care and occupational and environmental health...The writing style is clear and precise; the organization of the book helpful and perceptive for those who might integrate it into a safety curriculum...'*

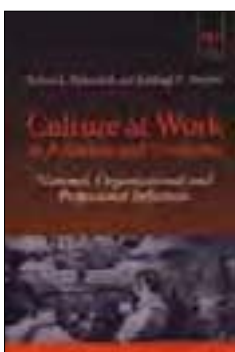
Professor Gerard Magill, Executive Director and Department Chair, Center for Health Care Ethics, Saint Louis University, USA

This book provides guidance in the moral or ethical aspects of decision-making that perpetuate many of the latent failures in safety-critical systems. The core issues are illustrated by cases drawn from aviation, healthcare and environmental & occupational health.

Includes 9 b&w illustrations

March 2005	246 pages	
Hardback	978-0-7546-4247-3	£55.00

[www.ashgate.com/isbn/9780754642473](http://www.ashgate.com/isbn/9780754642473)



NEW

## Safety Culture

Building and Sustaining a Cultural Change in Aviation and Healthcare

Manoj S. Patankar, Jeffrey P. Brown, Edward J. Sabin and Thomas G. Bigda-Peyton

*'The free-flowing style of this book, rich in case studies in both aviation and medicine, makes it one of the more enjoyable books on safety culture. The authors managed to combine a strong research orientation with useful practical advice on safety culture assessment and transformation. The resulting mix of research, interesting case studies, and practical wisdom works well. Researchers, educators, and practitioners will all welcome the arrival of this book.'*

Gerard J. Fogarty, University of Southern Queensland, Australia

In *Safety Culture: Building and Sustaining a Cultural Change in Aviation and Healthcare*, the four authors draw upon their extensive teaching, research and field experience from multiple industries to describe the dynamic nature of a culture-change process, particularly in safety-critical domains. They use the Safety Culture Pyramid model to present a more comprehensive look at safety culture rather than the traditional perspective that has been limited to safety climate analysis. This model uses mixed-method approach to present analysis of safety culture at four levels: safety values, safety strategies, safety climate, and safety performance. Together, these levels form the Safety Culture Pyramid. Cases from aviation and healthcare are used to illustrate the various assessment methods, and the book concludes with more comprehensive case studies from both these domains.

### Contents

Foreword;

Preface;

The safety culture pyramid;

Safety culture assessment;

Safety performance;

Safety climate;

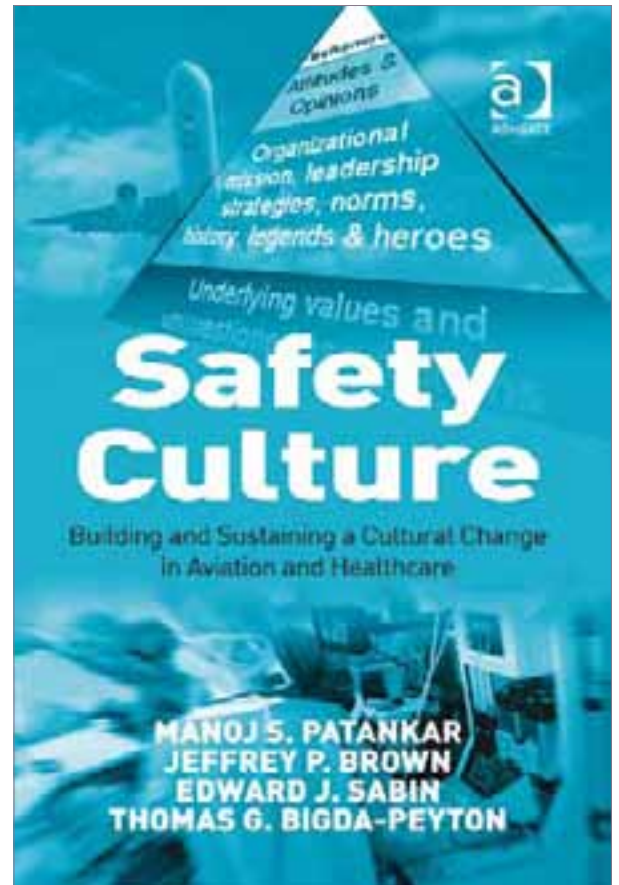
Safety strategies;

Safety values;

Safety culture transformation;

Conclusion;

Index.



### Key Points

- Aid to culture change within organisations, particularly safety-critical domains.
- Authors draw on extensive teaching, research and field experience from multiple industries to provide a holistic approach to the culture-change program.

Includes 46 b&w illustrations

February 2012 262 pages

Hardback 978-0-7546-7237-1 £55.00

ebook 978-1-4094-3771-0

[www.ashgate.com/isbn/9780754672371](http://www.ashgate.com/isbn/9780754672371)

### About the authors

**Dr Manoj Patankar** is the Executive Director of the Center for Aviation Safety Research (which he established) as well as the Vice President (Academics) of the Frost Campus at Saint Louis University. Manoj has authored 50 publications, including 3 books, and developed research partnerships with more than 20 airlines and repair stations as well as several hospitals. He has secured total funding of more than \$6 million from the Federal Aviation Administration for research in the areas of maintenance human factors and safety culture, and has established leadership in connecting flight safety with patient safety. Manoj has managed five Safety Across High-Consequence Industries conferences and in 2011 he published the first edition of the *International Journal of Safety Across High-Consequence Industries*.

**Jeff Brown's** work focuses on supporting improvement in the management of risk and safety in domains where there is high consequence for failure. He has supported numerous patient safety improvement efforts in U.S. hospitals since 1999. Prior to beginning his consulting practice in 1996, He served as an administrator and faculty member for collegiate aviation education programs. Current affiliations include the Cognitive Solutions Division of Applied Research Associates and Healthcare Team Training, LLC.

**Dr Edward Sabin** is a tenured faculty member in the Department of Psychology at Saint Louis University where he serves as Director of the doctoral program in Industrial-Organizational Psychology and Director of the Center for the Application of Behavioral Sciences. He holds a secondary appointment in the Department of Aviation Science and is a member of the Center for Aviation Safety Research. Edward's research and consultation interests include organizational assessment, change and development, organizational learning, and communication processes with a special focus on safety culture in high-consequence industries. Edward is a member of the Association for Psychological Science, the Society for Industrial and Organizational Psychology, and the Association for Aviation Psychology.

**Dr Thomas Bigda-Peyton** is a consultant, researcher, and educator working across high-consequence industries such as aviation, healthcare, and workplace safety. As a practitioner-researcher for 25 years, and currently as President of Action Learning Systems in Boston, he has focused on widening and accelerating the pace of improvement in individual, organizational, and large-system change initiatives. Current programs include the We Don't Compete on Safety Consortium (a development partnership between aviation and healthcare), the Health Transformation Learning Partnership (an initiative designed to catalyze transformation in the Ontario healthcare system), and US 2025 (a state-level program in the U.S. intended to dramatically reduce the cost of care in three states while making parallel improvements in quality, access to care, and patient safety). He holds a doctorate in Organizational Behavior and Intervention from the Harvard Graduate School of Education, where he worked with two pioneers in the field of organizational learning and system dynamics, Chris Argyris and Don Schon. He also holds Master's and Bachelor's degrees from Harvard.

## Improving Healthcare Team Communication

Building on Lessons from Aviation and Aerospace

Edited by Christopher P. Nemeth, The University of Chicago, USA

*'To those working in patient safety, it is maddening that the results of root cause analyses always seem to be, "It's a communications problem". Nemeth and his colleagues show us why that is probably true, although not in the traditional sense of transmission of information. Rather, with abundant examples from both aviation and healthcare, they show that communication is about context, perception, relationships, and culture – aspects of healthcare that are far more complicated, messy, and dysfunctional than aviation ever was. Here a cluster of the world's experts extract lessons from both domains that those who seek to improve patient safety will find fascinating and useful.'*

Lucian L. Leape, MD, Harvard School of Public Health, USA

Communications research in aviation is widely regarded by many in the healthcare community as the "gold standard" that should be emulated. Yet healthcare and aviation differ in many ways, as do the vital communications shared among members of clinical teams. Aviation team communication should, then, be understood in terms of what lessons will benefit those who work in healthcare. This book reports on recent field research to address what is known, and what needs to be learned, about team communication among operators.

May 2008	280 pages	
Hardback	978-0-7546-7025-4	£55.00
ebook	978-0-7546-9085-6	

[www.ashgate.com/isbn/9780754670254](http://www.ashgate.com/isbn/9780754670254)

## Macro cognition in Teams

Theories and Methodologies

Edited by Michael P. Letsky, Office of Naval Research, Arlington, USA, Norman W. Warner, Naval Air Systems Command, USA, Stephen M. Fiore, University of Central Florida, USA and C.A.P. Smith, Colorado State University, USA

HUMAN FACTORS IN DEFENCE

*'The book Macro cognition in Teams is an innovative, coherent, and focused approach to the cognitive processes of teams solving problems. The chapters of this book demonstrate what happens if the cognitive processes of teams solving problems are taken seriously. The book includes a number of theoretical and empirical contributions. Additionally, technologies are described in several chapters that can be used to transform the cognitive processes of teams so that problems are solved more effectively. The book advances our theoretical and conceptual understanding of macro cognition and presents empirical results and technological demonstrations showing how applications of macro cognition can enhance the cognitive processes of teams solving problems.'*

Verlin B. Hinsz, North Dakota State University, USA

*Macro cognition in Teams* provides readers with a greater understanding of the macro cognitive processes which support collaborative team activity, showcasing current research, theories, methodologies and tools. It will be of direct relevance to academics, researchers and practitioners interested in group/team interaction, performance, development and training.

September 2008	436 pages	
Hardback	978-0-7546-7325-5	£65.00
ebook	978-0-7546-9192-1	

[www.ashgate.com/isbn/9780754673255](http://www.ashgate.com/isbn/9780754673255)

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## Macro cognition Metrics and Scenarios

Design and Evaluation for Real-World Teams

Edited by Emily S. Patterson, Ohio State University, USA and Janet E. Miller, Air Force Research Laboratory, USA

*'Patterson and Miller have synthesised a provocative set of perspectives on the measurement of cognitive processes in team-based work environments. With an authoritative line-up of contributors, this volume provides a wealth of new material on methods of task decomposition for cognitive data gathering in complex team settings. A notable feature is the blend of critical thinking on principles of evaluation with a serious appreciation of real world applications for the emergent techniques.'*

Rhona Flin, University of Aberdeen, UK

*Macro cognition Metrics and Scenarios: Design and Evaluation for Real-World Teams* translates advances in macro cognition into a format that will support immediate use by the software testing and evaluation community for large-scale systems, as well as real-world team trainers. It provides an overview of the theoretical foundations of macro cognition, describes new macro cognitive metrics, and provides guidance on using the metrics in the context of different approaches to evaluation and measurement of real-world teams.

