



## Agenda

### Big Data Analytics: Driving Value Beyond the Hype



U.S. AIR FORCE

Tuesday, October 2, 2012

9:00 AM – 12 noon

U.S. DOT - Volpe Center  
Cambridge, Massachusetts

9:00 AM	<b>Setting the Stage</b>	<b>Robert Johns</b> , Associate Administrator and Director of the Volpe Center
9:30 – 10:10	<b>Working Smarter: Implications of Ubiquitous Data</b>	<b>Dr. Anne Quaadgras</b> Research Scientist Massachusetts Institute of Technology Sloan School Center for Information Systems Research
10:10 – 10:25	<b>Moderated Discussion</b>	<b>Tim Schmidt</b> Acting Chief Information Officer U.S. Department of Transportation
10:25 – 10:35	<b>Break</b>	
10:35 – 11:05	<b>Big Data Analytics: Delivering Insight to Decision Makers</b>	<b>Frank Stein</b> , Director, Analytics Solutions Center, Office of the CTO, IBM Federal
11:05 -11:35	<b>Improving Transportation Safety and Operations through a Big Data Ecosystem</b>	<b>Peter Bostrom</b> , Transformation Director, DoD, Engineered Systems, Oracle Public Sector
11:35 – 11:50	<b>Moderated Discussion</b>	<b>Tim Schmidt</b> Acting Chief Information Officer U.S. Department of Transportation
11:50-noon	<b>Next Steps and Wrap-up</b>	<b>Robert Johns</b>
12 noon	<b>Adjourn</b>	

## SPEAKERS AND MODERATOR

### **Robert Johns**

Associate Administrator and Director of the Volpe Center  
Research and Innovative Technology Administration  
U.S. Department of Transportation

Robert C. Johns was named Director of the U.S. DOT's John A. Volpe National Transportation Systems Center in September 2009.

The Volpe Center is a unique, fee-for-service, federal resource for developing and facilitating innovations in the nation's transportation system, with multidisciplinary expertise in all modes of transportation. The Center supports the U.S. DOT's modal administrations and offices, other federal agencies, state and local government, and other organizations in the development of innovative approaches for meeting transportation challenges. The Volpe Center has about 570 federal employees, 420 on-site contractor employees, and 450 on-going projects, and annually obligates about \$280 million.

In his role as Volpe Center Director, Johns has expanded outreach programs to the Center's many sponsors, calling for their ideas on how the Volpe Center can best address the nation's transportation challenges. This has led to new sponsored research and innovation programs requested by the U.S. DOT modal administrations and other federal agencies. He also has initiated thought leadership events on emerging transportation issues and increased the dissemination and accessibility of the Volpe Center's research and innovation results. In addition, he has led strategic planning and organizational improvements to better position and align the Center for continued success.

Nationally, Johns is active in the Transportation Research Board (TRB) of the National Academies. From 2008 to 2011, he chaired the TRB Technical Activities Council, consisting of eleven Group chairs who oversee the research and outreach activities of 200 technical committees that address all aspects of transportation. In honor of his leadership for TRB and for the National Research Council, Johns has been named a National Associate by the National Academies of Sciences. In addition, Johns has served on the Executive Committee of the Council of University Transportation Centers, as a Board member for the American Road and Transportation Builders Association, and in leadership positions for the Intelligent Transportation Society of America.

Prior to joining the Volpe Center, Johns served as Director of the Center for Transportation Studies (CTS) at the University of Minnesota from 2001 to 2009. Previously, he served as the Center's deputy director and associate director. Before joining the University in 1988, he held research and management positions with the Santa Fe Railway, the Minnesota Department of Transportation, and the Metropolitan Council of the Twin Cities. He earned a B.S. degree in Engineering Operations from Iowa State University and M.B.A. and M.A. degrees from the University of Iowa.

**Dr. Anne Quaadgras**

Research Scientist  
Massachusetts Institute of Technology  
Sloan School  
Center for Information Systems Research

Anne Quaadgras is a Research Scientist at the MIT Sloan Center for Information Systems Research. Her work focuses on the ever-increasing use of information in organizations, especially in digitized processes and operations, and the role of information technology in supporting that use. She is especially interested in how organizations use unstructured data, real-time information, and consumer-based mobile technologies to change how work is done.

