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Engaging the Next Generation of Aviation Professionals is an edited volume that brings together a diverse set of academic and professional perspectives within the three themes of attracting, educating, and retaining the next generation of aviation professionals (NGAP). This compilation is the first academic work specifically targeting this critical issue. The book presents a rich variety of perspectives, academic philosophies, and real-world examples. Submissions include brief case studies, longer scholarly works from respected academics, and professional reflections from individuals who have made important contributions to their field. The book includes academic chapters that explore the topic from a more theoretical standpoint yet are accessible and understandable to a professional audience. These are complemented by both broad and specific practice examples that describe initiatives and applications occurring in the industry around the three themes. All submissions include descriptive insights, experiences, and first-hand accounts of accomplishments, intended to support the work of other professionals managing NGAP issues. This work will be valuable to anyone involved in attracting, educating, or retaining NGAP, including academics, operators, national and international regulators, and outreach coordinators, among many others.

As part of the national effort to improve aviation safety, the Federal Aviation Administration (FAA) chartered the National Research Council to examine and recommend improvements in the aircraft certification process currently used by the FAA, manufacturers, and operators.

The new edition of Crew Resource Management reflects advancements made in the conceptual foundation as well as the methods and approaches of applying CRM in the aviation industry. Because CRM training has the practical goal of enhancing flight safety through more effective flight crew performance, this new edition adapts itself to fit the users, the task, and operational and regulatory environments--all of which continually evolve. Each contributor examines techniques and presents cases that best illustrate CRM concepts and training. This book discusses the history and research foundation of CRM and also stresses the importance of making adaptive changes and advancements. New chapters include: CRM and Individual Resilience; Flight and Cabin Crew Teamwork: Improving Safety in Aviation: CRM and Risk Management/Safety Management Systems; and MRM for Technical Operations. This book provides a deep understanding of CRM--what it is, how it works, and how to practically implement an effective program. Addresses the expanded operating environment--pilots, flight attendants, maintenance, etc. Assists developers and practitioners in building effective programs Describes best practices and tools for supporting CRM training in individual organizations Highlights new advances and approaches to CRM Includes five completely new chapters

Aviation has grown leaps and bounds within the last decade. Aviation courses and training at all levels have shown an exponential increase around the globe. There has been a restricted focus on writing books in this sector of the economy, mainly due to the shortage of expertise in this specialist and complex area. This book was written with the purpose of meeting this need of the aviation sector. Due to the diversified nature of aviation knowledge, which includes flying, engineering, airports, allied trades for

aircraft and airports, airline and airport management and operations, education, etc., one text alone will not suffice and do justice to address all these areas. It is envisaged to develop subsequent parts of this book to cover all these knowledge areas. This book is the first installment of any subsequent books and explores issues including airline management and operations, airline business models, airport systems, flight operational procedures, aircraft maintenance, runway safety management systems, and air traffic management. In particular, attention will be given to aspects such as analysis of air traffic in a domestic market, runway safety management systems, critical success factors for multiple MRO service providers, key pain points of the industry to be addressed to move into the future, new research on hub airports for international flights, new business models for airlines, and runway safety management systems. This book is useful to aviation managers, educators, students, and professionals interested in any of the above issues.

This volume describes how safety can change from being protective to being productive, thereby improving the resilience of the system. This is the fifth book published within the Ashgate Studies in Resilience Engineering series. The first introduced resilience engineering broadly. The second and third established the research foundation for the real-world applications that then were described in the fourth volume: Resilience Engineering in Practice. The current volume continues this development by focusing on the role of resilience in the development of solutions.