July 2010	340 pages	
Hardback	978-0-7546-7578-5	£55.00
ebook	978-1-4094-0687-7	

[www.ashgate.com/isbn/9780754675785](http://www.ashgate.com/isbn/9780754675785)

## Safety at the Sharp End

A Guide to Non-Technical Skills

Rhona Flin, University of Aberdeen, UK, Paul O'Connor, USA and Margaret Crichton, People Factor Consultants Ltd, UK

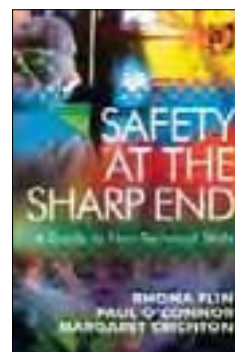
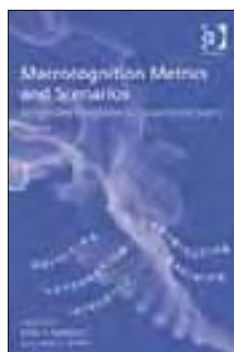
*'This book would be a good complement to standard introductory human factors textbooks. The authors have acknowledged that these non-technical skills are often referred to as "soft" skills in industry, and the book serves to combat the disparaging tone that often accompanies this viewpoint. Thus, new managers who are trying to understand how their resources are affected by these non-technical skills will gain valuable insight from this book.'*

Ergonomics in Design

*Safety at the Sharp End* is a general guide to the theory and practice of non-technical skills for safety. It covers the identification, training and evaluation of non-technical skills and has been written for use by individuals who are studying or training these skills on CRM and other safety or human factors courses. The material is also suitable for undergraduate and post-experience students studying human factors or industrial safety programmes.

February 2008	330 pages	
Hardback	978-0-7546-4598-6	£65.00
Paperback	978-0-7546-4600-6	£25.00
ebook	978-0-7546-8886-0	

[www.ashgate.com/isbn/9780754646006](http://www.ashgate.com/isbn/9780754646006)



NEW

## Writing Human Factors Research Papers

A Guidebook

Don Harris, HFI Solutions Ltd, UK, Shanghai Jiao Tong University, China and Leicester University, UK

Writing high-quality papers suitable for publication within international scientific journals is now an essential skill for all early-career researchers; their career progression and the reputation of the department in which they work depends upon it. However, many manuscripts are rejected or sent back for major re-working not because the science they contain is in any way 'bad', but because the same problems keep occurring in the way that the material is presented. It is one thing to write a good scientific paper, however it is quite another thing to get it published. This requires some additional skills.

In writing this book Don Harris draws upon nearly a quarter of a century of experience as an author and reviewer of research papers, and ultimately as a journal editor. By his own admission, it contains all the things he wished that his mentors had told him 25 years ago, but didn't. The material in the book is drawn from many years of finding all these things out for himself, usually by trial and error (but mostly error!).

The text adopts a much lighter touch than is normally found in books of this type – after all, who really wants to read a book about writing research papers? The author describes his own unique approach to writing journal papers (which, in his own words, has proved to be extremely successful). All major points are illustrated with examples from his own, published works. The book is written in the form of a manual for constructing a journal manuscript: read a chapter, write a section. However, the material it contains goes beyond just this and also describes how to select a target journal, the manuscript submission process, what referees are looking for in a good journal paper, and how to deal with the referees' comments. Each chapter concludes with a checklist to ensure all the key elements have been addressed.



### Key Points

- A 'how to' guide for writing up HF research to ensure the very best chance of publication.
- Presented as a step-by-step manual with a chapter dedicated to each element of the paper-writing process.
- Written in an engaging, conversational style by a uniquely-qualified expert.
- Indispensable for students and researchers building a career in human factors.

Includes 5 b&w illustrations

March 2012	258 pages	
Hardback	978-1-4094-4000-0	£65.00
Paperback	978-1-4094-3999-8	£20.00
ebook	978-1-4094-4001-7	

[www.ashgate.com/isbn/9781409440000](http://www.ashgate.com/isbn/9781409440000)

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### Contents

Preface;

Before you start (writing...); Writing the results section; Writing the methods section; Writing the introduction (part 1); Writing the discussion section; Writing the introduction (part 2); Writing the title, abstract and keywords; Formatting and submitting your manuscript; The manuscript review process; Responding to referees' comments; A few final thoughts;

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Appendices;

Index.

### ALSO OF INTEREST

#### Occupational Health and Safety

Edited by Ronald J. Burke, York University, Canada, Cary L. Cooper, Lancaster University, UK, and Sharon Clarke, Manchester Business School, UK

##### PSYCHOLOGICAL AND BEHAVIOURAL ASPECTS OF RISK

The International Labour Organization (ILO) estimates that every year there are 2.2 million fatal and 270 million non-fatal accidents or occupational diseases worldwide. *Occupational Health and Safety* looks at the research into what causes accidents and errors in the workplace. Emphasizing the psychological and behavioural aspects of risk in organizations, it includes case studies and best practices.

The contributors to this volume come from various countries, reflecting unique interest and knowledge in particular areas.

June 2011	392 pages	
Hardback	978-0-566-08983-1	£75.00
ebook	978-1-4094-3207-4	

[www.gowerpublishing.com/isbn/9780566089831](http://www.gowerpublishing.com/isbn/9780566089831)

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#### Safety Cases and Safety Reports

Meaning, Motivation and Management  
Richard Maguire

*'Importantly, this book has been written from personal experience, significant academic and practical qualifications, and careful reference to proven facts. It deserves careful reading and further study.'*

RoSPA The Occupational Safety & Health Journal

The safety case and its associated reports are becoming a mechanism for achieving safety goals, a valuable decision-support asset and a vital industrial liability management tool. This book provides a concentrated source document for assessing and constructing safety cases and safety case reports – from understanding their purposes, through their development and on to their presentation.

Includes 50 b&w illustrations

December 2006	190 pages	
Hardback	978-0-7546-4649-5	£60.00
ebook	978-0-7546-8147-2	

[www.ashgate.com/isbn/9780754646495](http://www.ashgate.com/isbn/9780754646495)

COMING SOON

## FRAM: The Functional Resonance Analysis Method

Modelling Complex Socio-technical Systems

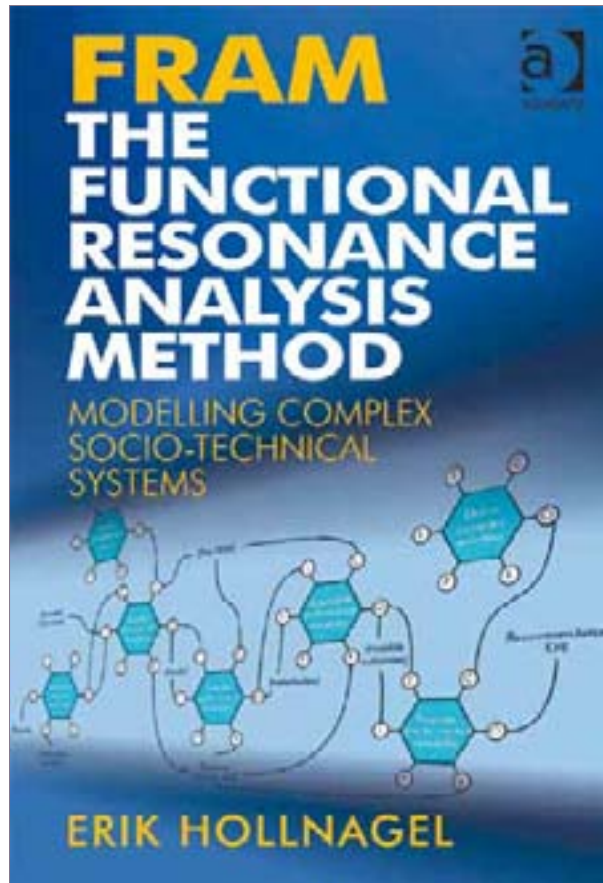
Erik Hollnagel, University of Southern Denmark, Denmark

Resilience engineering has consistently argued that safety is more than the absence of failures. Since the first book was published in 2006, several book chapters and papers have demonstrated the advantage in going behind 'human error' and beyond the failure concept, just as a number of serious accidents have accentuated the need for it. But there has not yet been a comprehensive method for doing so; the Functional Resonance Analysis Method (FRAM) fulfils that need.

Whereas commonly used methods explain events by interpreting them in terms of an already existing model, the FRAM is used to model the functions that are needed for everyday performance to succeed. This model can then be used to explain specific events, by showing how functions can be coupled and how the variability of everyday performance sometimes may lead to unexpected and out-of-scale outcomes – either good or bad.

The FRAM is based on four principles: equivalence of failures and successes, approximate adjustments, emergence, and functional resonance. As the FRAM is a method rather than a model, it makes no assumptions about how the system under investigation is structured or organised, nor about possible causes and cause-effect relations. Instead of looking for failures and malfunctions, the FRAM explains outcomes in terms of how functions become coupled and how everyday performance variability may resonate.

This book presents a detailed and tested method that can be used to model how complex and dynamic socio-technical systems work, to understand why things sometimes go wrong but also why they normally succeed.



### Contents

Prologue;  
 The need;  
 The intellectual background;  
 The principles;  
 The method: preliminaries;  
 The method: identify and describe the functions (step 1);  
 The method: the identification of variability (step 2);  
 The method: the aggregation of variability (step 3);  
 The method: consequences of the analysis (step 4);  
 Three cases; Afterthoughts; FRAM on FRAM;  
 Subject index.

Includes 12 b&w figures and 45 tables

June 2012	c. 165 pages	
Hardback	978-1-4094-4552-4	c. £65.00
Paperback	978-1-4094-4551-7	c. £19.99
ebook	978-1-4094-4553-1	

[www.ashgate.com/isbn/9781409445517](http://www.ashgate.com/isbn/9781409445517)

### About the author

**Erik Hollnagel** (Ph.D., psychology) is Professor at the University of Southern Denmark, Industrial Safety Chair at MINES Paris-Tech (France), and Professor Emeritus at University of Linköping (Sweden). Since 1971 he has worked within universities, research centres and industries in several countries with problems from domains such as 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. He has published more than 250 papers and authored or edited 18 books, some of the most recent titles being *The ETTO Principle* (Ashgate, 2009) and *Resilience Engineering in Practice* (Ashgate, 2011). Erik Hollnagel is also Editor-in-Chief of the book series *Ashgate Studies in Resilience Engineering*.

