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**High Reliability Organizations**  
**and Human and Organizational Error Projects**  
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**PUBLISHED PAPERS**

Roberts, K.H. and M. Grabowski (in press) "Risk Mitigation in Healthcare Organizations and in Aggregations of those Organizations," In M.S. Bogner (Ed.) Human Error in Medicine (2<sup>nd</sup> edition), Hillsdale, NJ: Erlbaum

This paper discusses the healthcare system as a loosely aggregated system. To date no one has addressed the organizational issues concerned with how risk propensity in medical settings is similar to and different from risk in other settings, nor have they provided an organizational framework from which we can examine risk in health care. This paper does that and from this foundation offers a set of organizational processes that need to be examined in healthcare settings and which might suggest practical changes that can be tried in those settings in the interest of safety improvement. It then goes on to identify four processes that might be good candidates for research in organizations tied together as mini systems.

Roberts, K.H. P. Madsen, and V. Desai (in press) "The Space Between in Space Transportation: A Relational Analysis of the Failure of STS 107. In M. Farjoun and W. Starbuck (Eds.) Learning from the Columbia Disaster Malden, MA: Blackwell.

This paper borrows on the relational principles published by Heath C. and N. Staudenmayer (2000) Coordination neglect: How lay theories of organizing complicate coordination in organizations. In B.M. Staw and R.I Sutton (Eds) *Research in Organizational Behavior*, 22, 153-191. Elsevier Science and Bradbury, H., and B.M.B. Lichtenstein (2000) Relationality in organizational research: Exploring the space between. *Organization Science*, 11, 551-564. It uses them to examine the space shuttle Columbia disaster.

Roberts, K.H., P. Madsen, V. Desai, and D. Van Stralen (in press) "A High Reliability Health Care Organization Requires Constant Attention to Organizational Processes," Quality and Safety in Health Care.

This paper describes the Libuser model of high reliability organizations management. It then briefly applies it to the success and failure of a pediatric intensive care unit

Roberts, K.H., V. Desai, and P. Madsen (in press) "Reliability Enhancement and Demise at Back Bay Medical Center's Children's Hospital." In P. Carayon (Ed) Handbook of Human Factors and Ergonomics in Health Care and Patient Safety Mahwah, NJ: Erlbaum.

This paper puts the success and failure experiences of one pediatric intensive care unit within the broad framework of high reliability organizations research findings. It then examines how the organization succeeded and failed along the human resource dimensions derived from that research (the Libuser model).

Roberts, K.H. (2004) "An Interview with Karlene Roberts" The European Management Journal

This short entry describes the high reliability organizations research area.

Roberts, K.H., V. Desai, and P. Madsen (2004) "Organization Reliability, Flexibility, and Security." In E. Kossek and S. Lambert (Eds.) Work and Life Integration. Mahwah: NJ: Erlbaum, 85-102.

This paper discusses how employees in a major metropolitan area's 911 Police Communication Center respond to the work-family segmentation that is a part of the organization's culture. It focuses on both how segmentation occurs and how 911 operators bring life experiences into their work.

Roberts, K.H., Yu, K., and Van Stralen, D. (2004) "Patient Safety as an Organizational Systems Issue: Lessons from a Variety of Industries." In B. Youngberg and M. Hatlie (Eds.) Patient Safety Handbook. Sudbury. MA: Jones and Bartlett, pp. 169-186).

This paper reviews the various applications of concepts from high reliability organizations research. Applications have been made in the U.S. military, the commercial marine industry, commercial aviation, the financial industry, and the medical industry. The prominent people in the patient safety movement wrote other chapters in this compendium.

Roberts, K.H. (2003) "HRO Has Prominent History," Anesthesia Patient Safety Foundation Newsletter. (The Official Journal of the Anesthesia Patient Safety Foundation) 18, 13-14.

This paper discusses the precursors to high reliability organizations research. It then discusses research findings from high reliability organization studies and their implementation in healthcare and other industries.

