

The Power of Independent PM Reviews for Global Programs: The GTRI Example¹

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Abstract

The Global Threat Reduction Initiative (GTRI) is a large, important global program financed by the U.S. government. It includes more than 340 projects in 90 countries, and has a critical global mission – to protect society from the malevolent use of nuclear or radiological materials that could be used in an improvised nuclear device (IND) or radiological dispersal device (RDD), commonly referred to as a radiological “dirty bomb.” Global initiatives such as the GTRI comprise portfolios of programs and projects involving many countries and organizational entities, both public and private. A broad perspective is needed during development of the management processes to be used for planning, authorizing, executing, monitoring and controlling such global programs. In the case of the GTRI, the Senior Executive in charge decided to address this broad perspective by engaging a small team of experienced executives and experts from 1) the headquarters of the agency holding the lead responsibility, 2) within the organizations (the national nuclear laboratories of the USA in this case) holding prime responsibilities for executing specific projects, and 3) the global project management professional community. The charge to this diverse, experienced, independent team was to critically evaluate the management concepts, processes, systems and tools in use and being developed for the GTRI, to participate actively in detailed discussions and open exchanges regarding these topics, and to provide practical guidance for both the near- and longer-term improvements in how this global initiative is managed. This paper describes this independent expert review initiative, describes some of the challenges that have been encountered, and draws some conclusions for guidance to others who are -- or perhaps will be -- involved in similar large scale programs.

Keywords

Program management, portfolio management, project management, global nuclear security, global threat reduction, governmental program management, project management governance, expert reviews

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1. Introduction

Large global programs often include multiple portfolios of projects and require sophisticated global solutions for program and project management (PM). Global programs and projects with important social or economic impacts require mature PM combined with global best practices – and often using new technologies. Large global programs financed with public funds require advanced and mature governance, oversight and attention to PM. The use of outside independent PM experts to review project management practices and performance is now employed by several US government agencies to accelerate the implementation of PM best practices that are consistent with international standards recognized in all nations of the world.

The GTRI program is a large, complex and important global program, with global portfolios of sub-programs and projects, involving global communications and coordination efforts that involve government officials, contractors and nuclear technology experts, and demand complex project and program planning and management processes and methods. The GTRI program executive team recognized the value of independent review and has employed a team of global project management experts to review, evaluate, and recommend continuing improvements to the PM processes, systems and documents being developed and implemented on the program – at a reasonable cost and with positive results.

Results have included implementation of leading program, portfolio and PM concepts; more comprehensive planning & PM processes; identification of potential risks; more attention on PM education, communications and team building; more rapid organizational maturity in PM; and a more confident PM team.

2. Global Threat Reduction Initiative (GTRI)

2.1 Background

The terrorist attacks of September 11, 2001, in the United States heightened concerns regarding the potential use of radioactive material for a malevolent act. Although the U.S. Government has long been involved in efforts to address radioactive source protection and security, the events of September 11 intensified the nation's concerns regarding the use of risk-significant nuclear and radiological materials in a terrorist act. Such an attack has been of particular concern because of the widespread use of radioactive materials (often contained in sealed sources) in the United States and abroad by industry, hospitals, and academic institutions. Loss or theft of such materials, in risk-significant quantities, could lead to their diversion for malicious use in an RDD or an RED. An RDD is a device or mechanism that is intended to spread radioactive material from the detonation of conventional explosives or other means. RDDs are considered weapons of mass disruption; few deaths would occur due to the radioactive nature of the event. However, significant social and economic impacts could result from public panic, decontamination costs, and denial of access to infrastructure and property for extended periods of time. An RED is a device whose purpose is to expose people to radiation, rather than to disperse radioactive material into the air, as would an RDD. [1]

2.2 Overview of the Program [2]

The mission of GTRI is to prevent terrorists from acquiring nuclear and radiological materials that could be used in a weapon of mass destruction (WMD) by working at civilian sites

worldwide to convert reactors from WMD-usable high-energy uranium (HEU) to low-energy uranium (LEU) fuels, to remove excess WMD-usable nuclear and radiological materials, and to protect at-risk WMD-usable nuclear and radiological materials.