Nearly everyone experiences fatigue, but some professions--such as aviation, medicine and the military--demand alert, precise, rapid, and well-informed decision making and communication with little margin for error. The potential for fatigue to negatively affect human performance is well established. Concern about this potential in the aviation context extends back decades, with both airlines and pilots agreeing that fatigue is a safety concern. A more recent consideration is whether and how pilot commuting, conducted in a pilot's off-duty time, may affect fatigue during flight duty. In summer 2010 the U.S. Congress directed the Federal Aviation Administration (FAA) to update the federal regulations that govern pilot flight and duty time, taking into account recent research related to sleep and fatigue. As part of their directive, Congress also instructed FAA to have the National Academy of Sciences conduct a study on the effects of commuting on pilot fatigue. The book reviews research and other information related to the prevalence and characteristics of commuting; to the science of sleep, fatigue, and circadian rhythms; to airline and regulatory oversight policies; and to pilot and airline practices. Also discusses the policy, economic, and regulatory issues that affect pilot commuting, and outlines potential next steps, including recommendations for regulatory or administrative actions, or further research by the FAA.

This comprehensive book describes in practical terms - underpinned by research - how recruitment, selection, and psychological assessment can be conducted amongst pilots. The chapters emphasize evidence-based and ethical selection methods for different pilot groups. It includes chapters written by experts in the field and also covers related areas, such as air traffic controllers and astronauts. The book is written for airline managers, senior pilots responsible for recruitment and training, human resources specialists, human factors and safety specialists, occupational health doctors, psychologists, AMEs, practitioners or academics involved in pilot selection. Robert Bor, DPhil CPsychol CSci FBPsS HonFRAeS UKCP Reg EuroPsy, is a Registered and Chartered Clinical Counselling and Health Psychologist, Registered Aviation Psychologist and Co-Director of the Centre for Aviation Psychology. Carina Eriksen, MSc DipPsych CPsychol FBPsS

BABCP, is an HCPC Registered and BPS Chartered Consultant Counselling Psychologist and Registered Aviation Psychologist. Todd P. Hubbard, B.A., M.S. Aeronautical Sciences, Ed.D. Applied Educational Studies in Aviation, Lt. Col. USAF (ret.), is the Clarence E. Page Professor of Human Factors research, University of Oklahoma. Ray King, Psy,D., J.D. is a licensed clinical psychologist, recently retired from the U.S. Air Force, currently with the U.S. Federal Aviation Administration (FAA).

Practical Aviation Security: Predicting and Preventing Future Threats, Third Edition is a complete guide to the aviation security system, from crucial historical events to the policies, policymakers, and major terrorist and criminal acts that have shaped the procedures in use today, as well as the cutting edge technologies that are shaping the future. This text equips readers working in airport security or other aviation management roles with the knowledge to implement effective security programs, meet international guidelines, and responsibly protect facilities or organizations of any size. Using case studies and practical security measures now in use at airports worldwide, readers learn the effective methods and the fundamental principles involved in designing and implementing a security system. The aviation security system is comprehensive and requires continual focus and attention to stay a step ahead of the next attack. Practical Aviation Security, Third Edition, helps prepare practitioners to enter the industry and helps seasoned professionals prepare for new threats and prevent new tragedies. Covers commercial airport security, general aviation and cargo operations, threats, threat detection and response systems, as well as international security issues Lays out the security fundamentals that can ensure the future of global travel and commerce Applies real-world aviation experience to the task of anticipating and deflecting threats Includes updated coverage of security related to spaceport and unmanned aerial systems, focusing on IACO (International Civil Aviation Organization) security regulations and guidance Features additional and updated case studies and much more

Written by a range of international industry practitioners, this book offers a comprehensive overview of the essence and nature of airline operations in terms of an operational and regulatory framework, the myriad of planning activities leading up to the current day, and the nature of intense activity that typifies both normal and disrupted airline operations. The first part outlines the importance of the regulatory framework underpinning airline operations, exploring how airlines structure themselves in terms of network and business model. The second part draws attention to the operational environment, explaining the framework of the air traffic system and processes instigated by operational departments within airlines. The third part presents a comprehensive breakdown of the activities that occur on the actual operating day. The fourth part provides an eye-opener into events that typically go wrong on the operating day and then the means by which airlines try to mitigate these problems. Finally, a glimpse is provided of future systems, processes, and technologies likely to be significant in airline operations. Airline Operations: A Practical Guide offers valuable knowledge to industry and academia alike by providing readers with a well-informed and interesting dialogue on critical functions that occur every day within airlines.