Roberts, K.H. and C.T. Tadmor (2002) "Lessons Learned from Non-Medical Industries: The Tragedy of the USS Greenville," Quality and Safety in Health Care, 11, 355-357.

In February, 2001, the nuclear powered submarine, USS Greenville, collided with the Japanese fishing trawler, Ehime Maru, killing nine passengers. This incident provides lessons learned that can be borrowed by health care organizations in their efforts to improve patient safety.

Roberts, K.H. (2002) "Catastrophic Organizational Errors: Their Cause and Prevention" In N.J. Smelser and P.B. Baltes (Eds.) International Encyclopedia of the Social and Behavioral Sciences. Amsterdam: Pergamon., 16, 10946-6.

This is a review of the historical research threads that contribute to current day thinking about risk mitigation in organizations. It points out that some current day researchers focus on causes of major catastrophe while others attend situations that could go badly but haven't. The paper then focuses on human factors, probability theory, and behavioral research foundations to understanding risk mitigation.

Bigley G. A. and K.H. Roberts (2001) "Structuring Temporary Systems for High Reliability." Academy of Management Journal, 44, 1281-1300.

Here we investigate the processes through which a highly bureaucratic and temporary system manages extraordinarily dynamic and hazardous environmental conditions. Our inductive study of an emergency management system identifies three interrelated qualities that provide the means for exceptional flexibility and control: contingent structuring mechanisms, support for constrained improvisation, and attention to operational representations. First, contingent structuring mechanisms enable rapid and substantial structural variation in response to swiftly shifting conditions. Second, structural resilience is enhanced through organizational support for the improvisational use of tools, rules, and routines. Third, attention to operational representations throughout the system, which involves the development and management of situational models and meanings, insures that various structuring activities are appropriately enacted and balanced. We argue that the mechanisms and processes explicated here are not unique to highly reliable temporary systems and demonstrate their applicability to various organizations confronting severe crises or hyper-competitive environments.

Bogner, M.S. and K.H. Roberts (2001) "Ergonomics and Cognitive Factors." In L. Zipperer and S. Cushman (Eds.) Lessons in Patient Safety: A Primer. Chicago: National Patient Safety Foundation of the American Medical Association, 55-56.

This is a short introduction to chapter 8 of this compendium that examines literature on systems theory and how it can be applied to maximizing patient safety. The compendium includes similar short introductions by most of the prominent people who work in the patient safety area.

Roberts, K.H. and R.G. Bea (2001) "Must Accidents Happen: Lessons from High Reliability Organizations." Academy of Management Executive, 15 (August), 70-79.

This paper notes the impossibility of avoiding organizational failure all together. It suggests strategies organizations can take to reduce the probability of failure, whether the organization is a sausage factory or a nuclear power plant.

Roberts, K.H. and R.G. Bea (2001) "When Systems Fail." Organizational Dynamics, 29, 179-191.

This paper uses five concepts found in high reliability accidents to generally discuss other organization successes and failures. It then does a more complete analysis of three major commercial marine accidents and an aviation mishap that should have been far worse than it was.

Roberts, K.H. and W. Moore, (2000) "Managing Risk: High Reliability Organizations." Gard News, 160.

This short paper addresses issues of how high reliability organizations work, what they do, and how they do this. It then goes on to specify key elements of high reliability organizations

Roberts, K.H. (2000) "The Real World: Blooming Buzzing Confusion." In National Research Council, Transportation Research Board Risk Management in the Marine Transportation System Washington, DC: National Academy Press.

This paper was prepared for a national maritime audience. It illustrates how the results of research findings from high reliability organizations can be used in managing other organization. It particularly focuses on how managers can identify what need to be changed to render organizations more reliable, how to approach making these changes, some impediments to change, and the cost of change.

Grabowski, M. and K.H. Roberts. (1999) "Risk Mitigation in Virtual Organizations." Organization Science, 10, 704-721.

This paper takes a systems perspective on organizations in which risk mitigation is as much as the bottom line as is productivity. The paper asks the fundamental question, is what we know about risk mitigation in systems of organization relevant to virtual organizations in which error can result in catastrophic consequences. It then examines organization structure and design, culture, and trust, concerns that must be addressed in risk mitigating virtual organizations.

