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Cognition and Safety

An Integrated Approach to Systems Design and Assessment
Oliver Sträter

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Safety suffers from the variety of methods and models that are used to assess human performance. For example, operation is concerned primarily with human error, while design deals with aligning the system to workload or situational awareness, and the gap between the two disassociates safety assessment from design. As a result, system design creates constraints for the operator working at the sharp-end, which will inevitably lead to human error. Accidents and incidents across all industries have demonstrated the safety significance of this gap.

Cognition and Safety provides an integrated view of cognitive human issues to better enhance safety. It combines operational with design-related concepts of cognitive performance to provide an approach for safely managing cognitive issues throughout the lifecycle of a system, from operational to senior management levels.

The book will be of direct interest to operational managers, designers, training specialists, safety managers and operational staff dealing with human factors and safety issues; scientists in the area of safety, ergonomics and human factors; regulators dealing with safety and human factors, and practitioners in the field of human reliability.

Contents

Part I Concerns: The need to model cognition in safety; The genesis of modelling cognition in safety. Part II Integration: The cognitive processing loop; Mechanisms of cognitive performance and error. Part III Application: Implications for cognitive system design; Assessment of cognitive performance in safe operations; Integration of cognitive performance; Perspectives; Author index; Keyword index.

About the Author/Editor

Dr Oliver Sträter is with the European organization for the safety of air navigation (EUROCONTROL) in the Safety and Security Management Business Unit, developing their long-term safety strategy. He is also a member of German Reactor Safety Commission for the topic of Man Technology and Organization. Previously he counselled for the International Atomic Energy Agency (IAEA), the Nuclear Regulatory Commission (NRC) of the United States, the Swiss Regulatory Body (HSK), and the OECD Halden Reactor Project.

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