THE MONITOR

Rethinking Risk Management

This issue is dedicated to new research from the SEI in risk management

In many sectors of the economy, job prospects appear scarce, save for one.

Business continuity and risk management hold promising prospects on the career front, John Challenger, an employment expert, said recently at a Gartner summit on Business Continuity and Risk Management and Compliance.

Downsizing and cutbacks have resulted in growing threats to corporate information and security and long-term demand for risk management as well as business continuity planning, according to a May 5 post on the IEEE Computer Society Build Your Career website.

Those same risks are also threatening in government organizations, according to Chris Alberts and Audrey Dorofee, who lead the Mission Success in Complex Environments (MSCE) project at the SEI.

"Everyone's trying to figure out where to cut budgets. One of the things they need to look at is 'where's the risk,'" explained Dorofee, adding that in larger, continuous programs, risk is so distributed that it is difficult to find someone who understands all aspects of risk—from acquisition to development to operations.

Since 2006, Alberts and Dorofee have led MSCE with a focus on returning risk management to its original intent—supporting effective management decisions that lead to program success. They began rethinking the traditional approaches to risk management, which led to the development of SEI Mosaic, a suite of methodologies that approach managing risk from a systemic view across the life cycle and supply chain. Using a systemic risk management approach enables program managers to develop and implement strategic, high-leverage mitigation solutions that align with mission and objectives.

"It's a refined, uncomplicated way to manage risk, giving program managers a holistic view of their program's risks, and it is scalable to multi-system and multi-enterprise environments—that is a strength since these days multi-organization environments are the norm," Alberts said.

Compared to traditional risk management, which is designed to manage potential hazards and obstacles affecting program performance and which doesn't readily scale, this new, systemic approach provides a method for finding risks that cross organizational boundaries.

Whether in a systems-of-systems, multi-program, or single-program environment, Mosaic tools and methods help make the paradigm shift to systemic risk management or improve and possibly integrate with current program approaches.

- For more on the Mosaic suite offerings including courses, workshops, course/workshop combinations, and evaluation techniques and services, see page 4.
- For more on Mosaic and the SEI technical staff who developed it, see page 2.

From left, SEI Members Tunde Oyalowo of Booz Allen Hamilton in Bowie, Md.; Valeria Franzitta of Bosch Engineering in Germany; Richard A. Frisch of Quest in Pittsburgh; and Alan Beamish of Tinker Airforce Base in Oklahoma City, Oka.

Thanks to Anna Mosesso for contributing photography.

Go paperless! If you would like to receive an email containing a PDF version of *The Monitor* instead of a printed version, email membership@sei.cmu.edu.

Customer Relations
Software Engineering Institute
Carnegie Mellon University
4500 Fifth Avenue
Pittsburgh, PA 15213-2612
412-268-5800
Toll-free: 888-201-4479
Email: **membership@sei.cmu.edu**

SEI Staff Profiles: Chris Alberts and Audrey Dorofee

Co-Leads of the SEI's Mission Success in Complex Environments Team

BY EMILY BAYER

Chris Alberts
cja@sei.cmu.edu

Audrey Dorofee
ajd@sei.cmu.edu

With the plethora of technologies in the market and expertise in the field, why do so many preventable failures still occur? This nagging question led to a three-year research project for the SEI's Mission Success in Complex Environments (MSCE) project, led by Audrey Dorofee and Chris Alberts—who this month are releasing the fruit of their labor, SEI Mosaic. This innovative suite of methods introduces new best practices and techniques for measuring, assessing, and managing program risk.

Dorofee and Alberts are both senior members of the SEI's technical staff, and they currently co-lead the MSCE project. The project is devoted to developing advanced methods for managing risk and opportunity in multi-enterprise and multi-system environments. Prior to their work in this area, the pair co-developed the OCTAVE approach for managing information security risks and the Continuous Risk Management methodology for managing software development risks.

Previously, Dorofee worked for the MITRE Corporation and the National Aeronautics and Space Administration. And Alberts' experience in risk management dates back to his work in robotics for AT&T Bell Labs and the Carnegie Mellon Research Institute. Since joining the SEI, their work and research have spanned risk management, information security, and process improvement.