QF32 is the award winning bestseller from Richard de Crespigny, author of the forthcoming Fly!: Life Lessons from the Cockpit of QF32 On 4 November 2010, a flight from Singapore to Sydney came within a knife edge of being one of the world's worst air disasters. Shortly after leaving Changi Airport, an explosion shattered Engine 2 of Qantas flight QF32 - an Airbus A380, the largest and most advanced passenger plane ever built. Hundreds of pieces of shrapnel ripped through the wing and fuselage, creating chaos as vital flight systems and back-ups were destroyed or degraded. In other hands, the plane might have been lost with all 469 people on board, but a supremely experienced flight crew, led by Captain Richard de Crespigny, managed to land the crippled aircraft and safely disembark the passengers after hours of nerve-racking effort. Tracing Richard's life and career up until that fateful flight, QF32 shows exactly what goes into the making of a top-level airline

pilot, and the extraordinary skills and training needed to keep us safe in the air. Fascinating in its detail and vividly compelling in its narrative, QF32 is the riveting, blow-by-blow story of just what happens when things go badly wrong in the air, told by the captain himself. Winner of ABIA Awards for Best General Non-fiction Book of the Year 2013 and Indie Awards' Best Non-fiction 2012 Shortlisted ABIA Awards' Book of the Year 2013

The increasing complexity and automation of flight control systems pose a challenge to federal policy regarding aircraft certification and pilot training. Despite significant commercial aviation safety improvements over the past two decades, flight control automation and aircraft complexity have been cited as contributing factors in a number of major airline accidents, including two high-profile crashes overseas involving the recently introduced Boeing 737 Max variant in 2018 and 2019. These crashes have directed attention to Federal Aviation Administration (FAA) oversight of aircraft type certification and pilot training practices for transport category aircraft, particularly as they pertain to complex automated flight control systems. As aircraft systems have evolved over the past three decades to incorporate new technologies, Congress has mandated FAA to streamline certification processes, with the primary motivation being to facilitate the development of new safety-enhancing technologies. Modern commercial aircraft rely on "fly-by-wire" flight control technologies, under which pilots' flight control inputs are sent to computers rather than through direct mechanical linkages to flight control systems. The fly-by-wire software contains flight control laws and logic that, in addition to optimizing performance efficiency, protect the aircraft from commanded actions that could put the airplane in an unsafe state. Automated flight control systems have largely been viewed as having a positive effect on safety, and accident rates have improved considerably over the past two decades. However, the increasing complexity of automated flight systems has sometimes caused confusion and uncertainty, contributing to improper pilot actions during critical phases of flight and in some cases leading pilots to unintentionally place an aircraft in an unsafe condition. Besides designing these systems in a manner that minimizes pilot errors and the consequences of those errors, aircraft designers and operators face challenges regarding maintaining piloting skills for flight crews to be able to take over and manually fly the aircraft safely if critical systems fail. They also face challenges regarding documentation and pilot training effectiveness in building accurate mental models of how these complex systems operate. The primary goals of ongoing efforts to address these challenges are to enhance pilot situation awareness when using automation and reduce the likelihood of mode errors and confusion, while at the same time not overburdening pilots with intricate systems knowledge beyond what is necessary. In the ongoing investigations of two Boeing 737 Max crashes, Lion Air flight 610 and Ethiopian Airlines flight 302, concerns have been raised about the design of an automated feature called the Maneuvering Characteristics Augmentation System (MCAS) and its reliance on a single angle-of-attack sensor even though the aircraft is equipped with two such sensors. These concerns led to the worldwide grounding of all Boeing 737 Max aircraft until the MCAS safety concerns can be resolved, significantly impacting both U.S. and foreign airlines that operate the aircraft. These recent aviation accidents have prompted reviews of the manner in which modern transport category aircraft are certified by FAA and its foreign counterparts, and in particular, the roles of regulators and manufacturers in the certification process. The challenges of

certifying increasingly complex aircraft are largely being met by delegating more of FAA's certification functions to aircraft designers and manufacturers. This raises potential conflicts between safety and quality assurance on the one hand and competitive pressures to market and deliver aircraft on the other. Under Organization Designation Authorization (ODA), FAA can designate companies to carry out delegated certification functions on its behalf.