### Key Points

- Presents an original method for 'going behind human error', born out of the principles of resilience engineering and complementary to the ETTO Principle\*.
- Provides safety practitioners with the tools to understand how the variability of their everyday performance may interact to produce unexpected and out-of-scale outcomes.
- Developed and refined from extensive practical experience in numerous domains, and is interdisciplinary by nature.
- Areas of application are not only the traditional areas of industrial safety (e.g. power production, process industries, aviation, off-shore) but also 'softer' socio-technical systems such as healthcare and the financial sector.
- Relevant to both research-minded practitioners and practically oriented researchers.

\* See page 4, *The ETTO Principle: Efficiency-Thoroughness Trade-Off*

## Barriers and Accident Prevention

Erik Hollnagel, University of Linköping, Sweden

*'Every twenty years or so, a book comes along that profoundly influences the way we think about the breakdown of complex systems. Charles Perrow's Normal Accidents (1984) was one; this book will be another. Beautifully written, immensely scholarly and rich in illustrations, it both challenges the received wisdom about accident aetiology and (unlike Perrow) offers a viable way forward. This book establishes Erik Hollnagel as the leading thinker in this field.'*

Professor James Reason, University of Manchester, UK

Accidents are preventable – but only if they are correctly described and understood. Since the mid-1980s accidents have come to be seen as the consequence of complex interactions rather than simple threads of causes and effects. The focus of the book is on accident prevention rather than accident analysis, proactive rather than reactive in approach, unlike other books. The emphasis on design rather than analysis is a trend to be seen in other fields as well.

Includes 54 b&w illustrations

October 2004	242 pages	
Hardback	978-0-7546-4301-2	£55.00

[www.ashgate.com/isbn/9780754643012](http://www.ashgate.com/isbn/9780754643012)

## Resilience Engineering

Concepts and Precepts

Edited by Erik Hollnagel, MINES ParisTech, France, and Linköping University, Sweden, David D. Woods, Ohio State University, USA and Nancy Leveson, Massachusetts Institute of Technology, USA

*'This is the most thought-provoking collection of papers I've read in a very long time. They are written by the best in the field at the top of their form. Resilience is a notion whose time has come. We cannot realistically expect to eliminate adverse events and still stay in business. But we can strive to achieve greater robustness towards our operational hazards. This book tells us how to do it and why it's necessary.'*

James Reason

For Resilience Engineering, "failure" is the result of the adaptations necessary to cope with the complexity of the real world, rather than a malfunction. Human performance must continually adjust to current conditions and, because resources and time are finite, such adjustments are always approximate. Featuring contributions from leading international figures in human factors and safety, *Resilience Engineering* provides thought-provoking insights into system safety as an aggregate of its various components – subsystems, software, organizations, human behaviours – and the way in which they interact.

Includes 48 b&w illustrations

February 2006	410 pages	
Hardback	978-0-7546-4641-9	£65.00
Paperback	978-0-7546-4904-5	£30.00
ebook	978-0-7546-8136-6	

[www.ashgate.com/isbn/9780754649045](http://www.ashgate.com/isbn/9780754649045)

## Resilience Engineering in Practice

A Guidebook

Edited by Erik Hollnagel, MINES ParisTech, France, Jean Périès, Dédale SA, France, David Woods, Ohio State University, USA and John Wreathall, John Wreathall & Co., USA

ASHGATE STUDIES IN RESILIENCE ENGINEERING

*'Although risk management has brought greater safety to socio-technical systems, a new approach is still strongly needed. Erik Hollnagel's excellent book offers the right approach; that resilient behaviour by people leads to stable systems. Those searching for a more profound understanding of system safety must read this book as it is a practical guide to this new approach.'*

Akinori Komatsubara, Waseda University, Japan

Resilience engineering depends on four abilities: the ability a) to respond to what happens, b) to monitor critical developments, c) to anticipate future threats and opportunities, and d) to learn from past experience – successes as well as failures. They provide a structured way of analysing problems and proposing practical solutions.

This book is divided into four sections which describe issues relating to each of the four abilities. The section's chapters emphasise practical ways of engineering resilience, featuring case studies and real applications.

December 2010	362 pages	
Hardback	978-1-4094-1035-5	£55.00
ebook	978-1-4094-1036-2	

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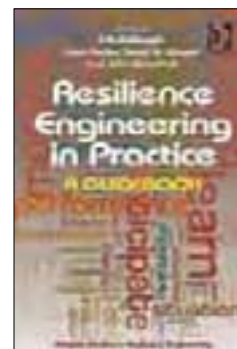
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Resilience Engineering Perspectives, Volume 2  
Page 13

Governance and Control of Financial Systems  
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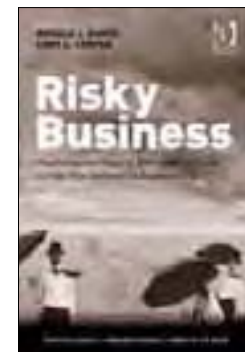
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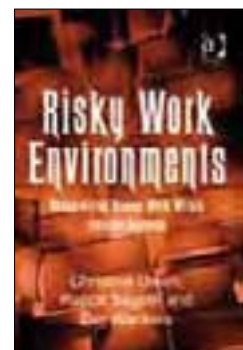
Edited by Christine Owen, University of Tasmania, Australia, Pascal Béguin, Director of Research at the French National Institute for Agricultural Research, INRA, France and Ger Wackers, University of Maastricht, Netherlands

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The recent financial crisis has made it paramount for the financial services industry to find new perspectives to look at their industry and, most importantly, to gain a better understanding of how the global financial system can be made less vulnerable and more resilient. The primary objective of this book is to illustrate how the safety science of Resilience Engineering can help to gain a better understanding of what the financial services system is and how to improve governance and control of financial services systems by leveraging some of its key concepts. Resilience is the intrinsic ability of a system to adjust its functioning prior to, during, or following changes and disturbances, so that it can sustain required operations under both expected and unexpected conditions. This definition is focused on the ability to function, rather than just to be impervious to failure, and thereby bridges the traditional conflict between productivity and safety.

### Contents

*Prologue; The turmoil in the financial services system, Gunilla Sundström and Erik Hollnagel;*

*Part I Understanding Why: the Need for New Perspectives: Gunilla Sundström and Erik Hollnagel; What is the financial services system?, Gunilla Sundström and Erik Hollnagel; A dynamic systems modelling perspective, Gunilla Sundström and Erik Hollnagel; From the efficient market hypothesis to econophysics, Bill McKelvey and Rossitsa Yalamova.*

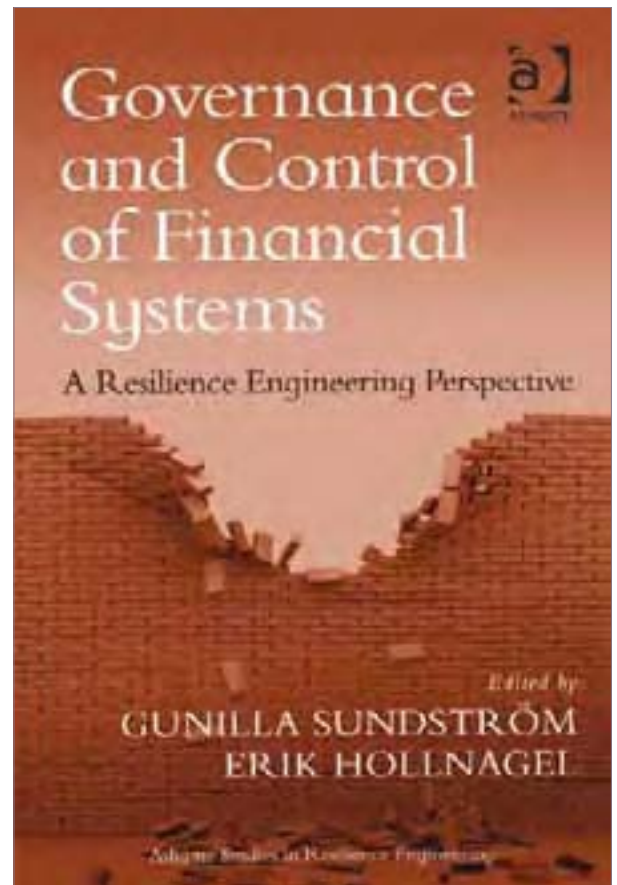
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*Epilogue: financial markets and the law of requisite variety, Erik Hollnagel and Gunilla Sundström;*

*References;*

*Indexes.*



### Key Points

- Applies the principles of Resilience Engineering to the workings of the financial services industry.
- Offers insights into why the financial crisis occurred and shows how the financial system's resilience can be improved to avert future crises.
- Imparts valuable lessons learned in complex and critical socio-technical systems.

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### About the authors

**Gunilla Sundström** is a global professional and consultant with a passion for Financial Services, Outsourcing/Offshoring and R&D. She has a proven leadership, execution and innovation track record in several areas including outsourcing/offshoring, decision support and analytics for operations, resilience engineering, governance and risk management. She has held leadership positions in a variety of industries including R & D, Financial Services and Global Sourcing. She currently holds the position of Head of Global Sourcing at Deutsche Bank.

**Erik Hollnagel** (Ph.D., psychology) is Professor at the University of Southern Denmark, Professor and Industrial Safety Chair at École des Mines de Paris (France), and Professor Emeritus at University of Linköping (Sweden). 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.

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David D. Woods, Ohio State University, USA,  
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Richard Cook, University of Chicago, USA,  
Leila Johannesen, IBM Silicon Valley Lab, USA  
and Nadine Sarter, University of Michigan, USA

Human error is so often cited as a cause of accidents that there is perception of a 'human error problem'. Solutions are thought to lie in changing the people or their role. The label 'human error', however, is prejudicial and hides more than it reveals about how a system malfunctions.

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September 2010 292 pages  
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Sidney Dekker, Griffith University, Australia

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## The ETTO Principle: Efficiency-Thoroughness Trade-Off

Why Things That Go Right Sometimes Go Wrong

Erik Hollnagel, MINES ParisTech, France

Accident investigation and risk assessment have for decades focused on the human factor, particularly 'human error'. This bias towards performance failures leads to a neglect of normal performance. It assumes that failures and successes have different origins so there is little to be gained from studying them together. Erik Hollnagel believes this assumption is false and that safety cannot be attained only by eliminating risks and failures. The alternative is to understand why things go right and to amplify that.