Roberts, K.H. (1999) "Five Ingredients for Patient Safety." Ambulatory Outreach, Fall, 1999, pp. 10-13.

This article, directed to health care professionals, indicates that some organizations in other industries are taking steps to remain completely error free. The article outlines the five characteristics of the Libuser and Roberts risk mitigation model.

Hee, D.D., R.G. Bea, B.D. Pickrell, K.H. Roberts, B. Williamson. (1999) "Safety Management Assessment System (SMAS): A Process for Identifying and Evaluating Human and Organization Factors in Marine Operations with Field Test Results." Reliability, Engineering and System Safety Journal, 65, #2, pp.125-140.

The Safety management Assessment System (SMAS) was developed specifically to identify and evaluate marine systems (offshore platforms, marine terminals, and ships) for Human and Organization Factors (HOF). SMAS has three components: 1) an assessment process, 2) assessor selection criteria and training plan, and 3) an instrument (computer program) to conduct, store and report results. The SMAS process consists of three phases: 1) in-office evaluation of information, 2) system visits (walk-downs), and 3) final review and assessment. SMAS is unique because it incorporates: 1) an assessor selection criteria, 2) a user's training plan, and 3) a technique for capturing uncertainty. SMAS was field tested at a

marine terminal in California by two independent assessor teams and the results showed good consistency.

Roberts, K.H. (1998) "The Cross Cultural Design and Management of High Reliability Organizations and Systems of Organizations: Conceptual Help from the Triandis Review." In J.C. Cheng & R.B. Petersen (Eds.) Advances in International Comparative Management. Greenwich, CT: JAI Press, 12, pp. 67-76.

This is one of a set of four invited essays commenting on Harry Triandis' chapter, "Vertical and Horizontal Individualism and Collectivism: Theory and Research implications for Comparative Management", appearing in the same volume. The paper discusses the contribution Triandis' conceptualization can make to research and theory on high reliability organizations and systems of organizations.

Roberts, K.H. (1997) "The Launch of STS 51-L" Review of Vaughan, D. (1996) The Challenger Launch Decision: Risky Technology, Culture, and Deviance at NASA. Administrative Science Quarterly, 42, 405-410.

This is one of three review essays of Diane Vaughan's award winning book. The other essays appearing in the same volume of Administrative Science Quarterly were written by Karl Weick (University of Michigan) and Scott Sagan (Stanford University). The review concludes that while Vaughan initially took the perspective of looking for perpetrators (name and blame) of the accident, she ultimately took the more informative strategy of examining the complex dynamics in which decision-makers operated. Vaughan nicely situates her story of how NASA engineers dealt with their "unruly technologies" within the framework of Kuhn's description of normal science. This afforded an interesting and novel understanding of the accident.

Roberts, K.H. In R.G. Bea, R.D. Holdsworth & C. Smith (Eds.) (1997) Proceedings of the 1996 International Workshop on Human Factors in Offshore Operations. NY: American Bureau of Shipping.

This paper discusses success stories in risk mitigation from several industries. It concludes by presenting similarities across the industries.

Grabowski, M. and K.H. Roberts. (1997) "Risk Mitigation in Large Scale Systems." California Management Review, 39, 152-162.

This paper discusses risk mitigation in large-scale systems. It directs manager's attention toward the wider, systematic sources of risk and failure and the difficulty in addressing them.

Grabowski, M., J.R. Harrald, and K.H. Roberts. (1997) "Decision Support and Organizational Forms in a High Velocity Environment: Responses to Catastrophic Oil Spills." In M. Grabowski and W.A. Wallace (eds.) Advances in Expert Systems for Management: Evaluation and Value in Knowledge Based Systems. Greenwich, Ct: JAI Press.

This paper discusses appropriate forms of response to catastrophic organizational events. The use of decision support systems is given primary emphasis.