Anne earned her doctorate in Information Systems at Boston University, where her dissertation research explored how globally distributed groups of experts recognize and respond to operational problems. Prior to her doctoral work, Anne was a management consultant for fifteen years, specializing in improving decision making and investment processes in the chemical, pharmaceutical, and financial services industries. She holds a Bachelor's and Master's degree in chemical engineering from MIT.

**Tim Schmidt**

Acting Chief Information Officer  
U.S. Department of Transportation

Tim Schmidt is the Acting Chief Information Officer for the U.S. Department of Transportation (DOT). In that role, in addition to managing all day-to-day IT operations, he serves as the Department's technology advocate, strategist and thought leader.

Tim monitors, evaluates, socializes and communicates relevant new and evolving technological and process solutions to solve cross-modal challenges and fill gaps where necessary. He works in close coordination with senior DOT leadership and is responsible for assisting with the coordination and integration of technical, administrative, and cyber security-related policies, guidelines, procedures, and activities to ensure effective, efficient, and economical tactical and strategic planning in support of DOT National missions and objectives.

Mr. Schmidt initiates and evaluates research and technology information collection and monitoring to ensure the DOT transportation community stays fully aware of current and evolving transformational technology and process breakthroughs.

Prior to joining DOT Headquarters, Tim held numerous senior management and executive positions both within and outside the Federal Government including FAA, IRS and the White House. One of the hallmarks of his time at the White House Communications Agency was leading both Reagan-Gorbachev Summits hosted in Geneva and Reykjavik. He is a retired Army officer having served for over 20 years within the Department of Defense.

**Frank Stein**

Director, Analytics Solutions Center  
Office of the CTO, IBM Federal

Frank Stein is the Director of IBM's Analytics Solutions Center (ASC) in Washington, D.C. In this role, Frank works closely with government, industry, and the academic community on the application of analytics to mission and business problems. He is part of IBM's team working with customers on the Watson Initiative. Frank has spent most of his career in R&D, with the last twelve years in IBM's customer-facing units including the Federal Innovation Solution Center and the Federal SOA Institute, both of which he helped to create and then direct. Frank has published papers on a wide range of topics including risk analytics, satellite encryption, Innovation, Interactive TV, and SOA. He holds patents on pen-based computing, video-on-demand, and multimedia technology, and was the 1<sup>st</sup> recipient of the "IBM Nick Donofrio Award for Innovation" for his work in IBM Federal. He has degrees from Carnegie Mellon, Stanford, and George Washington University.

**Peter Bostrom**

Transformation Director, DoD  
Engineered Systems, Oracle Public Sector

Peter Bostrom has over two decades of technology industry experience in a wide variety of technical and executive management positions in innovative, venture backed start-ups and the largest enterprise software companies. Currently, Peter serves as a Transformation Director assigned to the DoD for the Engineered Systems Group of Oracle's North American Public Sector practice.

In this role, he works with Oracle customers and partners throughout the Defense sector facing the dual challenges of budget constraints and an increased demand for responsiveness from their IT assets. Engineered Systems are pre-integrated to reduce the cost and complexity of IT infrastructures while increasing productivity and performance.

Previously, Peter served as the Federal CTO for BEA Systems, acquired by Oracle Corporation in June 2008. Prior to BEA Systems, Peter served in a similar capacity at TIBCO Software.

Peter has served in leadership positions on numerous standards bodies, technical user groups, and as an advisor to investors and dozens of technology companies. He is a frequent speaker on technology topics around the country.

Before college, Peter served in the 1st Battalion of what is now the U.S. Army's 75th Ranger Regiment. Later, while earning a BA in International Affairs from The American University in Washington, DC, he served in the 11th Special Forces Group. Peter's formal academic work focused on U.S. Defense and Security Policy, Middle East studies, and applied statistics in International Affairs.