*The ETTO Principle* looks at the common trait of people at work to adjust what they do to match the conditions. It proposes that this efficiency-thoroughness trade-off (ETTO) is normal. While in some cases the adjustments may lead to adverse outcomes, these are due to the same processes that produce successes.

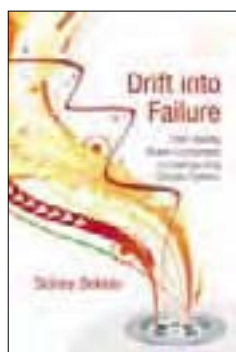
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Sidney Dekker, Griffith University, Australia

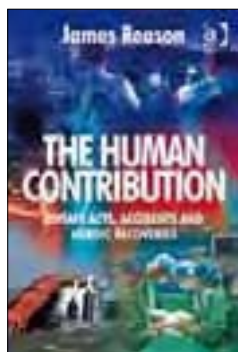
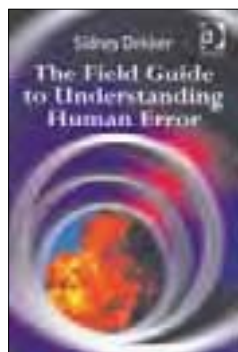
The old "Bad Apple Theory" of human error promotes the idea that a system is basically safe, with the exception of a few unreliable people.

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James Reason, Professor Emeritus, University of Manchester, UK

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Douglas A. Wiegmann, University of Illinois in Urbana, USA and Scott A. Shappell, FAA Civil Aerospace Medical Institute, USA

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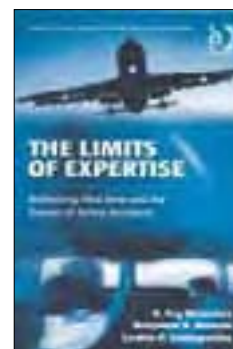
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Laura Rafferty and Neville A. Stanton, both at the University of Southampton, UK and Guy H. Walker, Heriot-Watt University, Edinburgh, UK

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*'Fratricide, better known as "friendly fire" is a distressing and puzzling aspect of warfare. Rafferty, Stanton and Walker's The Human Factors of Fratricide provides not only an excellent introduction to the subject, illustrated with dramatic examples, but it also presents a novel method to examine the human factors components of their causality. Their systematic analysis of three case studies reveals surprising insights into failures in team processes that can produce terrible consequences.'*

Rhona Flin, University of Aberdeen, UK

Fratricide has been defined as firing on your own forces, when mistaking them for enemy forces, which results in injury or death. Rates of fratricide incidence have been steadily increasing and the complexity of the contemporary operating environment may lead to a continuation of this trend. Although the majority of research into fratricide has focused on the development of technological decision aids, recent explorations highlight the need to emphasise the social aspects within a socio-technical framework.

This book presents and validates, via the use of case studies, a model of teamwork and decision-making factors that are associated with incidents of fratricide. In summary, it offers a review and evaluation of contemporary theoretical perspectives on teamwork and fratricide, as well as a range of accident analysis approaches. A novel theory of fratricide is then presented followed by a new methodology for assessing fratricide. Naturalistic case studies of teams are undertaken in the military domain. These studies illustrate the approach and offer early validation evidence. In closing, the book presents a series of principles designed to reduce the likelihood of fratricide in the future.

### Contents

#### Introduction;

Fratricide, expectations, situation awareness and teamwork;  
Application of the F3 Model to fratricide;

FEAST: fratricide event analysis of systemic teamwork;

It's good to talk: explorations into the communications surrounding shoot, no-shoot decisions;

The communication masking effect: why it's not always good to talk;  
Is it better to be connected?; Comparison of populated models;

#### Conclusion;

#### References and bibliography;

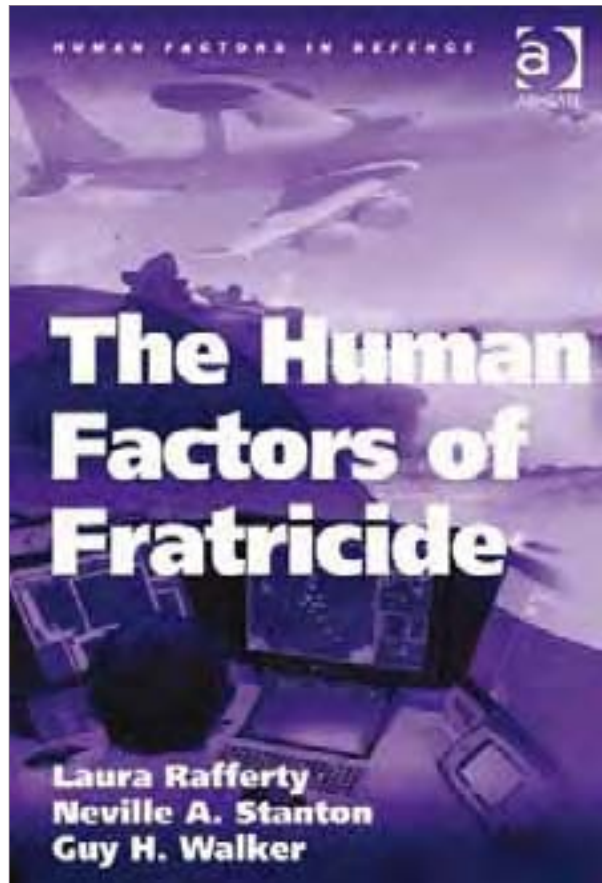
#### Index.

### About the authors

**Dr Laura Rafferty** completed her undergraduate studies in 2007 graduating with a BSc in Psychology (Hons) from Brunel University. In the course of this degree Laura completed two industrial placements, the second of which was working as a Research Assistant in the Ergonomics Research Group. During this seven month period Laura helped to design, run and analyse a number of empirical studies being run for the Human Factors Integration Defence Technology Centre (HFI DTC) at Brunel. Within this time Laura also completed her dissertation exploring the qualitative and quantitative differences between novices and experts within military command and control. From April 2009 Laura has been employed in the Transportation Research Group at the University of Southampton as a Project Assistant for the HFI DTC working on projects including Naturalistic Decision Making in Teams, Contempering the Combat Estimate and compiling a Human Factors Methods Database. In July 2011 Laura was awarded a PhD in Human Factors from the University of Southampton.

**Professor Stanton** holds a Chair in Human Factors in the School of Civil Engineering and the Environment at the University of Southampton. He has published more than 150 peer-reviewed journal papers and 20 books on Human Factors and Ergonomics. In 1998, he was awarded the Institution of Electrical Engineers Divisional Premium Award for a co-authored paper on Engineering Psychology and System Safety. The Ergonomics Society awarded him the Otto Edholm medal in 2001 and The President's Medal in 2008 for his contribution to basic and applied ergonomics research. In 2007, The Royal Aeronautical Society awarded him the Hodgson Medal and Bronze Award with colleagues for their work on flight deck safety. Professor Stanton is an editor of the journal *Ergonomics* and on the editorial boards of *Theoretical Issues in Ergonomics Science*. Professor Stanton is a Fellow and Chartered Occupational Psychologist registered with The British Psychological Society, and a Fellow of The Ergonomics Society. He has a BSc (Hons) in Occupational Psychology from the University of Hull, an MPhil in Applied Psychology and a PhD in Human Factors from Aston University in Birmingham.

**Dr Guy Walker** is a lecturer in the School of the Built Environment at Heriot-Watt University, Edinburgh, and his research focuses on human factors issues in infrastructure and transport. He is a recipient, with his colleagues, of the Ergonomics Society's President's Medal for original research. He is also author/co-author of nine books on diverse topics in human factors, including a major text on human factors methods, and is author/co-author of over fifty international peer-reviewed journals.



### Key Points

- The first text that attempts to describe the human factors affecting incidents of fratricide.
- Presents a novel approach for modelling and assessing human factors in fratricide incidents, including a description of the method, a 'how to guide' and example applications.

Includes 73 figures and 54 tables

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Don Harris, HFI Solutions Ltd

Written under the auspices of the The Transfer Cooperation Programme, this book reports on contemporary trends in the defence research community on trust in teams, including inter- and intra-team trust, multiagency trust and coalition trust. It also considers trust in information and automation, taking a systems view of humans as agents in a multi-agent, socio-technical, community. The different types of trust are usually found to share many of the same emotive, behavioural, cognitive and social constructs, but differ in the degree of importance associated with each of them.

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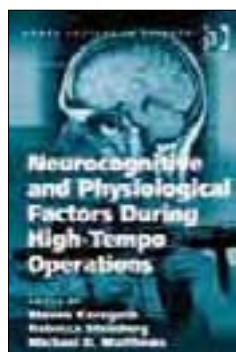
Series Editors: Dr Don Harris is Managing Director of HFI Solutions Ltd, Professor Neville Stanton is Chair in Human Factors of Transport at the University of Southampton, UK and Dr Eduardo Salas is Trustee Chair and Professor of Psychology at the University of Central Florida, USA

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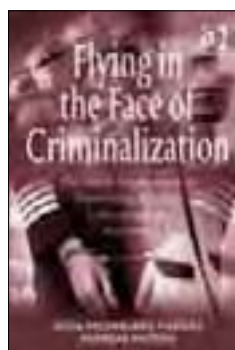
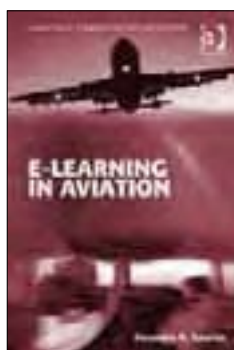
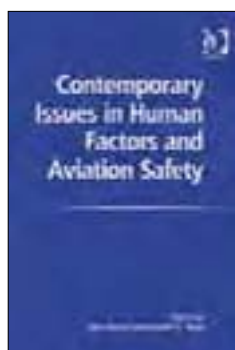
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## Implementing Safety Management Systems in Aviation

Edited by Alan J. Stolzer, Embry-Riddle Aeronautical University, USA, Carl D. Halford, The MITRE Corporation, USA and John J. Goglia, Independent Safety Consultant

ASHGATE STUDIES IN HUMAN FACTORS FOR FLIGHT OPERATIONS

*'Safety Management Systems are here to stay. Concerned with implementation? Stolzer, Halford, Goglia and their group of experts address your concerns. This book is an excellent roadmap to successful implementation. Excellent work!'*

James J. Ballough, former Director of the Flight Standards Service of the FAA

In their first book, *Safety Management Systems in Aviation*, Stolzer, Halford, and Goglia provided a strong theoretical framework for SMS, along with a brief discourse on SMS implementation. This follow-up book provides a very brief overview of SMS and offers significant guidance and best practices on implementing SMS programs. Very specific guidance is provided by industry experts from government, industry, academia, and consulting, who share their invaluable insights from first-hand experience of all aspects of effective SMS programs.