By applying 16 years of SEI research and development in risk management, Alberts and Dorofee developed Mosaic as a new approach to an old problem. It presents a success-oriented approach to risk management by collecting and consolidating information from all program areas, providing decision-makers with a whole new insight to their mission. Mosaic uses drivers that focus on program-specific risk factors reflective of a project's mission and objectives. By maximizing the likelihood of achieving these key objectives, managers can realize their business/mission opportunity and learn how to capitalize on it.

Mosaic can also be easily integrated with existing risk management processes. This gives customers the opportunity to blend Mosaic into current processes, presenting new solutions for managers who are constantly overseeing complex acquisition and development programs.

With its objective, mission-oriented approach and standard structure to communicate and manage risk, Mosaic provides a realistic and efficient process that scales to distributed environments and can easily be tailored to areas such as services, operations, and so on. It is the developers' belief that this new approach will allow decision-makers to further engage in their risk management activities and realize another important outcome that all companies are aiming for these days—a better strategic approach to allocating often limited resources.

"Business environments are very different now," says Alberts. "With older systems you could identify risks by type, but you can't look at everything in isolation anymore."

Early pilots in government and industry have been successful, and this past March, the team's New Directions in Risk tutorial was placed in the Top 10 Presentations at SEPG North America 2009. Presently, the team is preparing to broadly transition Mosaic to the public.

Using Mosaic's easy-to-use, multi-purpose foundation, an organization's or program's own key objectives are the heart of assessments.

"It's practical and encourages people to rethink their plans," says Dorofee. "This gives decision makers insights they didn't see before."

For more information about the MSCE team and their research in risk and opportunity management, please visit www.sei.cmu.edu/risk

To contact Chris Alberts, please email cja@sei.cmu.edu.
To contact Audrey Dorofee, please email ajd@sei.cmu.edu.

Is Your Program on Track for Success?

SEI Mosaic provides you with a refined, uncomplicated, results-oriented way to manage risk and gives you a comprehensive, holistic view of your program's risks. Using this systemic risk management approach, you can develop and implement strategic, high-leverage mitigation solutions that align with your mission and objectives. With its ability to easily scale to multi-system and multi-enterprise environments, Mosaic also helps you catch preventable failures across the life cycle and supply chain while maintaining a focus on success. Ultimately, you gain confidence in achieving your overall mission objectives.

TWENTY QUESTIONS EVERY PROGRAM MANAGER SHOULD BE ABLE TO ANSWER

Are program objectives (product, cost, schedule) realistic and achievable?	Are facilities and equipment sufficient to support the program?
Is the plan for developing (and deploying) the system sufficient?	Does the program have sufficient capacity and capability to identify and manage potential events and changing circumstances?
Is the process being used to develop (and deploy) the system sufficient?	Are system requirements well understood?
Are enterprise, organizational, and political conditions facilitating completion of program activities?	Are the design and architecture sufficient to meet system requirements and provide the desired operational capability?
Does the program comply with all relevant policies, laws, and regulations?	Will the system satisfactorily meet its requirements?
Are tasks and activities performed effectively and efficiently?	Will the system be sufficiently integrated and interoperable with other systems when deployed?
Are activities within each team and across teams coordinated appropriately?	Will the system effectively support operations?
Will work products from suppliers, partners, or collaborators meet the program's quality and timeliness requirements?	Have barriers to customer/user adoption of the system been managed appropriately?
Is the program's information managed appropriately?	Will people be prepared to operate, use, and maintain the system?
Does the program team have the tools and technologies it needs to develop the system and transition it to operations?	Will the system be appropriately certified and accredited for operational use?

Noteworthy Technical Reports

A Framework for Categorizing Key Drivers of Risk
www.sei.cmu.edu/publications/documents/09.reports/09tr007.html

Executive Overview of SEI MOSAIC: Managing for Success Using a Risk-Based Approach
www.sei.cmu.edu/publications/documents/07.reports/07tn008.html

Mission Diagnostic Protocol, Version 1.0: A Risk-Based Approach for Assessing the Potential for Success
www.sei.cmu.edu/publications/documents/08.reports/08tr005.html

Lessons Learned Applying the Mission Diagnostic
www.sei.cmu.edu/publications/documents/08.reports/08tn004.html

Preview of the Mission Assurance Analysis Protocol (MAAP): Assessing Risk and Opportunity in Complex Environments
www.sei.cmu.edu/publications/documents/08.reports/08tn011.html

Educational Opportunities at the SEI

New Offerings in Risk and Opportunity Management

COURSES AND WORKSHOPS

Practical Risk Management: Framework and Methods

This two-day public course provides a practical, easy-to-apply method for assessing and managing program risks (based on a set of 20 common drivers of program risk). The course also provides a framework for managing risk and checklists that can be used to evaluate an existing risk management practice.