To accomplish this mission, the Office of Global Threat Reduction within the Defense Nuclear Nonproliferation Office of the U. S. Department of Energy (DOE) has established the following three program mission areas:

- *HEU Reactor Conversion* - conversion of reactors and isotope production facilities from the use of WMD-usable HEU material to LEU material. These efforts result in permanent threat reduction because the use of WMD-usable HEU in the civilian fuel cycle is minimized or eliminated. LEU fuels cannot be used so easily to make a dirty bomb.
- The *Nuclear and Radiological Material Removal* efforts support the removal and safe storage or disposal of excess WMD-usable nuclear and radiological materials worldwide. These efforts result in permanent threat reduction because WMD-usable material theft targets are eliminated.
- The *Nuclear and Radiological Material Protection* efforts support the protection of at-risk WMD-usable nuclear and radiological materials from theft and sabotage until a more permanent threat reduction solution can be implemented. These efforts result in threat containment because WMD-usable materials are protected from theft and sabotage.

GTRI is organized to ensure effective integration and implementation of all threat reduction activities. To meet this objective, the GTRI Office is subdivided into three regional directorates:

- Office of North and South American Threat Reduction
- Office of European and African Threat Reduction
- Office of Former Soviet Union (FSU) countries and Asian Threat Reduction

Within these three regional directorates, portfolios of projects have been identified within individual countries. Those portfolios, primarily within the three technical program areas (removal, conversion, protection), include approximately 340 projects in over 90 countries. Country Managers are assigned in the GTRI program office in Washington DC, USA, with projects assigned to technical managers at US national laboratories where the technical expertise resides within DOE's system and organization. The Technical project teams at the Labs are responsible for implementing the technical aspects of projects, while the country "portfolio" managers are responsible for budgetary management, diplomatic and legal coordination, oversight and program management.

2.3 Status in early 2007

The GTRI program was established in the US Department of Energy's National Nuclear Security Administration (NNSA) in May 2004. Its main mission is to address the dangers posed by nuclear and radiological materials located at civilian sites worldwide. As of December 2006, the program had accomplished the following:

- 56 conversion projects completed, with another 73 planned
- 1,909 KG of HEU and Plutonium removed, with another 3,031 planned

- 18,004 US radiological sources removed, with another 14,581 planned
- 655 sites had been protected, with another 4,200 planned

While great technical progress had been made, the program management processes and systems were still being implemented. The program office established at DOE headquarters in Washington, DC was staffed with both experienced and younger career professionals. Day-to-day project management was assigned to experienced teams at the National Laboratories where nuclear conversion, removal and protection expertise, and traditional project management capabilities, were well established. By the end of 2006, however, the GTRI program office recognized the need for a more integrated and comprehensive program management approach and information system whereby all GTRI projects worldwide could be both more visible and more effectively managed from Washington.

2.4 Management Challenges

GTRI management set out to establish a well-managed, responsive, and accountable organization and to utilize best-in-class business practices to improve cost and schedule performance. To meet these goals, GTRI initiated the development of a fully integrated program management process to promote organizational discipline, ensure effective and efficient use of resources, and maximize responsiveness to the mission of global threat reduction. The GTRI program office was faced with the following challenges: [3]

- To embrace and adapt global best-in-class program and project management practices;
- To establish a single program management system, in order to ensure that all projects are consistently well planned, managed and executed – with appropriate visibility to GTRI management;
- To integrate existing project management systems data and information within a number of governmental and private organizations;
- To integrate the functionality of the systems in use at the primary national labs involved (Argonne National Lab, Los Alamos National Lab, Oak Ridge National Lab, Pacific Northwest National Lab,) and the financial systems already in use at NNSA;
- To satisfy US governmental regulations and DOE policies and requirements for project management;
- To facilitate budgetary and financial planning, management and reporting within DOE, and to OMB and the US Congress; and
- To provide the flexibility and responsiveness needed for GTRI management purposes.

In addition, the program management system had to be developed and implemented while the security projects proceeded on schedule, and with a GTRI headquarters staff that included a number of young, recently recruited professionals, many with diplomatic and institutional backgrounds rather than project management. Significant project and program management training needs were also identified.

In early 2007, a project was initiated to develop an all new GTRI Program Management Information System, version 2, which became known as the G2 Project. A G2 system development team was organized, with a project manager reporting to GTRI management, program representatives from the various national labs, and a technology development team located at Oak Ridge National Lab (ORNL).

2.5 Recognition of Need for Independent Expert Reviews

In March 2007, GTRI management recognized the possible usefulness of an independent outside review of the results of the G2 system development project. Because of the nature of the GTRI program – global scope, many projects around the world, complexity, aggressive schedule, highly visible security issues, and a wide variety of participants with varying backgrounds and expertise – the need for very high level and experienced program and project management review, evaluation and input was recognized by the GTRI program executive. It was decided that a Technical Evaluation Team would be formed for review of the G2 system and to assess the general program and project management processes and practices on the GTRI program.