Includes 65 b&w illustrations

June 2011 464 pages  
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## The Limits of Expertise

Rethinking Pilot Error and the Causes of Airline Accidents

R. Key Dismukes, Benjamin A. Berman and Loukia D. Loukopoulos, all at NASA Ames Research Center, USA

ASHGATE STUDIES IN HUMAN FACTORS FOR FLIGHT OPERATIONS

*'I strongly endorse this text as a companion to the primary texts used in courses in Human Factors in Aviation or Crew Resource Management. As I prepared my syllabus for an upcoming CRM course, I found this text, reviewed it and then added it as a supplementary text to my primary CRM text...Key Dismukes...said that he and the other authors had intended their text to be used in this unique way.'*

Todd P. Hubbard, International Journal of Professional Aviation Training & Testing Research

*The Limits of Expertise* reports a study of the 19 major U.S. airline accidents from 1991-2000 in which the National Transportation Safety Board (NTSB) found crew error to be a causal factor. Each accident is reported in a separate chapter that examines events and crew actions and explores the cognitive processes in play at each step.

January 2007 364 pages  
Hardback 978-0-7546-4964-9 £65.00  
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NEW

## Mechanisms in the Chain of Safety

Research and Operational Experiences in Aviation Psychology

Edited by Alex de Voogt, American Museum of Natural History, USA and Teresa D'Oliveira, Instituto Superior de Psicologia Aplicada, Portugal

*'The aviation sector has strived to establish and maintain a close working relationship between academia and industry which has enabled the results of robust scientific research to be professionally applied in a timely manner. A new publication by de Voogt and D'Oliveira extends this academic/practitioner relationship. Mechanisms in the Chain of Safety: Research and Operational Experiences in Aviation Psychology showcases contemporary aviation safety, human-centred research spanning personnel selection, behavioural tools incorporating adaptation to improve coping skills for aircrew and air traffic controllers, and organisational approaches to error detection, accident analysis and risk assessment. The publication contains valuable contributions from respected international authors who also provide an insight into new lines of research.'*

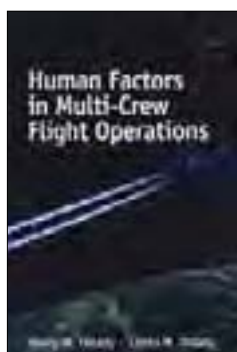
Sue Burdekin, Aviation Program Coordinator, University of New South Wales Australian Defence Force Academy

Contemporary approaches to aviation safety show a dynamic endeavour to identify a variety of components that minimize the emergence of adverse situations. In this process there has always been a strong interrelation between these components and it allows us to talk about a chain of safety. This volume presents the most recent efforts in this chain of safety streaming from both the industry and academia, as well as the future challenges for operational settings.

Includes 46 b&w illustrations

January 2012 186 pages  
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NEW

## Human Performance on the Flight Deck

Don Harris, HFI Solutions Ltd, UK

*'Don Harris has a pedigree in flight deck design, certification and accident analysis. Here he condenses 25 years experience into 19 chapters, separated into four sections on science base, human, machine and management. Above all else, Don makes it clear that everything is connected to everything else. The spider diagrams highlight the web of knowledge he is passing onto the reader in his own inimitable style. Nothing is left uncovered, and the reader is certainly not left wanting in this comprehensive text. Occasionally Don wanders off to present the thoughts to the dissenting scientist, showing that at the cutting edge of research Human Factors is still evolving – waiting for the next paradigm shift. This book is filled with examples of how Human Factors has in the past, and can in the future, benefit flight operations and flight deck design. Don is keen to highlight that this benefit will only be realised fully if a systemic (aka Don's spiders), through-life, approach is taken.'*

*There is something for everyone in this book and it should suit both the newcomer and old-hand alike. For those new to the subject or domain, a good overview can be gleaned by reading the introductory and concluding chapters together with the introductions to each of the four parts. It could serve as a student text on the subject matter, covering a chapter a week. The aviation specialist will probably want to dip in and out of relevant chapters as appropriate. The aviation researcher will be stimulated by the questions addressed and will probably want to test the assumptions and challenges set-up in the analyses of the state-of-the-art. They can add their own dissenting voices. The practitioner should be able to implement the many of the ideas and approaches presented. Don has added some excellent pointers to further reading at the end of each chapter. In short, this book is likely to have a long shelf-life for those interested in flight deck Human Factors. It will certainly be well-thumbed on mine.'*

Neville A. Stanton, University of Southampton, UK

Taking an integrated, systems approach to dealing exclusively with the human performance issues encountered on the flight deck of the modern airliner, this book describes the inter-relationships between the various application areas of human factors, recognising that the human contribution to the operation of an airliner does not fall into neat pigeonholes. The relationship between areas such as pilot selection, training, flight deck design and safety management is continually emphasised within the book. It also affirms the upside of human factors in aviation – the positive contribution that it can make to the industry – and avoids placing undue emphasis on when the human component fails.

The book is divided into four main parts. Part one describes the underpinning science base, with chapters on human information processing, workload, situation awareness, decision making, error and individual differences. Part two of the book looks at the human in the system, containing chapters on pilot selection, simulation and training, stress, fatigue and alcohol, and environmental stressors. Part three takes a closer look at the machine (the aircraft), beginning with an examination of flight deck display design, followed by chapters on aircraft control, flight deck automation, and HCI on the flight deck. Part four completes the volume with a consideration of safety management issues, both on the flight deck and across the airline; the final chapter in this section looks at human factors for incident and accident investigation.

The book is written for professionals within the aviation industry, both on the flight deck and elsewhere, for post-graduate students and for researchers working in the area.

### Contents

*Preface; A systems approach to human factors in aviation;*

Part 1 The Science Base: Human information processing; Workload; Situation awareness; Decision making; Error; Individual differences.

Part 2 The (Hu)Man: Pilot selection; Training and simulation; Stress, fatigue and alcohol; Environmental stressors.

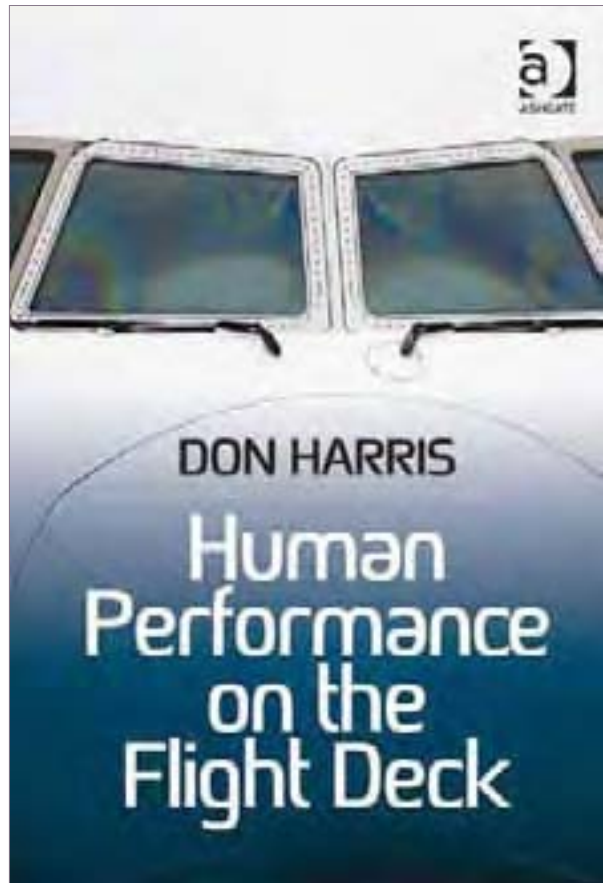
Part 3 The Machine: Display design; Aircraft control; Automation; Human-computer interaction (HCI) on the flight deck.

Part 4 The Management: Flight deck safety management: crew resource management and line operations safety audits; Airline safety management; Incident and accident investigation;

Concluding thoughts: human factors in aviation as a route to increased operational efficiency;

References;

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### Key Points

- Uses a systems approach to take a comprehensive look at the human performance issues encountered on the flight deck of the modern airliner.
- Describes the inter-relationships between the various application areas of human factors, uniquely taking an integrated, systemic approach to the topic.
- Taking an integrated approach to the application of human factors can have a much greater impact in reducing costs, increasing efficiency, enhancing performance and improving safety, especially if a systemic approach is adopted.
- Views commercial aviation as a socio-technical 'system of systems'.

Includes 59 b&w illustrations

September 2011	284 pages	
Hardback	978-1-4094-2339-3	£75.00
Paperback	978-1-4094-2338-6	£35.00
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## The Multitasking Myth

Handling Complexity in Real-World Operations

Loukia D. Loukopoulos, R. Key Dismukes, and Immanuel Barshi, all at NASA Ames Research Center, USA

ASHGATE STUDIES IN HUMAN FACTORS FOR FLIGHT OPERATIONS

*'A delightful and insightful book! "Multitasking" is a much misunderstood myth, yet it represents a critical underlying topic in human factors: how can people safely pursue multiple concurrent goals in cognitively noisy environments? The distance between the two images of work can be huge. The "ideal" as laid down in written guidance makes generous assumptions about the cohesiveness, linearity and time-reversibility of tasks-which often has little to do with the messiness of "actual" event-paced practice. Loukopoulos, Dismukes and Barshi have put together the research in a way that is not only readable and enjoyable, but practically useful and relevant as well. This is the kind of book where the rubber of research meets the road of practice-in all kinds of safety-critical domains.'*

Sidney W. A. Dekker, Lund University School of Aviation, Sweden

Despite growing concern with the effects of concurrent task demands on human performance, and research demonstrating that these demands are associated with vulnerability to error, so far there has been only limited research into the nature and range of concurrent task demands in real-world settings. This book presents a set of NASA studies that characterize the nature of concurrent task demands confronting airline flight crews in routine operations, as opposed to emergency situations. The authors analyze these demands in light of what is known about cognitive processes, particularly those of attention and memory, with the focus upon inadvertent omissions of intended actions by skilled pilots.