This is the fifth book published within the Ashgate Studies in Resilience Engineering series. The first volume introduced resilience engineering broadly. The second and third volumes established the research foundation for the real-world applications that then were described in the fourth volume: Resilience Engineering in Practice. The current volume continues this development by focusing on the role of resilience in the development of solutions. Since its inception, the development of resilience engineering as a concept and a field of practice has insisted on expanding the scope from a preoccupation with failure to include also the acceptable everyday functioning of a system or an organisation. The preoccupation with failures and adverse outcomes focuses on situations where something goes wrong and the tries to keep the number of such events and their (adverse) outcomes as low as possible. The aim of resilience engineering and of this volume is to describe how safety can change from being protective to become productive and increase the number of things that go right by improving the resilience of the system.

International aviation is a massive and complex industry that is crucial to our global economy and way of life. Designed for the next generation of aviation professionals, Fundamentals of International Aviation, second edition, flips the traditional approach to aviation education. Instead of focusing on one career in one country, it introduces readers to the air transport sector on a global scale with a broad view of all the interconnected professional groups. This text provides a foundation of ‘how aviation works’ in preparation for any career in the field (including regulators, maintenance engineers, pilots, flight attendants, airline and airport managers, dispatchers, and air traffic controllers, among many others). Each chapter introduces a different cross-section of the industry, from air law to operations, security to environmental impacts. A variety of learning tools are built into each chapter, including 24 case studies that describe an aviation accident related to each topic. This second edition adds new learning features, geographic representation from Africa, a new chapter on economics, full-color illustrations, and updated and enhanced online resources. This accessible and engaging textbook provides a foundation of industry awareness that will support a range of aviation careers. It also offers current air transport professionals an enriched understanding of the practices and challenges that make up the rich fabric of international aviation.

Grab the top spot in your industry by seizing the power of IoT Smart products are everywhere. They’re in our companies, in our homes, in our pockets. People love these products. But what they love more is what these products do—and for anyone running a business today, outcomes are the key. The Internet of Things (IoT) is the point of connection between products and the results they deliver—it’s where products become software. IoT Inc. explains everything you need to know to position your company within this powerful new network. And once you do, you’ll leave the competition in the dust. Founder and president of today’s leading IoT business consulting firm, Bruce Sinclair has been helping companies develop IoT strategies for a decade—far longer than the

term has even existed. This essential guide provides an in-depth look into IoT—how it works and how it is transforming business; methods for seeing your own business, customers, and competitors through the lens of IoT, and a deep dive into how to develop and implement a powerful IoT strategy. IoT isn't a new business trend. It's the new way of business. Period. The IoT wave is heading for your industry. You can either meet it head-on, and ride it to success, or you can turn your back and let it swamp you. This is your playbook for transforming your company into a major player in the IoT Outcome economy.

Whether a trainee is studying air traffic control, piloting, maintenance engineering, or cabin crew, they must complete a set number of training 'hours' before being licensed or certified. The aviation industry is moving away from an hours-based to a competency-based training system. Within this approach, training is complete when a learner can demonstrate competent performance. Training based on competency is an increasingly popular approach in aviation. It allows for an alternate means of compliance with international regulations - which can result in shorter and more efficient training programs. However there are also challenges with a competency-based approach. The definition of competency-based education can be confusing, training can be reductionist and artificially simplistic, professional interpretation of written competencies can vary between individuals, and this approach can have a high administrative and regulatory burden. Competency-Based Education in Aviation: Exploring Alternate Training Pathways explores this approach to training in great detail, considering the four aviation professional groups of air traffic control, pilots, maintenance engineers, and cabin crew. Aviation training experts were interviewed and have contributed professional insights along with personal stories and anecdotes associated with competency-based approaches in their fields. Research-based and practical strategies for the effective creation, delivery, and assessment of competency-based education are described in detail.