## HANSCOM AIR FORCE BASE, LIFE CYCLE COMMAND CENTER

### **Dr. Tim Rudolph**

Senior Level executive

Systems Planning, Research, Development and Engineering Level III Technical Adviser, Air Force Integrated Information Capabilities, AF Life Cycle Management Center, Hanscom Air Force Base, MA

Dr. Tim Rudolph serves in a variety of capacities, including AFLCMC Chief Architect/Chief Technology Officer (CTO), PEO C3I & Networks Chief Architect and CTO, and as the Secretary of the Air Force-appointed Department of Defense Next Generation Air Transportation System Chief Architect. Dr. Rudolph works with senior technical representatives from the program executive offices across Air Force enterprise capabilities and with representatives from the Office of the Assistant Secretary of the Air Force for Acquisition, the Chief Management Officer and the Air Force's Command, Control, Communications and Computer Systems Chief Information Officer. As part of the AFLCMC Engineering Directorate, he leads a number of department, multi-service, and multi-agency initiatives.

Dr. Rudolph has been appointed the Air Force Command and Control Platform Information Technology Designated Accreditation Authority. The DAA responsibility supports proven agility and speed in moving capabilities to the warfighter. Dr. Rudolph has also been delegated Research, Development, Test and Evaluation DAA authority for PEO programs, projects and facilities, in particular, supporting early systems engineering, developmental planning and exercises/demonstrations of capability development and delivery.

Dr. Rudolph gained system development experience in multiple IT companies. In March 1994, he co-founded Paradigm Technologies, Inc., an industry partner focused on the application of technologies in creative ways for multiple agencies and commercial enterprises, which he managed with partners until divesting in 2007. He is a recognized pioneer in network-based services, open systems and open technology development, such as development on high-level architecture (HLA) and Posix standards, as well as modeling, simulation and analysis technologies, with extensive experience leading government and industry partners to advance technologies for enterprise solutions.

Dr. Rudolph has applied experience in multiple technical disciplines through all phases of the acquisition lifecycle, including requirements analysis, architecture, high-level design, development, integration, test, fielding and support. He has held a number of positions supporting a range of Air Force, multi-service, joint, and cross-department federal activities. He is a certified system engineering Professional by the International Council on Systems Engineering.

### **EDUCATION**

1985 Bachelor of Science degree in computer engineering/international strategic studies, University of Massachusetts, Amherst

1994 Master of Science degree in technology and innovation, Boston University, Boston, Mass.

2002 Doctor of Philosophy degree in management science, Columbus University, Ohio.

2008 Force Senior Executive Warfighter Perspective Seminar, Air University, Maxwell AFB, Ala.

## **CAREER CHRONOLOGY**

*1984 - 1986, Senior Programmer/Analyst, Unisys/Systems Development Corporation, Cambridge, MA.*

*1987 - 1991, Test and Project Manager, RJO Enterprises, Lanham, MD.*

*1991 - 1994, Command Decision Systems Program Manager, Science Applications Corporation International, Cambridge, MA.*

*1994 - 2008, Founder and Vice President, Paradigm Technologies, Inc., Bedford, MA.*

*January 2008 - present, Technical Adviser, Air Force Integrated Information Capabilities, Air Force Life Cycle Management Center, Hanscom AFB, MA.*

## **PROFESSIONAL MEMBERSHIPS AND ASSOCIATIONS**

Institute of Electronic and Electrical Engineers, including multiple Standards Committees  
Air Force Association  
Armed Forces Communications and Electronics Society  
Association of Old Crows

**Joel Rodriguez**, Adjunct to the CTO, Air Force Life Cycle Management Center (LCMC)

**Joseph Pridotkas**, Chief, Intel Division

**Terry O'Donnell**, Director of Engineering (DOE), HNB Division

**Douglas Ogino**, Chief Engineer-Weather, HBAW Division

**Vincent Maguire**, Mitre Corp., HNB Division Engineering Lead

## **AIR FORCE RESEARCH LABORATORIES (AFRL) AIR DEVELOPMENT CENTER, ROME, NY**

**Dr. Mark Linderman**, Principal Researcher in Information Management Technologies Air Force Research Laboratory Information Directorate

Dr. Linderman is a Principal Researcher in Information Management Technologies in the Air Force Research Laboratory Information Directorate where he leads the Information Management technology area. From 2000-2004, he was the Technical Lead of the AFRL Information Directorate Joint Battlespace Infosphere (JBI) Program. The JBI program addresses a broad spectrum of information management challenges from access control, the role of metadata, dissemination, persistence and destruction of information.