February 2009	202 pages	
Hardback	978-0-7546-7382-8	£65.00
Paperback	978-0-7546-7997-4	£25.00
ebook	978-0-7546-9412-0	

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## Passenger Behaviour

Edited by Robert Bor, Royal Free Hospital, London, UK

*Passenger Behaviour* was published at a timely milestone for the aviation industry. This book examines a wide range of topics that help the reader to acquire a psychological understanding of how air travel disrupts human relationships; behaviour as well as physiological functions.

Include 20 b&w illustrations

May 2003	334 pages	
Hardback	978-0-7546-0936-0	£65.00

[www.ashgate.com/isbn/9780754609360](http://www.ashgate.com/isbn/9780754609360)

## Safety Management Systems in Aviation

Alan J. Stolzer, Embry-Riddle Aeronautical University, USA, Carl D. Halford and John J. Goglia

ASHGATE STUDIES IN HUMAN FACTORS FOR FLIGHT OPERATIONS

*'Finally, the aviation industry has recognized that effective safety management systems are necessary in today's complex operating environments. Fortunately, a fascinating, yet comprehensive guide to the organization, management, and successful implementation of these processes is now available. In Safety Management Systems in Aviation, Stolzer, Halford and Goglia have produced the definitive SMS manual; richly detailed and loaded with relevant, real-world examples. This book should be required reading for every aviation safety student and professional!'*

Capt. Jim Walters, M.A.S., Former Director of Safety, TWA, FOQA and ASAP program manager

This timely and unique book covers the essential points of SMS. The knowledgeable authors go beyond merely defining it; they discuss the quality management underpinnings of SMS, the four pillars, risk management, reliability engineering, SMS implementation, and the scientific rigor that must be designed into proactive safety. This comprehensive work is designed as a textbook for the student of aviation safety, and is an invaluable reference tool for the SMS practitioner in any segment of aviation.

October 2008	322 pages	
Hardback	978-0-7546-7304-0	£65.00
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ebook	978-0-7546-9087-0	

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## A Sociology of Commercial Flight Crew

Simon A. Bennett, University of Leicester, UK

Commercial aviation is one of the world's biggest industries, yet there are few studies of pilots as social beings and of their place of work, the flight-deck. This book develops a sociological understanding of airline front-line staff and of pilots and their working environment as an important step to developing a more detailed understanding of this increasingly important sector.

July 2006	224 pages	
Hardback	978-0-7546-4317-3	£65.00

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Edited by Eduardo Salas and Aaron S. Dietz, University of Central Florida, USA

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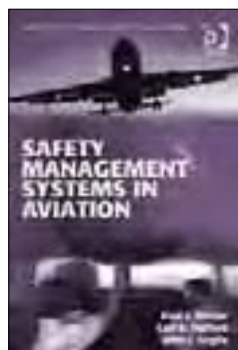
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NEW

## A Socio-cultural Perspective on Patient Safety

Edited by Emma Rowley, University of Nottingham, UK and Justin Waring, University of Warwick, UK

'...essential reading for scholars and practitioners working in the field of patient safety and I hope that the fresh perspective provided through the lens of the "critical friend" provided by the authors in this book will stimulate new and different approaches to improve safety and the experiences of those who use and provide health care.'

Jane Sandall, NIHR King's Patient Safety and Service Quality Research Centre, King's College London, UK

This edited volume brings together researchers from around the world who are exploring the facets of health care organization and delivery that are sometimes marginal to mainstream patient safety theories and methodologies but offer important insights into the socio-cultural and organizational context of patient safety. By examining these critical insights or perspectives and drawing upon theories and methodologies often neglected by mainstream safety researchers, this collection shows we can learn more about not only the barriers and drivers to implementing patient safety programmes, but also about the more fundamental issues that shape notions of safety, alternate strategies for enhancing safety, and the wider implications of the safety agenda on the future of health care delivery. In so doing, it challenges the taken-for-granted assumptions around fundamental philosophical and political issues upon which mainstream orthodoxy relies.

### Contents

Foreword, *Paul Barach*;

Introduction; a socio-cultural perspective on patient safety, *Emma Rowley and Justin Waring*;

Part 1 Patients and Publics: 'All news is bad news': patient safety in the news media, *Cecily Palmer and Toby Murcott*; Broadening the patient safety movement: listening, involving and learning from patients and the public, *Josephine Ocloo*.

Part 2 Clinical Practice: Narrowing the gap between safety policy and practice: the role of nurses' implicit theories and heuristics, *Anat Drach-Zahavy and Anit Somech*; Resources of strength: an exnovation of hidden competences to preserve patient safety, *Jessica Mesman*.

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Part 5 Learning: Challenges to learning from clinical adverse events: a study of root cause analysis in practice, *Jeanne Mengis and Davide Nicolini*; Patient safety and clinical practice improvement: the importance of reflecting on real-time, in situ care processes, *Rick Iedema*; Concluding remarks: the gaps and future directions for patient safety research, *Justin Waring and Emma Rowley*.

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### Key Points

- Offers a new view on patient safety, intentionally challenging the orthodoxy.
- Examines facets of healthcare organization and delivery that are often overlooked by the established patient safety movement.
- In combination, the chapters put forward a new critical perspective with the aim of advancing patient safety in a way that cannot be achieved by a continuation of the mainstream approach.
- Each chapter is dedicated to a distinct methodological approach; these are then pulled.

December 2011 240 pages  
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both at the University of Aberdeen, UK

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Judith Healy, The Australian National University, Australia

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Rachael Mulheron, Queen Mary University of London, UK

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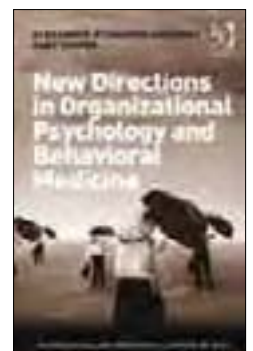
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NEW

## The Neurosciences and the Practice of Aviation Medicine

Edited by Anthony N. Nicholson, King's College London, UK

This book brings the neurosciences to operational and clinical aviation medicine. It is concerned with the physiology and pathology of circadian rhythmicity, orientation, hypotension and hypoxia, and with disorders of the central nervous system relevant to the practice of aviation medicine.

The chapters on circadian rhythmicity and orientation deal with the impaired alertness and sleep disturbance associated with desynchrony and with the effects of linear and angular accelerations on spatial awareness. Hypotension and hypoxia cover cerebral function during increased gravitational stress, clinical aspects of exposure to acute hypoxia, the mild hypoxia of the cabin of transport aircraft, adaptation and acclimatization to altitude and decompression at extreme altitudes and in space.

Disorders of particular significance to the practice of aviation medicine such as excessive daytime sleepiness, epilepsy, syncope, hypoglycaemia, headache and traumatic brain injury are covered, while neuro-ophthalmology, the vestibular system and hearing also receive detailed attention. The potentially adverse effects of the aviation environment and of disorders of the nervous system are brought together, and the text covers the neurological examination as it relates to aircrew and explores current management and therapeutics.

*The Neurosciences and the Practice of Aviation Medicine* is an essential work for those involved in the practice of aviation medicine where familiarity with the effects of the aviation environment on the nervous system and understanding the pathophysiology of relevant clinical disorders are of prime concern. The authors from leading centres of excellence are physiologists concerned with the aviation environment and physicians involved in the day-to-day practice of medicine. They bring to this authoritative text wide experience and expertise in both the experimental and clinical neurosciences.

### Contents

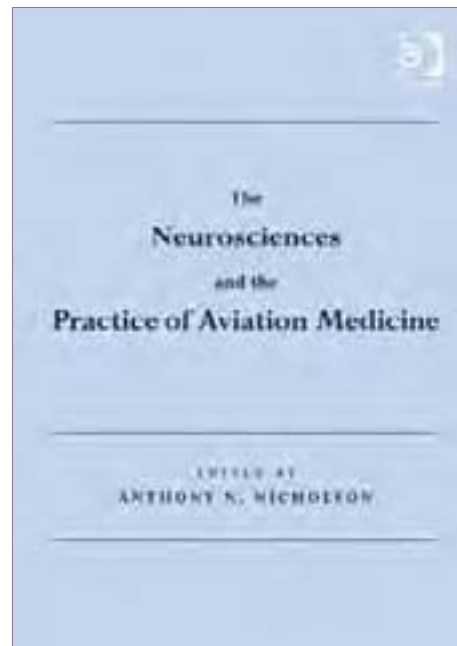
Foreword, Lord Owen;

Preface;

Wakefulness, awareness and consciousness, *Anthony N. Nicholson*; Circadian system and diurnal activity, *Russell G. Foster*; Aircrew and alertness, *Anthony N. Nicholson* and *Michael B. Spencer*; Spatial orientation and disorientation, *J.R. Rollin Stott*; Cerebral circulation and gravitational stress, *Anthony N. Nicholson*; Oxygen delivery and acute hypoxia: physiological and clinical considerations, *Jane Ward*; Hypobaric hypoxia: adaptation and acclimatization, *John H. Coote* and *James S. Milledge*; Profound hypoxia: extreme altitude and space, *Anthony N. Nicholson*; The neurological examination: aeromedical considerations, *Michael D. O'Brien*; Investigation of sleep and wakefulness in aircrew, *Anthony N. Nicholson*; Excessive daytime sleepiness: clinical considerations, *Thomas C. Britton*, *Andrew R.C. Cummin* and *Anthony N. Nicholson*; The diagnosis of epilepsy, *Matthew C. Walker*; Syncope: physiology, pathophysiology and aeromedical implications, *David A. Low* and *Christopher J. Mathias*; Hypoglycaemia and hypoglycaemia awareness, *Simon R. Heller*; Headache, *Thomas C. Britton*; Traumatic brain injury and aeromedical licensing, *Garth S. Cruikshank*; Neuro-ophthalmology, *Gordon T. Plant*; Vestibular and related oculomotor disorders, *Nicholas J. Cutfield* and *Adolfo M. Bronstein*; Disorders of hearing, *Linda M. Luxon* and *Ronald Hinchcliffe*.

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### Key Points

- Unique and authoritative reference on all neurological aspects of aviation.
- Highest-calibre contributors from around the world.
- Explores implications, management and therapies relating to all disorders.
- Focuses on the neurosciences and the aviation domain only.