Bea, R.G and K.H. Roberts. (September, 1996) "Crisis Management and the Near Miss." Surveyor (Quarterly Publication of the American Bureau of Shipping).

This paper defines "crisis" and discusses how the maritime industry usually goes about investigating crises. The paper indicates techniques for turning crises into near misses and ends with a discussion of improving crisis management.

Mannarelli, T., K.H. Roberts and R.G. Bea. (1996) "Learning How Organizations Mitigate Risk." Journal of Contingencies and Crisis Management, 4, 83-92.

This is a review of the Berkeley research activities concerned with high reliability organizations and more recently with the other kinds of organizations that need to attend to risk mitigation.

Roberts, K.H. & M. Grabowski. (1996) "Organizations, Technology, and Structuring." In S.R. Clegg, C. Hardy, and W. Nord (eds.) Handbook of Organization Studies. London: Sage, 409-423.

This chapter discusses the development of technology over time. It then relates technology to organizational structure and other organizational processes.

Bea, R.G. and K.H. Roberts. (1996) "Human and Organization Factors in Design, Construction and Operation of Offshore Platforms." Journal of Petroleum Technology. Society of Petroleum Engineers. Richardson, TX.

This paper addresses a broad range of issues concerning safety of offshore platforms. It addresses organizational factors which have not been previously attended in this industry.

Grabowski, M., and K.H. Roberts. (1996) "Human and Organizational Errors in Large Systems." IEEE Transactions on Systems, Man, and Cybernetics, 26, 2-16.

This paper discusses the need to empirically research systems of organizations that operate interdependently. The U.S. Marine transportation system, the U.S. Air Traffic Control system (USATS), and the U.S. Navy's Composite Warfare Command (CWC) are discussed as examples of large scale, interdependent systems.

Klein, R.L., G.A. Bigley, and K.H. Roberts. (1995) "Organization Culture in High Reliability Organizations: An Extension." Human Relations, 48, 1-23.

This paper is an extension of Roberts, Rousseau, and La Porte (1994). It examines the cultural norms in two high reliability, civilian organizations, the U.S. Air Traffic Control System (USATS) and a commercial nuclear power plant.

Roberts, K.H. (1994) "Functional and Dysfunctional Organizational Linkages." In C. Cooper and D.M. Rousseau (eds.) Trends in Organizational Behavior. (vol. 1) Sussex, England: John Wiley and Sons, 1-11.

This paper discusses systems of organizations that operate together to accomplish some task. Often various members of the linkages are unaware of each others presence. Linkages can be horizontal as when several military organizations operate in tandem to carry out a mission, or they can be vertical as when historically behavior in some organization later influences behavior in another organization. Some linkages are functional to smooth organizational operations, some are dysfunctional.

Roberts K.H., S.K. Stout, and J.J. Halpern. (1994) "Decision Dynamics in Two High Reliability Military Organizations." Management Science, 40, 614-624.

Individual decision making propensities, such as the tendency toward miserliness, the impact of accountability, and the effects of commitment on a decision maker's behavior, are examined in the context of organizational constraints on decision making (such as the existence of SOPs and restriction in amount of information flow). The operation of these propensities and constraints are illustrated with two decision making scenarios drawn from two aircraft carriers.

Roberts, K.H., D.M. Rousseau, and T.R. La Porte. (1994) "The Culture of High Reliability: Quantitative and Qualitative Assessment Aboard Nuclear Powered Aircraft Carriers." Journal of High Technology Management Research, 5, 141-161.

This paper examines cultural norms in three high reliability military organizations. It notes the limitations to assessing culture in these kinds of organizations.

Roberts, K.H., and M. Grabowski. (1994) "Human Systems in the Marine Industry." In National Academy of Science, Marine Navigation and Piloting: Minding the Helm. Washington, D.C.: National Academy Press.

This chapter examines the human systems components of the United States marine industry. It focuses on the impacts of loose connectedness within and across marine systems on piloting, navigation, and safety. The conclusion is drawn that insufficient research resources have been generated by government and the industry to fully understand the limits of safety within the industry.