Be prepared for the arrival of automated decision making Once thought of as science fiction, major corporations are already beginning to use cognitive systems to assist in providing wealth advice and also in medication treatment. The use of Cognitive Analytics/Artificial Intelligence (AI) Systems is set to accelerate, with the expectation that it'll be considered 'mainstream' in the next 5 – 10 years. It'll change the way we as individuals interact with data and systems—and the way we run our businesses. Cognitive Analysis and AI prepares business users for the era of cognitive analytics / artificial intelligence. Building on established texts and commentary, it specifically prepares you in terms of expectation, impact on personal roles, and responsibilities. It focuses on the specific impact on key industries (retail, financial services, utilities and media) and also on key professions (such as accounting, operational management, supply chain and risk management). Shows you how users interact with the system in natural language Explains how cognitive analysis/AI can source 'big data' Provides a roadmap for implementation Gets you up to speed now before you get left behind If you're a decision maker or budget holder within the corporate context, this invaluable book helps you gain an advantage from the deployment of cognitive analytics tools.

This book covers the application of psychological principles and techniques to situations and problems of aviation. It offers an overview of the role psychology plays in aviation, system design, selection and training of pilots, characteristics of pilots, safety, and passenger behavior. It covers concepts of psychological research and data analysis and shows how these tools are used in

the development of new psychological knowledge. The new edition offers material on physiological effects on pilot performance, a new chapter on aviation physiology, more material on fatigue, safety culture, mental health and safety, as well as practical examples and exercises after each chapter.

Practice-based learning—the kind of education that comes from experiencing real work in real situations—has always been a prerequisite to qualification in professions such as medicine. However, there is growing interest in how practice-based models of learning can assist the initial preparation for and further development of skills for a wider range of occupations. Rather than being seen as a tool of first-time training, it is now viewed as a potentially important facet of professional development and life-long learning. This book provides perspectives on practice-based learning from a range of disciplines and fields of work. The collection here draws on a wide spectrum of perspectives to illustrate as well as to critically appraise approaches to practice-based learning. The book's two sections first explore the conceptual foundations of learning through practice, and then provide detailed examples of its implementation. Long-standing practice-based approaches to learning have been used in many professions and trades. Indeed, admission to the trades and major professions (e.g. medicine, law, accountancy) can only be realised after completing extended periods of practice in authentic practice settings. However, the growing contemporary interest in using practice-based learning in more extensive contexts has arisen from concerns about the direct employability of graduates and the increasing focus on occupation-specific courses in both vocations and higher education. It is an especially urgent issue in an era of critical skill shortages, rapidly transforming work requirements and an aging workforce combined with a looming shortage of new workforce entrants. We must better understand how existing models of practice-based learning are enacted in order to identify how they can be applied to different kinds of employment and workplaces. The contributions to this volume explore ways in which learning through practice can be conceptualised, enacted, and appraised through an analysis of the traditions, purposes, and processes that support this learning—including curriculum models and pedagogic practices.

Official magazine of international civil aviation.

TRB's Airport Cooperative Research Program (ACRP) Report 20: Strategic Planning in the Airport Industry explores practical guidance on the strategic planning process for airport board members, directors, department leaders, and other employees; aviation industry associations; a variety of airport stakeholders, consultants, and other airport planning professionals; and aviation regulatory agencies. A workbook of tools and sequential steps of the strategic planning process is provided with the report as on a CD. The CD is also available online for download as an ISO image or the workbook can be downloaded in pdf format.