Dr. Linderman is active in the Technical Cooperation Program (TTCP) that fosters collaboration of research, development and experimentation among the United States, the United Kingdom, Australia, and Canada. He chaired of the C3I Group Technical Panel on Information Management from its inception until 2009. Prior to joining the JBI project, Dr. Linderman was the Technical Advisor for the Advanced Computing Architectures Branch, and he was active in several projects involving the application of HPCs to signal processing challenges. He made several contributions to the field of embedded High Performance Computing (HPC), including the demonstration of a highly efficient Space-Time Adaptive Processing implementation,

embedded signal processor simulation, design and testing, and high performance computing.

Dr. Linderman joined AFRL in 1994 after completing his M.Eng. and Ph.D. in electrical engineering from Cornell University. He holds a BSEE degree from the University of Delaware.

**Dr. Andrew Noga**, Technical Advisor for Strategic Planning and Integration Division

**Mr. Thomas Clark**, Technical Lead Integrated C2 & Resilient Systems

**Mr. Joseph Caroli**, Chief, High Performance Systems Branch

#### **HANSCOM REPRESENTATIVE ASSOCIATION**

**Mr. John Reilly**, Chairman, Emeritus

#### **U.S. DOT – VOLPE CENTER – IN ADDITION TO THOSE PREVIOUSLY LISTED**

**Anne D. Aylward**, Deputy Associate Administrator for Research and Innovation, Volpe Center, U.S. Department of Transportation

**Richard R. John**, PhD, Director Emeritus, Volpe Center, U.S. Department of Transportation

**Steven R. Lang**, Director, Center for Air Traffic Systems and Operations, Volpe Center, U.S. Department of Transportation

**Stephen M. Popkin**, PhD, Director, Center for Safety Management Systems, Volpe Center, U.S. Department of Transportation

**Robert M. Dorer**, Director, Center for Physical Infrastructure Systems, Volpe Center, U.S. Department of Transportation

**Gary T. Ritter**, Director, Center for Advanced Transportation Technologies, Volpe Center, U.S. Department of Transportation

**Eric Frykenberg**, Chief Information Officer, Volpe Center, U.S. Department of Transportation

**Robert Berk**, Chief, Safety Information Systems, Volpe Center, U.S. Department of Transportation

**James Hill**, Chief, Air Traffic Management Systems, Volpe Center, U.S. Department of Transportation

**Gary Fredericks**, IT Specialist, Aviation Safety Management, Safety Management Systems, Volpe Center

**Gary Baker**, Geographic Information System Specialist, Center for Environmental and Energy Systems, Volpe Center, U.S. Department of Transportation

**Ron Koppersmith**, Team Leader – Administrative Applications, Volpe Center, U.S. Department of Transportation

**Ellen E. Bell**, Director of Strategic Initiatives for Research and Innovation, Volpe Center, U.S. Department of Transportation

#### **U.S. DOT – RESEARCH AND INNOVATIVE TECHNOLOGY ADMINISTRATION, WASHINGTON, DC**

**Melissa R. Johnson**, Chief Information Officer, Research and Innovative Technology Administration, U.S. Department of Transportation

**William Chang**, Research and Innovative Technology Administration, U.S. Department of Transportation

#### **INNOVATION INSTITUTE AT THE MASS TECH COLLABORATIVE**

**Jacqueline S. Grady**

Project Lead, Innovation Institute at the Mass Tech Collaborative

The John Adams Innovation Institute is the tech-based arm of the Massachusetts Technology Collaborative, the state's quasi-independent economic development agency. Ms. Grady is the Project manager for the flagship Innovation Institute program, the Massachusetts Tech Hub Collaborative. Tech Hub is a unique forum through which technology CEOs, Venture Capitalists, Institutions of Higher Education, and state government leaders convene and develop ways to advance the innovation economy.

#### **IBM FEDERAL**

**Justin Fessler**

IBM Federal Software Representative

Enterprise Content Management Specialist