Weick, K.E., and K.H. Roberts. (1993) "Collective Mind and Organizational Reliability: The Case of Flight Operations on an Aircraft Carrier Deck." Administrative Science Quarterly, 38, 357-381.

The concept of collective mind is developed to explain how organizations such as nuclear powered super carriers produce reliable performance. Collective mind is conceptualized as a capacity for heedful interrelating. Variation in this capacity affects the ability of a system to maintain a working similarity between itself and a complex dangerous environment. The more developed the capacity for mindful performance, the greater the comprehension and the fewer the errors. To illustrate how the language of mind can be a useful shorthand for the rich details found in complex systems, flight operations on a carrier are analyzed as if there is a mind at work here.

Roberts, K.H., and C. Libuser. (1993) "From Bhopal to Banking: Organizational Design can Mitigate Risk." Organizational Dynamics, 21, 15-26.

This is a tale of two banks, one that found itself on the brink of collapse, the other that achieved record profitability despite a recession. Interestingly, the organizational principles that made the difference are similar to those principles that mitigate risk in any industry.

Roberts, K.H. (1993) "Some Aspects of Organizational Cultures and Strategies to Manage Them in Reliability Enhancing Organizations." Journal of Managerial Issues, 5, 165-181.

This paper describes field observations of organizational cultures in military organizations, nuclear power plants, and air traffic control centers. It also presents information about the safety records of these systems.

Creed, W.E.D., S.K. Stout, and K.H. Roberts. (1993) "Organizational Effectiveness as a Theoretical Foundation for Research on Reliability Enhancing Organizations." In K.H. Roberts (ed.), New Challenges to Understanding Organizations. New York: Macmillan, 40-53.

This paper examines reliability as an aspect of effectiveness by answering seven questions posed earlier by Cameron and Whetton. The questions are: 1) from whose perspective is effectiveness judged? 2) on what domain of activity is analysis focused? 3) what level of analysis is used? 4) what is the purpose for assessing effectiveness? 5) what time frame is employed? 6) what type of data are used for judgments of effectiveness? 7) what is the referent against which effectiveness is judged?

Roberts, K.H., and W.H. Moore. (1993) "Bligh Reef Dead Ahead: The Grounding of the Exxon Valdez." In K. H. Roberts (ed.), New Challenges to Understanding Organizations. New York: Macmillan, 157-167.

This paper describes the grounding of the Exxon-Valdez from an organizational perspective. It faults the cultures and lack of training in the organizations involved as well as the inability to deal with the complexity of the situation.

Roberts, K.H. (1992) "Structuring to Facilitate Migrating Decisions in Reliability Enhancing Organizations." In L. Gomez-Mehia & M.W. Lawless (Eds.) Top Management and Effective Leadership in High Technology Firms, 3, Greenwich, CT: JAI Press, 171-192.

This paper examines the organizational strategies used by two reliability enhancing organizations to insure decision migration in them. Organization structure, management by negation, redundancy, and the utilization of procedures are four strategies that appear to encourage decision migration while, at the same time, allowing the organizations sufficient control.

Roberts, K.H. (1990) "Managing Hazardous Organizations." California Management Review, 32 (Summer), 101-113.

This article addresses the following issues: What characterizes the operation of potentially hazardous organizations with long histories of nearly failure free operations? How can managers know whether their organizations are hazardous or potentially hazardous? What

steps can be taken to ameliorate the potentially negative effects of design strategies that might result in catastrophic outcomes?

Roberts, K.H. (1990) "Some Characteristics of High Reliability Organizations." Organization Science, 1(2), 160-177.

This paper identifies some characteristics of high reliability organizations that are similar to or different from those characteristics of high risk organizations identified by Perrow (1984) and Shrivastava (1987) in their analyses of major organizational catastrophes. The paper shows how high reliability organizations mediate against some of the dysfunctional characteristics of high risk organizations. Examples are drawn from USS Carl Vinson, USS Enterprise, USS Theodore Roosevelt and an Air Force phased array early warning system.

