Synthesis Lectures on
Ocean Systems Engineering

SYNTHESIS
COLLECTION OF TECHNOLOGY

Alexander Arnfinn Olsen

Hazard and Risk Analysis for Organisational Safety Management

Springer

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Preface

Many industries and sectors operate in hazardous and dangerous conditions. For example, the global maritime industry loses on average two vessels every day; pays out in excess $4 million in claims; and radically changes the lives of hundreds of people. Human behaviour is the source of virtually all accidents and incidents in the workplace. It is also why the loss is not significantly greater. This book is intended for non-practitioner level professionals involved in organisational safety management. It is suitable for all professionals who must be cognisant of the legal, moral, operational, and commercial demands placed on organisations to provide Safe Systems of Work (SSOW) through formal Safety Management Systems (SMS). By the end of this book, readers will be able to explain the core themes and principles of organisational safety management and apply these core principles to their work environment.

Southampton, UK
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Alexander Arnfinn Olsen

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Abbreviations and Acronyms

ALARP	As Low As Reasonably Practicable
CA	Criticality Analysis
CENELEC	French: Comité Européen de Normalisation Électrotechnique English: European Committee for Electrotechnical Standardisation
DRACAS	Data Reporting Analysis and Corrective Action System
DTI	Department for Trade and Industry (United Kingdom)
E/E/PE	Electrical/Electronic/Programmable Electronic
ESO	European Committees for Standardisation
ETA	Event Tree Analysis
EUC	Equipment Under Consideration
FHA	Failure Hazard Analysis
FMEA	Failure Modes and Effects Analysis
FMECA	Failure Mode, Effects & Criticality Analysis
FRACAS	Failure Reporting, Analysis, and Corrective Action System
FTA	Fault Tree Analysis
GAMAB	French: Globalement au moins aussi bon English: Globally at least as good
GAME	French: Globalement au moins équivalent English: Globally as least as good
HAZOPS	Hazard and Operability Study
HEART	Human Error Assessment and Reduction Techniques
HSE	Health and Safety Executive (United Kingdom)
HUD	Head Up Display
ICI	Imperial Chemical Industries (1926–2008)
ISS	International Space Station
MEM	German: Minimale Endogene Mortalität English: Minimum Endogenous Mortality
MOD	Ministry of Defence (United Kingdom)

MOTU	Maritime Operational Training Unit
NATO	North Atlantic Treaty Organisation
OHHA	Occupational Health Hazard Analysis
OSHA	Operating and Support Analysis
PSC	Project Safety Committee
RAF	Royal Air Force (United Kingdom)
SCP	Supplementary Conditioning Pack
SFARP	So Far As Is Reasonably Practicable
SHA	Systems Hazard Analysis
SHERPA	Systematic Human Error Reduction and Process Analysis
SIL	Safety Integrity Level
SMS	Safety Management System
SPAR(H)	Systematic Human Error Reduction and Process Analysis (Human Reliability Analysis)
SWIFT	Structured What If Techniques
THERP	Human Error Rate Prediction
ZHA	Zonal Hazard Analysis