For more information or to register for the September 23 & 24 offerings visit www.sei.cmu.edu/products/courses/p78.html

Risk Management Framework: Best Practices in Risk Management

This one-day, on-site course raises participants' awareness of what constitutes good risk management practice with a framework for managing risk and a checklist that can be used to evaluate an existing risk management practice.

Introduction to Practical Risk Management

This one-day, on-site course presents a practical approach for assessing and managing program risks based on 20 common drivers of program risk.

Risk Management Tailoring and Improvement Workshops

These workshops are designed to help participants solve problems related to risk assessment and management. The workshop's content is customized for each set of participants. These workshops feature hands-on guidance from SEI risk management experts. The length and content of each workshop varies according to participants' requirements. The workshops can also be combined with any of the courses described above.

EVALUATIONS

Systemic Risk Evaluation

The Mosaic Risk Evaluation method is used to assess an acquisition or development program's risks. Upon completion of the evaluation, the team provides decision makers with a risk profile and strategies for mitigating the highest-priority risks.

Mission Success Evaluation

The Mosaic Mission Success Evaluation method is used to determine an acquisition or development program's chances for success. Upon completion of the evaluation, the team provides decision makers with a success profile and strategies for improvement.

Risk Management Framework Evaluation

The risk management framework specifies the core requirements for an effective risk management practice. An SEI team uses the framework to evaluate a program's or organization's risk management practice. Upon completion of the evaluation, the team provides decision makers with a prioritized list of gaps in the risk management practice as well as recommendations for improvement.

Custom Evaluation

SEI can tailor a Mosaic evaluation to the requirements of a variety of acquisition, development, and operational environments. An SEI team then performs the tailored evaluation and provides decision makers with, as appropriate, their success or risk profile and strategies for improvement or mitigation.

FREE WEBINAR

A Practical Approach for Managing Risk

This webinar presents a new, systemic approach to managing risk. In 2006, the SEI began research to develop practical and innovative methods for measuring, assessing, and managing risks and opportunity. This research resulted in SEI Mosaic—a suite of practical and innovative methods that can be used to systemically manage risk across the life cycle and supply chain.

What: Free Webinar: A Practical Approach for Managing Risk
When: Thursday, June 18, 2009
1:00 p.m. – 2:00 p.m. EDT

Register:
https://www1.gotomeeting.com/register/186550361

FOR MORE INFORMATION

Please visit
www.sei.cmu.edu/risk

Email SEI Customer Relations
customer-relations@sei.cmu.edu

Call 412-268-5800
Toll-free 888-201-4479

Member Profile

Barbara Rothberg

Process Improvement Lead for Modus Operandi Inc.
Member since May 2009

SEI Member Barbara Rothberg—who leads a process improvement team that serves the U.S. Army at Fort Monmouth, N.J.—was recently asked for her input on a pending bid decision for her company.

Rothberg, who works at Modus Operandi Inc., a software company that serves the defense and military communities, had just completed a class on Rethinking Risk Management, taught by Audrey Dorofee of the SEI's Mission Success in Complex Environment (MSCE) project team. The class presents a new, practical approach to analyzing risk using a basic set of drivers, or factors, to create a risk profile that helps determine whether program objectives will be achieved. Rothberg immediately recognized how easy this approach would be to adapt and apply. Rothberg used the new approach to help Modus Operandi determine the inherent risk with the project bid. She adapted the basic set of drivers for acquisition, conducted the analysis, and determined there were many risk factors.

The team that Rothberg worked with decided against the bid.

"There were several very high risk factors that were likely to occur and would have had a severe impact," explained Rothberg, who said she appreciated the opportunity to help her company manage its risk. She's also pleased to have one more tool to add to her project management arsenal, and plans on tailoring the basic set of drivers for services.

Rothberg's arsenal is as expansive as it is varied. There were the early days of her career, starting with a Ford Foundation grant to study the correlation between music and literacy among different populations in Baltimore, and performing as an opera singer, which led to a performance at Carnegie Hall. And, there was the translation business that she founded in South Korea a few years ago.