Roberts, K.H. (1989) "New Challenges to Organizational Research: High Reliability Organizations." Industrial Crisis Quarterly, 3, 111-125.

A description of a multi-disciplinary project concerned with the design and management of organizations that achieve extremely high levels of reliable and safe operations. The paper describes the research strategy and presents some initial paradoxes and findings.

Roberts, K.H. (1989) "An Evaluative Review of Perrow's Normal Accidents." Academy of Management Review, 14, 285-289.

This review focuses on the influence of Perrow's book on Robert's research on "high reliability organizations" via her response to a number of issues raised in the book.

Roberts, K.H. and G. Gargano. (1989) "Managing a High Reliability Organization: A Case for Interdependence." In M.A. Von Glinow and S. Mohrmon, (Eds.) Managing Complexity in High Technology Industries: Systems and People. New York: Oxford University Press, 147-159.

This paper defines five types of interdependence that can occur in high reliability organizations. It then presents a number of tensions that the organizational literature predicts about interdependence and related issues in high risk organizations. These paradoxes are illustrated through observational and questionnaire data collected aboard USS Enterprise and USS Carl Vinson.

Roberts, K.H. and D.M. Rousseau. (1989) "Research in Nearly Failure-Free, High Reliability Systems: 'Having the Bubble'." IEEE Transactions, 36, 132-139.

The methodological challenges and problems of doing research in high reliability organizations are described. The paper begins with a description of the distinctiveness of high reliability organizations; then discusses issues of entre, problem identification, studying systems and events, data gathering and interpretation.

Roberts, K.H. and S.B. Sloane. (1988) "An Aggregation Problem and Organizational Effectiveness." In B. Schneider and D. Schoornman, (Eds.) Facilitating Work Effectiveness Lexington, MA: Lexington Press, 125-144.

This paper briefly reviews the major aggregation issues in organization research. It then focuses on the linkage problem as an aggregation issue. The simultaneous presence of three kinds of linkages (function, communication, and authority) are illustrated by observations aboard USS Carl Vinson.

Rochlin, G.I., T.R. La Porte, and K.H. Roberts. (1987) "The Self-Designing High-Reliability Organization: Aircraft Carrier Flight Operations at Sea." Naval War College Review, 40(4), 76-90.

Aircraft carrier flight operations at sea are beset with a number of paradoxes if analyzed in terms used to describe "conventional" organizations. This paper explores organizational self-design as a response to operational demands, and the ways in which the Navy makes the best use of factors such as high turnover and structural ambiguity, which are normally treated as negative (counter-productive) factors in analyzing organizational performance. The paper concludes that many naval "traditions" and SOPs are functional modalities for transferring cumulative organizational learning across generations.

## **BOOK**

Roberts, K.H. (1993) (Ed.) New Challenges to Organization Research: High Reliability Organizations. New York: Macmillan.

A collection of papers by a variety of authors who discuss high reliability organizations and related issues.

## **PRESENTATIONS**

Roberts, K.H. "Keynote Address." American Society for Healthcare Risk Management of the American Hospital Association annual conference. Orlando, FL: October, 19, 2004.

Roberts, K.H. "Organizational Design for Highly Reliable Performance." Workshop for Organizational Design, New York University, New York City, June 4-6, 2004.

Roberts, K.H. "High Reliability Organizations Research and its Practical Application." Shell Chemicals Health Safety and Environmental Leadership Group, Houston, TX: May 21, 2004.

Roberts, K.H. "Regulators and Regulatees: A Systems Perspective on High Reliability Organizational Performance." Universite de Technologie de Compeigne, Paris, France, April 28, 2004.

Roberts, K.H. "High Reliability Organizations Theory from a Societal Perspective." Workshop, Stavenger University, Stavenger, Norway, April 19-22, 2004

Roberts, K.H. "Theory and Practice in the Study of High Reliability Organizations." Canadian Nuclear Safety Commission. Toronto, Canada, March 30, 2004.