November 2011 524 pages  
Hardback 978-0-7546-7292-0 £90.00  
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NEW

## Reconstructing Medical Practice

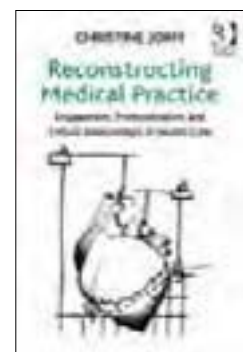
Engagement, Professionalism and Critical Relationships in Health Care

Christine Jorm, Sydney University, Australia

Change in the medical profession carries with it disturbing features – established practitioners are no longer sure what to recommend to their trainees about how to think and act. In *Reconstructing Medical Practice* Dr Jorm concludes that regulation, despite its recent proliferation, is a clumsy and limited tool to ensure good care, she offers original and much needed ideas for ways to improve the relationship between doctors and the system.

April 2012 244 pages  
Hardback 978-1-4094-2975-3 £65.00  
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[www.gowerpublishing.com/isbn/9781409429753](http://www.gowerpublishing.com/isbn/9781409429753)



COMING SOON

## Driver Behaviour and Training

Volume V

Edited by Lisa Dorn, Cranfield University, UK

### HUMAN FACTORS IN ROAD AND RAIL TRANSPORT

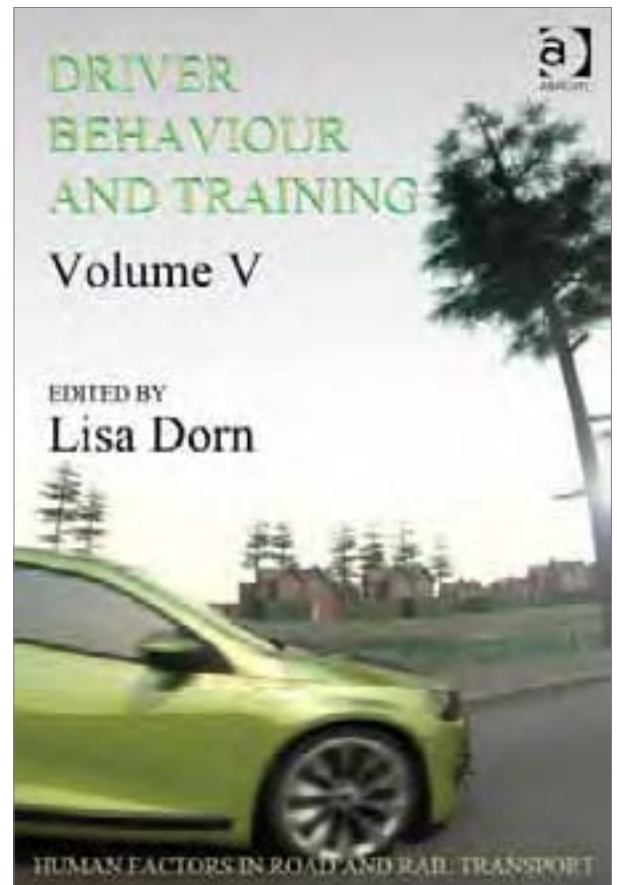
Research on driver behaviour over the past two decades has clearly demonstrated that the goals and motivations a driver brings to the driving task are important determinants for driver behaviour.

The objective of the book, and of the conference on which it is based, is to describe and discuss recent advances in the study of driving behaviour and driver training. It bridges the gap between practitioners in road safety, and theoreticians investigating driving behaviour, from a number of different perspectives and related disciplines.

A major focus is to consider how driver training needs to be adapted, to take into account, in order to raise awareness of how these may contribute to unsafe driving behaviour. From this it goes on to promote the development of driver training courses that consider all the skills that are essential for road safety.

The book is timely in its aim of defining new approaches to driver training methodology based on many years of empirical research on driver behaviour. The contributing road safety researchers and professionals will be encouraged to consider the kinds of methods that are effective in teaching higher-level skills.

The readership includes road safety researchers from a variety of different academic backgrounds, senior practitioners in the field of driver training from regulatory authorities and professional driver training organisations such as the police service, and private and public sector personnel who are concerned with improving road safety.



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### List of Contributors

*Erik Roelofs, Jan Vissers, Marieke van Onna, Gerard Kern, Walter Funk, Saskia de Craen, Sebastiaan van der Zwan, Kåre Robertsen, Hilde Kjelsrud, Maarten Marsman, Leo de Penning, Eva Brustad Dalland, Giovanni Savino, Frederico Giovanni, Niccolò Baldanzini, Marco Pierini, Lynette G. Kay, Anita C. Bundy, Beth Cheal, Michael Geller, Peter Stroheck-Kuehner, Alex W. Stedmon, David Crundall, Elizabeth Crundall, Rose Saikayasi, Edith van Loon, Alex Irupe, Patrick Ward, Neil Greig, Lisa Dorn, Julie Gandolfi, Shingo Moriizumi, Shinnosuke, Usui Hiroshi Nakai, Darren Wishart, James Freeman, Jeremy Davey, Adrian Wilson, Bevan Rowland, Rebecca Hutchins, Emma Delmonte, Carmen Lloret-Catalá, Francisco Toledo-Castillo, Jose Sospedra-Baeza, Britta Lang, Cyriel Diels, Ulrich Grueneberg, Gerd Helmchen, Benjamin Schulz, Swantje Robelski, Rainer Höger, Anders E. af Wåhlberg, Marco Wiethof, Thomas Rheker, Maria Eugènia Gras, Montserrat Planes, Silvia Font-Mayolas, Mark J.M. Sullman, Montserrat Jiménez, Francesc Prat, Matthew Coogan, Sonja Forward, Jean-Pascal Assailly, Thomas Adler, Chloé Freydier, Catherine Berthelon, Mireille Bastien-Toniazzo, Elodie Gigout, Stephen Skippon, Nick Reed, Sahand Malek, Chris Brace, Shibo Liu, Yasunori Kinoshita, Nikolaos Gkikas, Ryan Robbins, Andrew R. McGarva, Nicholas Zumwalt, Holly Callahan, Stewart Birrell, Mark Fowkes, Deborah Stubbs, Paul S. Broughton, Chris Hutchings, David Stone, Linda Walker, Ghasan Bhatti, Roland Bremond, Jean-Pierre Jessel, Guillaume Millet, Fabrice Vienne, Essam Dabbour, Said Easa, Anwar Hossain, Noha M. Hassan, Robert Edmunds.*

### About the editor

**Dr Lisa Dorn** is Director of the Driving Research Group at Cranfield University. She is President-Elect of the International Association of Applied Psychology: Traffic and Transportation Psychology Division and an Associate Fellow of the British Psychological Society and Chartered Psychologist. Dr Dorn has published a number of journal papers on driver behaviour, driver stress and risk and is a regular contributor to the public debate at major conferences. Currently, Dr Dorn is working with global organisations to improve driver education and training.

### Key Points

- Fifth volume features recent advances in the study of driving behaviour and driver training. The work included shows how driver characteristics, goals and motivations contribute to unsafe driving behaviour, as well as informing the development of driver training that considers all the skills essential for road safety.
- Provides the most up-to-date coverage of international research across this field.
- Focuses on driver behaviour, blending academic and practical inputs.
- Promotes safer driver training, applicable all over the world.

September 2012 c. 524 pages  
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COMING SOON

## Designing Safe Road Systems

Jan Theeuwes, Vrije Universiteit Amsterdam, The Netherlands, Richard van der Horst, The Netherlands Organisation of Applied Scientific Research (TNO); Maria Kuiken, DHV, The Netherlands

HUMAN FACTORS IN ROAD AND RAIL TRANSPORT

The central theme of this book is how design principles can reduce the probability of an error while driving. The authors demonstrate how knowledge of human factors helps a road authority to better understand how road users behave. They argue that in many cases the design of the environment can be further adjusted to human capabilities, and that safety should be considered a system property to be built into the road system.

Includes c. 60 illustrations and c. 6 tables

August 2012	c. 180 pages	
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NEW

## The Fast and The Furious: Drivers, Speed Cameras and Control in a Risk Society

Helen Wells, Keele University, UK

HUMAN FACTORS IN ROAD AND RAIL TRANSPORT

*'A real thought provoker for anyone who has ever had an opinion about speed cameras! Through the voices of drivers, enforcers, persuaders, and decision-makers, this is an insightful look at the debate on arguably the most contentious of 'techno-fixes'. In explaining how, in many people's eyes, "safety cameras" became "speed traps", Wells reminds us that opinions cannot be changed by scientific evidence alone and that public acceptance is a prerequisite for any intervention.'*

Lindsey Simkins, Royal Society for the Prevention of Accidents, UK

*The Fast and The Furious: Drivers, Speed Cameras and Control in a Risk Society* offers an explanation for the continued debate about one road safety intervention – the speed camera – by situating that debate within contemporary literature about the 'risk society' (Beck, 1992) and more broadly understood experiences of risk faced on a daily basis by drivers. Rather than a focus on risk as something that can be objectively assessed, measured and managed separately from the social context in which it is encountered, it suggests that 'risk' is something that permeates this particular debate from every angle.

December 2011	242 pages	
Hardback	978-1-4094-3089-6	£55.00
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## The Safety of Intelligent Driver Support Systems

Design, Evaluation and Social Perspectives

Edited by Yvonne Barnard, University of Leeds, UK, Ralf Rissler, FACTUM OHG, Austria and Josef Krems, Chemnitz University of Technology, Germany

HUMAN FACTORS IN ROAD AND RAIL TRANSPORT

*'Safety is the most important issue when it comes to Intelligent Driver Support Systems. These systems are either targeted at improving driver safety by preventing driver errors or have to ensure that drivers are well able to handle these systems safely. The book provides an excellent overview about the current state of the research with regard to these topics. A strong focus is set on methods to support the design and evaluation of these systems. It is a great book for researchers but especially for designers and engineers involved in developing these kinds of systems.'*

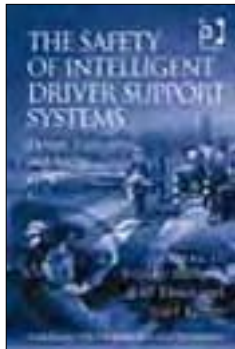
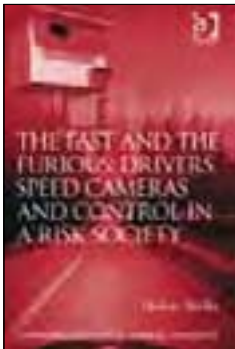
Mark Vollrath, TUI Braunschweig, Germany

Road telematics and driver assistance systems offer a real opportunity to aid mobility and road safety. However, they also raise numerous questions. Problems related to the design and evaluation of intelligent driver support systems (IDSSs) and social perspectives related to their large scale introduction may only be fully addressed from a multi-disciplinary viewpoint. People from both engineering and social sciences, should be involved and this book provides such knowledge from both a human and social factors perspective.