Cockpit Resource Management (CRM) has gained increased attention from the airline industry in recent years due to the growing number of accidents and near misses in airline traffic. This book, authored by the first generation of CRM experts, is the first comprehensive work on CRM. Cockpit Resource Management is a far-reaching discussion of crew coordination, communication, and resources from both within and without the cockpit. A valuable resource for commercialand military airline training curriculum, the book is also a valuable reference for business professionals who are interested in effective communication among interactive personnel. Key Features * Discusses international

and cultural aspects of CRM * Examines the design and implementation of Line-Oriented Flight Training (LOFT) * Explains CRM, LOFT, and cockpit automation * Provides a case history of CRM training which improved flight safety for a major airline

Providing a practical guide to the training and assessment of non-technical skills within high-risk industries, this book will be of direct interest to safety and training professionals working within aviation, healthcare, rail, maritime, and other high-risk industries. Currently, each of these industries are working to integrate non-technical skills into their training and certification processes, particularly in light of increasing international regulation in this area. However, there is no definitive guidance to assist practitioners within these areas with the design of effective non-technical skills training and assessment programs. This book sets out to fully meet this need. It has been designed as a practically focussed companion to the 2008 book Safety at the Sharp End by Flin, O'Connor and Crichton. While Safety at the Sharp End provides the definitive exploration of the need for non-technical skills training, and examines in detail the main components of non-technical skills as they relate to safe operations, the text does not focus on the "nuts and bolts" of designing training and assessment programs. To this end, Training and Assessing Non-Technical Skills: A Practical Guide provides an extension of this work and a fitting companion text.

"This forecast represents an independent study of civil aviation personnel dynamics for the next 20 years and contributes to the unbiased aviation data and traffic forecasts for which the International Civil Aviation Organization (ICAO) is recognized. Its exclusive findings are based on first-hand information collected from different air transport industry stakeholders. Executives of airlines, maintenance, repair and overhaul organizations; aircraft manufacturers; air navigation service providers; and civil aviation authority officials with a professional interest in air transport human resource planning will appreciate this first edition of one of the foremost works in the field. Training institutions, future aviation professionals, as well as aviation consulting businesses, will also consider it a valuable resource."--Publishers Web site.

TRB's Airport Cooperative Research Program (ACRP) Report 25, Airport Passenger Terminal Planning and Design comprises a guidebook, spreadsheet models, and a user's guide in two volumes and a CD-ROM intended to provide guidance in planning and developing airport passenger terminals and to assist users in analyzing common issues related to airport terminal planning and design. Volume 1 of ACRP Report 25 explores the passenger terminal planning process and provides, in a single reference document, the important criteria and requirements needed to help address emerging trends and develop potential solutions for airport passenger terminals. Volume 1 addresses the airside, terminal building, and landside components of the terminal complex. Volume 2 of ACRP Report 25 consists of a CD-ROM containing 11 spreadsheet models, which include practical learning exercises and several airport-specific sample data sets to assist users in determining appropriate model inputs for their situations, and a user's guide to assist the user in the correct use of each model. The models on the CD-ROM include such aspects of terminal planning as design hour determination, gate demand, check-in and passenger and baggage screening, which require complex analyses to support planning decisions. The CD-ROM is also available for download from TRB's website as an ISO image.

The book provides a data-driven approach to real-world crew resource management (CRM) applicable to commercial pilot performance. It addresses the shift to a systems-based resilience thinking that aims to understand how worker performance provides a buffer against failure. This book will be the first to bring these ideas together. Taking a competence-based approach offers a more coherent, relevant approach to CRM. The book presents relevant, real-world examples of the concepts and outlines a change in thinking around pilot performance and data interpretation that is overdue. Airlines, pilots and aviation industry professionals will benefit from the insights into organisational design and alternative approaches to training. FEATURES Approaches CRM from a competence-based perspective Uses a systems model to bring

coherence to CRM Includes a chapter on using blended learning and virtual reality to deliver CRM Features research on work/life balance, morale, pilot fatigue and link to error Operationalises ‘resilience engineering’ in a crew context