Roberts, K.H. "Reliability Enhancement and Risk Mitigation in Organizations." University of California President's Council on the National Laboratories Environment, Safety, and Health Panel. Oakland, CA: January 28, 2004.

Roberts, K.H. "Defining High Reliability Organizations." Workshop on New Challenges to Understanding System Safety. Fredensborg Herrgard, Vimmersby, Sweden, October 6-7, 2003

Roberts, K.H. "Federal Funding Behavioral Science Research in the Military" Briefing for the U.S. Senate Armed Services Committee, September 29, 2003

Roberts, K.H. "High Reliability Organizations Research: Strange Bedfellows." High Reliability Organizations Conference, Loma Linda University Medical School, September 10-11, 2003

Roberts, K.H. "High Reliability Organizations: A Model." High Reliability Organizations Conference, Loma Linda University Medical School, September 10-11, 2003

Roberts, K.H. "Research on High Reliability Organizations," National Science Foundation, Arlington, VA, May 20, 2003.

Roberts, K.H. "Organizational Resilience." Managing Work-Life Integration in Organizations Conference, Center for Creative Leadership, Greensboro, NC, May 13, 2003.

Roberts, K.H. "High Reliability Organizations." Presentation to the Columbia Accident Investigation Board (CAIB), Houston, May 7, 2003

Roberts, K.H. "Developing Highly Reliable Systems in the Healthcare Industry." National Academy of Science, Institute of Medicine Committee on Nursing and Patient Safety, Washington, D.C., November, 19, 2002

Roberts, K.H. "Developing Highly Reliable Systems in the Healthcare Industry." National Academy of Science, Institute of Medicine Committee on Patient Safety Data Standards, Washington, D.C., September 23, 2002

Roberts, K.H. "The Coordination of Complex Tasks at the Interstices of the Healthcare Industry. Annual Meetings of the Academy of Management, Denver, August 12, 2002.

Tadmor, C. and K.H. Roberts. "Structural Failure and the Development of an Organizational Breakdown: The Tragedy of the USS Greeneville." Annual Meetings of the Academy of Management, Denver, August 12, 2002.

Roberts, K.H. "The Dimensions and Criteria for Defining Sensemaking Success and Failure." Workshop for the Office of the Secretary of Defense, Washington, D.C., June 25-26, 2002

Roberts, K.H. "The Research on High Reliability Organizations," Presentation to the Bay Area Section of the American Nuclear Society, Berkeley, California, February 7, 2002.

Roberts, K.H. "The Al Queda Organizational Structure and its Weaknesses." Workshop for the Office of the Secretary of Defense, Washington, D.C., January 22-23, 2002

Roberts, K.H., and R.G. Bea “Managing High Reliability Operations in BP/Amoco.” Presentation to the Group Vice-Presidents BP/Amoco, London, England, January 9, 2002.

Roberts, K.H. “Sense Making to Achieve High Reliability Organization Operations” Keynote Address, Mini-Symposium on Sensemaking, Office of the Undersecretary of Defense for Command, Control, Communication and Intelligence (C3I), Washington, D.C. October 23-25, 2001

Roberts, K.H. “Human and Organizational Factors that can Enhance Reliability in the Maritime Industry.” Ships Structure Committee, Society for Naval Architects and Marine Engineers, Washington, D.C. June 7, 2001.

Roberts, K.H. “Brief Description of and New Findings from High Reliability Organizations Research,” Wright Patterson Air Force Base, Ohio, April 16, 2001.

Roberts, K.H. “Reliability Enhancement in Oil Refineries.” Refinery Availability Task Force, BP Amoco, San Pedro, California, March 2, 2001.

Ciavarelli, A., R.Figlock, , and K.H. Roberts. “Assessing Organizational Safety Risk Using Questionnaire Survey Methods.” International Aviation Safety Symposium, Columbus, Ohio, May 2001.

Roberts, K.H. “Risk Mitigation in the Commercial Marine Industry.” Keynote Address, Annual Seminar, High Reliability Organisations: Risk and the Marine Industry. Gard Services AS, Oslo, Norway, August, 22, 2000.