Includes 9 b&w illustrations

April 2011	210 pages	
Hardback	978-0-7546-7776-5	£65.00
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### SEE ALSO

Driver Behaviour and Training, Volume V  
Page 28

## SERIES

### HUMAN FACTORS IN ROAD AND RAIL TRANSPORT

Series Editors: Dr Lisa Dorn is Director of the Driving Research Group, Department of Human Factors, at Cranfield University, UK, Dr Gerald Matthews is Professor of Psychology at the University of Cincinnati and Dr Ian Glendon is Associate Professor of Psychology at Griffith University, Queensland, and is president of the Division of Traffic and Transportation Psychology of the International Association of Applied Psychology.

Today's society confronts major land transport problems. Human and financial costs of road vehicle crashes and rail incidents are increasing, with road vehicle crashes predicted to become the third largest cause of death and injury globally by 2020. Several social trends pose threats to safety, including increasing vehicle ownership and traffic congestion, advancing technological complexity at the human-vehicle interface, population ageing in the developed world, and ever greater numbers of younger vehicle drivers in the developing world.

Ashgate's *Human Factors in Road and Rail Transport* series makes a timely contribution to these issues by focusing on human and organisational aspects of road and rail safety. The series responds to increasing demands for safe, efficient, economical and environmentally-friendly land-based transport. It does this by reporting on state-of-the-art science that may be applied to reduce vehicle collisions and improve vehicle usability as well as enhancing driver wellbeing and satisfaction. It achieves this by disseminating new theoretical and empirical research generated by specialists in the behavioural and allied disciplines, including traffic and transportation psychology, human factors and ergonomics.

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## Flight Simulation

Virtual Environments in Aviation

Alfred T. Lee, Beta Research Inc, Los Gatos, CA, USA

*'I enjoyed reading Dr Lee's concise and clearly written book on flight simulation. The book ranges from traditional concerns such as visual flight scene simulation and the use of motion platforms to less familiar topics such as cognitive fidelity and the use of flight simulation in research. The most refreshing aspect of the book is the focus on the role and requirements of the pilot rather than on the technical aspects of the hardware and software. By taking the pilot as his focus Dr Lee is able to debunk some of the myths of flight simulation that continue to govern the design and operation of flight simulators. This is an excellent review of the state of flight simulation and could be enjoyed by a wide audience from the general reader to the flight simulation engineer.'*

David O'Hare, Associate Professor,  
University of Otago, New Zealand

This book provides a review and analysis of the relevant engineering and science supporting the design and use of advanced flight simulation technologies. It includes chapters reviewing key simulation areas such as visual scene, motion, and sound simulation and a chapter analyzing the role of recreating the pilot's task environment in the overall effectiveness of simulators. The design and use of flight simulation are addressed in chapters on the effectiveness of flight simulators in training and on the role of physical and psychological fidelity in simulator design. The problems inherent in the ground-based simulation of flight are also reviewed as are promising developments in flight simulation technology and the important role flight simulators play in advanced aviation research.

Includes 22 b&w illustrations

May 2005	150 pages	
Hardback	978-0-7546-4287-9	£55.00

[www.ashgate.com/isbn/9780754642879](http://www.ashgate.com/isbn/9780754642879)

## The Handbook of Human-Machine Interaction

A Human-Centered Design Approach

Edited by Guy A. Boy, Florida Institute of Technology, USA, Florida Institute for Human and Machine Cognition, and NASA Kennedy Space Center, USA

*The Handbook of Human-Machine Interaction* features 20 original chapters and a conclusion focusing on human-machine interaction (HMI) from analysis, design and evaluation perspectives. It offers a comprehensive range of principles, methods, techniques and tools to provide a clear knowledge of the current academic and industry practice and debate that define the field. Physical, cognitive, social and emotional aspects are considered throughout and the text is illustrated by key application domains such as aviation, automotive, medicine and defence.

Includes 119 b&w illustrations

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## Human Factors Methods

A Practical Guide for Engineering and Design

Neville A. Stanton, Brunel University, UK, Paul M. Salmon, Monash University, Australia, Guy H. Walker, Brunel University, UK, Chris Baber, University of Birmingham, UK and Daniel P. Jenkins, Sociotechnic Solutions, UK

*'This outstanding fund of information and inspiration, written and presented expertly, with typical Ashgate pedigree style, will be warmly welcomed by all who seek to raise standards for the teaching and practice of engineering and design in a changing and difficult world.'*

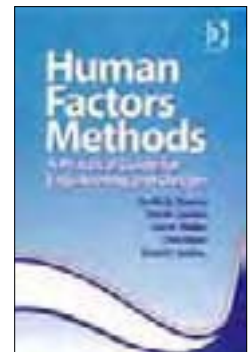
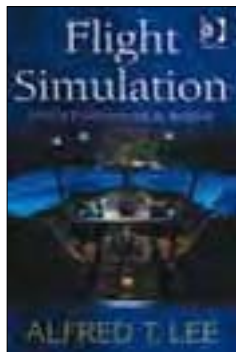
RoSPA Occupational Safety and Health Journal

*Human Factors Methods* offers a 'how-to' text on a substantial range of ergonomics methods that can be used in the design and evaluation of products and systems, it is a comprehensive point of reference for all these methods. Presenting more than ninety design and evaluation methods, it is designed to act as an ergonomics methods manual, aiding both students and practitioners.

Includes 119 b&w illustrations

December 2005	592 pages	
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## THE HUMAN FACTORS OF SIMULATION AND ASSESSMENT

Series Editors: Dr Michael Lenné, Monash University Accident Research Centre, Melbourne, Australia and Dr Mark Young, School of Engineering and Design, Brunel University, London, UK

Ongoing advances in lower-cost technologies are supporting a substantive growth worldwide in the use of simulation and naturalistic performance assessment methods for research, training and operational purposes in domains such as road, rail, aviation, mining and healthcare. However, this has not been accompanied by a similar growth in the expertise required to develop and use such systems for evaluating human performance. Whether for research or practitioner purposes, many of the challenges in assessing operator performance, both using simulation and in natural environments, are common. What performance measures should be used, what technology can support the collection of these measures across the different designs, how can other methods and performance measures be integrated to complement objective data, how should behaviours be coded and the performance standards measured and defined? How can these approaches be used to support product development and training, and how can performance within these complex systems be validated? This series addresses a shortfall in knowledge and expertise by providing a unique and dedicated forum for researchers and experienced users of simulation and field-based assessment methods to share practical experiences and knowledge in sufficient depth to facilitate delivery of practical guidance.

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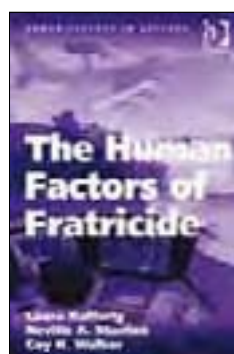
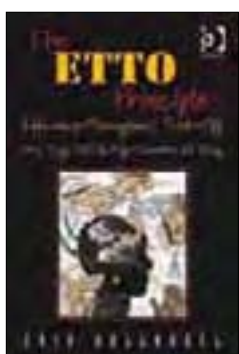
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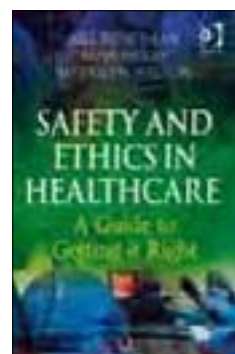
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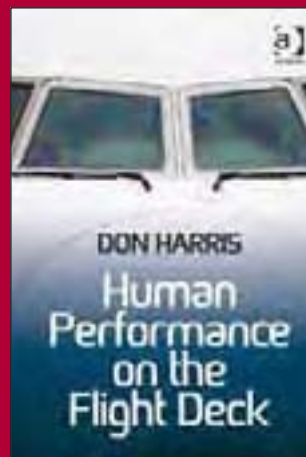
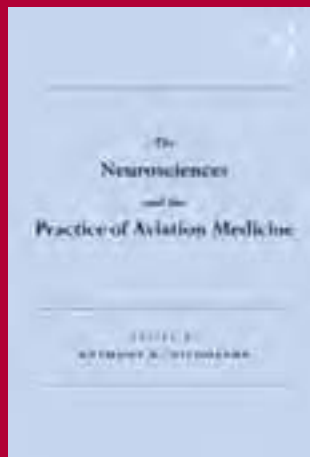
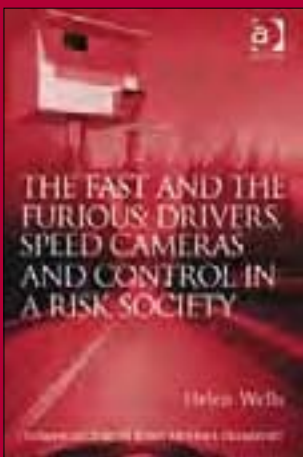
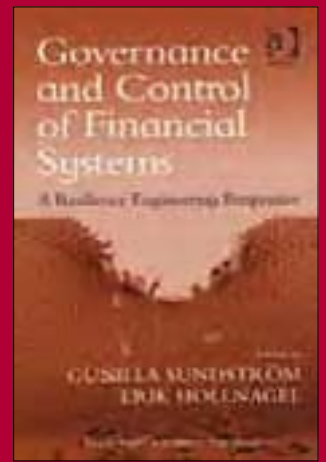
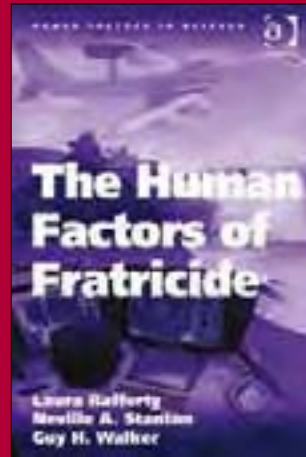
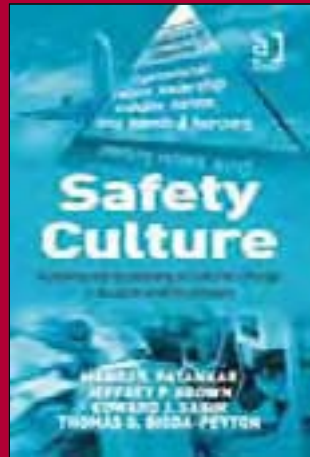
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