Rothberg studied music at the Peabody Institute of the Johns Hopkins University and received her education credentials from the University of Maryland. She realized that music would not provide enough money to send her two boys to college and began scouring the market for a career change.

In 1989, Rothberg started working as a programmer analyst at Bell Atlantic. While there, she earned her master's degree at Johns Hopkins, with sponsorship from her Vice President, in a combined engineering and business program. Rothberg left Bell Atlantic after nine years, just after the merger with Nynex when her job directing technology-driven training deployment moved to Massachusetts. "My family comes first. My sons were in school, and my husband's job was in Cherry Hill, New Jersey. I had to find another opportunity locally."

She was hired quickly as the training administrator at Thomas Jefferson University Hospital in Philadelphia, transforming a local role to a regional health system asset. Rothberg had wanted to work in a global company. When her sons moved away after graduation, and her husband retired, she accepted a position as the Global Training Manager at Quaker Chemical Inc. and moved to The Netherlands. She led the company in training, documentation, communication, and supply chain development as it transitioned to J.D. Edwards software throughout its global operations.

"We had to do complete process mapping, we had to create buy-in for consistent practices, and we had to maintain business continuity while all this was going on," Rothberg said. "I worked across 14 languages. I worked across every time zone on earth and on every continent–except Antarctica." When her part of the project was completed, Rothberg left the company to go home and spend time with her family, dig in her garden, and read for pleasure.

A friend who worked at Lockheed Martin called Rothberg one day to ask for some advice about managing a CMM project that needed to be implemented in three months. Rothberg shared what she learned about organizational change, training, and project management, and by the end of the phone call, she was offered a consulting position at Lockheed's Commercial Space System Division.

It was her first introduction to CMM and her first introduction into consulting. Both appealed to her.

"I love consulting assignments because they do come to an end. I'm a person who likes things to be brought to closure. I have a particular philosophy about how to be a consultant. My whole job is to make them not need me anymore," Rothberg explained, adding that she also liked the new, structured world offered up via the Capability Maturity Model (CMM) Integration and CMMI flexibility to adapt to organizational needs.

Coincidentally, at the same time that Rothberg's consulting job ended at Lockheed, her husband, a nuclear engineer, was lured out of retirement to serve as an advisor to the South Korean civilian nuclear power industry at a government engineering corporation that specializes in the design and construction of power plants. Rothberg went with him and quickly learned the language, just as she's done in other countries that she has lived in or visited.

"You put me down in a country and I'll learn the transactional speech in four or five days. It's known as self preservation," Rothberg said. In addition to English, she knows French, Korean, Dutch, the rudiments of Hebrew; and "Italian-for-musicians." While in Korea, Rothberg launched her own document translation business, serving the Korean Intellectual Property Office, engineering and manufacturing companies, research physicians, and the largest conglomerate in South Korea.

They stayed 18 months before returning to the states in 2004. Rothberg received a call from a friend that led to her being hired at Modus Operandi as a project manager. Her current assignment is process improvement team lead for the Software Engineering Center Communications Software Directorate at Fort Monmouth.

Looking back, Rothberg notes that almost every job she's held involved training and project management.

"When I managed projects, I always felt that risk was something I wanted to manage better," Rothberg said. "Finally, I have a way to be better at it and show others how to do the same."

SEI Membership | Carnegie Mellon

Customer Relations
Software Engineering Institute
Carnegie Mellon University
4500 Fifth Avenue
Pittsburgh, PA 15213-2612

SEI Members: Save $150 on a New Risk Management Course!

A new course Practical Risk Management: Framework and Methods will be held September 23 & 24 at the SEI headquarters in Pittsburgh.

SEI Members save $150 when registering for this course. See www.sei.cmu.edu/membership for more information.

This new course is a great way to learn the foundational elements of the Mosaic approach.

SEI Mosaic provides the foundation for a comprehensive risk management practice, which includes a suite of methods, ranging from practical, easy-to-apply methods to in-depth analyses designed for highly complex management environments.

Through an interactive environment, you will learn the essentials of

- risk management framework of best practices
- practical, easy-to-use methods
- success and failure drivers
- alignment with common risk management standards and guidelines
- strategies for tailoring Mosaic

For more information or to register, visit
www.sei.cmu.edu/products/courses/p78.html