Bigley, G.A. and K. H. Roberts. "Structuring Temporary Systems for High Reliability." Annual Meetings of the Academy of Management, Toronto, Canada, August, 9, 2000.

Roberts, K.H. Invited panel on "New challenges for Human Factors and Medical Systems." Annual Meetings of the Human Factors and Ergonomics Society, San Diego, August 3, 2000.

Roberts, K. H. Science Advisory Board Diffusion Workshop “Developing a Research Agenda for Waterways Environmental Protection,” Environmental Protection Agency (EPA), Washington, D.C. June 28, 2000.

Roberts, K.H. “Risk in Worldwide Construction, Telecom, and Television.” Address to senior managers BOUYGUES GROUP, INSEAD. Fontainebleau, March 2000.

Roberts, K.H. (Discussant) Symposium on “Errors in Organizations: New Perspectives”. Annual meeting of the Academy of Management. Chicago, August 10, 1999.

Roberts. K.H. "A Tribute to Harry Triandis: Cross Cultural Design and Management of High Reliability Organizations." Annual meeting of the Academy of Management. Chicago, August 10, 1999.

Roberts, K.H. "Managing in the New Millenium: Knowledge Creation in Virtual Organizations". Knowledge Management Seminar, Robert A. Smith School of Business, University of Maryland, May 3, 1999.

Roberts, K.H. "The Big Five: Key Factors in Improving Patient Safety." National Patient Safety Foundation (American Medical Association) Southern California Regional Forum, Los Angeles, CA, April 29, 1999.

Roberts, K.H. "Invited Symposium on Risk Analysis and Management in Marine Systems." Meeting of the National Research Council's Marine Board and Transportation Research Board, Irvine, CA, March 29-30, 1999.

Hee, D.D., R.G. Bea, K.H. Roberts and R.B. Williamson. "Safety Management Assessment System (SMAS) Applied to Construction." Second International Conference on Implementation of Safety and Health on Construction Sites. Honolulu, HI, March 24-27, 1999.

Roberts, K.H. "Creating a Culture of Safety". (panel) Enhancing Patient Safety and Reducing Errors in Health Care. Second annual Annenberg Conference on Health Care. Annenberg Center for Health Services, Rancho Mirage, CA, November 8, 1998.

Roberts, K.H. "Risk Mitigation in Electronic Financial Transfers". Paper presented at the Annual Meeting, Society for Worldwide Interbank Financial Telecommunication, Helsinki, Finland, September 22, 1998.

Roberts, K.H. & C. B. Libuser. "Risk Mitigation through Organizational Structure". Paper presented at the Annual Meetings of the Academy of Management, San Diego, Ca., August 1998.

Roberts, K.H. & D. Van Stralen. "Walking the Talk and Talking the Walk in Medical Settings: The Case of Kids". Invited symposium, Annual Meetings of the Academy of Management, San Diego, Ca., August 1998.

Roberts, K.H. & G.A. Bigley. "Untying a Gordian Knot: Different Perspectives in High Reliability Organizations Research". Invited presentation MESO Organization Studies Groups 1998 Annual Meeting, Arizona State University, Decision Sciences Group, Carnegie-Mellon University, School of Business, University of Cincinnati, March-April, 1998.

Roberts, K.H. "Risk Mitigation in Pediatrics and Aboard Aircraft Carriers." Advances in Acute Care Symposium, Las Vegas, NV, February 21, 1998.

Roberts, K.H. "Lessons from Other Industries". (Keynote Address) Board of Directors, National Patient Safety Foundation, American Medical Association, Chicago, IL, December 15, 1998.

Roberts, K.H. "High Risk and Risk Mitigation in Pediatric Medicine and on Aircraft Carriers." Grand Rounds Pediatric Medicine, Loma Linda University, October 24, 1997.

Bea, R.G. and K.H. Roberts. "Managing rapidly developing crises: Real time presentations of marine system accidents." Sixteenth International Conference on Offshore Mechanics and Arctic Engineering. Yokohama, Japan, April 13-18, 1997.

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