

## **ABOUT THE AUTHORS**

Edward M. Marszal, P.E., D.F.S.E., and Dr. Eric W. Scharpf, MIPENZ, are principal engineers and partners in Exida, an engineering consulting firm that helps users and vendors of automation systems develop safety-critical and high-availability automation solutions. At Exida, both authors are responsible for safety life cycle services for end users, including process hazards analysis, SIL selection and verification, and functional safety assessment of safety critical systems.

Mr. Marszal started his career with UOP, a licensor of process units to the petroleum and petrochemical industries, where he performed functional assessments of control and safety instrumented systems at customer sites worldwide. At UOP, he designed and managed the development of custom control and SIS projects. After leaving UOP, he joined the Environmental Resource Management companies in their Business Risk Solutions consulting group. In this position, he specialized in the financial risk analysis and process safety management. He performed and managed risk assessment projects that involved quantitative risk analysis, including preparing Environmental Protection Agency (EPA) Risk Management Plans with off-site consequence analysis for over one hundred facilities. Companies used his recommendations for these projects to ensure regulatory compliance, justify risk reduction expenditures, and optimize insurance coverage.

Mr. Marszal holds a Bachelor of Science in chemical engineering from Ohio State University and is a registered professional engineer in the states of Illinois and Ohio. He has developed and taught safety instrumented systems engineering courses for ISA, for those local chapters in Columbus, Ohio, he holds several executive positions. He is also a member of the American Institute of Chemical Engineers. Mr. Marszal was among the first group of engineers to be awarded the status of Certified Functional Safety Expert (C.F.S.E.) by TÜV Product Services.

Dr. Scharpf has worked as a process chemical engineer in the petroleum and chemicals industries for both Mobil and Air Products and Chemicals in the United States and Europe. In these roles he has designed and developed several new processes and published numerous patents and papers on his work. He has focused much of his career on process optimization, new process design, safety and risk analysis in various segments of the chemical processing industry. This work has included hazard, risk, and consequence analysis as well as safety system work. Because Dr. Scharpf's increasing responsibility level and personal interest in the safety and risk-related aspects of these systems and processes, in 2000 he joined Mr. Marszal in forming Exida to pursue this work more directly. At Exida, he now leads the consulting, training, and support for safety-critical and high-availability process automation in the Asia-Pacific region. In this role, he has authored and reviewed numerous Exida safety training courses and related material focusing primarily on IEC 61508, 61511, and 62061 safety life cycle applications.

Dr. Scharpf has a Bachelor of Science in chemical engineering from the University of Delaware and a Ph.D. in chemical engineering from Princeton University. Dr. Scharpf is a registered engineer and member of the Institution of Professional Engineers New Zealand and is a member of the New Zealand Society for Risk Management. He also serves as a member of the Board of Directors of the Certified Functional Safety Expert Governance board. Dr. Scharpf is currently based near Dunedin, New Zealand, and teaches course in safety, process engineering, and related subject at the University of Otago in addition to his responsibilities at Exida.