Because PMForum (with whom the four authors are associated) was known to have access to globally recognized leaders and experts in the project management field, a request was made to propose a team of PM experts to support the GTRI program. At the same time, it was also decided to invite representatives of the lead national labs in the United States to participate in this review team.

3. The GTRI Expert PM Review Team

3.1 General Objectives

The objectives for the PM Review Team were to review program and project management plans, strategies and other documents, and the Integrated Project Management Information System (IPMIS G2 Project) being implemented for the GTRI program; to offer feedback, guidance and recommendations to GTRI management on the most effective implementation of best-in-class project and program management tools, processes and procedures; and to provide other portfolio, program and project management related advice and assistance as requested and as appropriate.

3.2 Selection of the Team

In order to include both outside program management expertise as well as a good understanding of the technologies involved and the GTRI program, it was decided to form a team of independent outside project management experts and representatives of the US national laboratories where GTRI projects are undertaken and where nuclear security expertise resides. Representatives of the GTRI Headquarters were also included on the team. Formation of the review team occurred in March and April 2007.

PMForum was invited to propose four senior advisors, each of whom is a recognized authority in the field of disciplined project and program management, both nationally and internationally. The four authors of this paper were selected to participate. All are well known global experts on the subject of international project management, in both industry and government. All have extensive international experience and expertise, and have experience with military, nuclear and national security programs. All have academic and professional credentials.

The GTRI program management office also invited key technical leaders from four US national labs: Argonne National Laboratory (ANL) in Illinois, Los Alamos National Laboratory (LANL) in New Mexico, Oak Ridge National Laboratory (ORNL) in Tennessee, and Pacific Northwest

National Laboratory (PNNL) in Washington state. Those laboratories are involved in various GTRI projects and are where the resources and technologies reside within the US DOE for nuclear conversion, protection and transportation. Participating representatives were either directly responsible for or involved in the implementation or oversight of GTRI projects at their respective labs.

3.3 Agreement and Working Protocols

From the beginning, it was agreed that the advisors would work principally as a distributed team to review existing and proposed program and project management processes, review program management plans and documents, evaluate IPMS features and functionality, provide feedback and reports of findings, and make recommendations for further improving or sustaining good project management systems and practices. Due to the wide geographic distribution of the advisors, the IPMS (G2) development team, and GTRI headquarters management, information exchange meetings have been and will continue to be held on a periodic basis via teleconferences and/or video conferences. The Team also has and will continue to meet with GTRI program management in Washington, DC to evaluate progress, discuss significant issues, provide direct feedback and guidance, and offer suggestions to GTRI program management on future improvements.

The specific approach used by the PMForum advisory team included the following actions:

- Study and analyze referenced documents, and documents provided by the GTRI program office and the IPMS (G2) development team;
- Communicate via email and voice technology to identify any concerns, questions, needs for clarification or additional information desired.
- Participate in conference calls as requested;
- Meet together prior to the meetings with GTRI management in Washington, DC, in order to discuss and review individual findings and prepare for the meetings;
- Provide an "outbrief" to GTRI management to discuss findings and recommendations; and
- Prepare a Summary Report of Observations, Recommendations and Concerns following each meeting.

Meetings every three or four months were anticipated and in fact have occurred. It was also clear from the beginning that GTRI program management plans, documents and procedures must be in compliance with applicable NNSA guidelines, and the Defense Nuclear Nonproliferation Programs (NA-20) Program Management Manual (Version 1, Spring 2005), as revised. GTRI program management practices are also intended to adhere to Office of Management & Budget (OMB) guidelines, and other applicable US government requirements and guidelines.

4. The Program Management Reviews

It was understood from the beginning of this process that the formation of a high level PM review team and the first meeting would be intended to test the advisory concept. The first meeting was to demonstrate the value of independent reviews. The first meeting was held in May 2007, with documents reviewed and a meeting with GTRI management held in Washington, DC during May 2007. The results were so positive that GTRI management agreed

to continue. A Phase II review contract and schedule were established, with review meetings in November 2007 and March 2008. At the conclusion of the third meeting, a Phase III review process was formulated and is now underway, with three meetings each in 2008 and 2009 now scheduled.

The following program documents were reviewed:

- Office of Global Threat Reduction Program Management Plan
- Defence Nuclear Nonproliferation Programs' Program Management Manual;
- GTRI Strategic Plan and Program Management Plan
- GTRI Communications Plan,
- G2 PMIS plans, manuals and documents.

In addition, the team received demonstrations of the G2 PMIS as it came on line during 2007 and 2008, along with associated documentation, training plans and examples of ongoing portfolios and projects. The PMForum senior advisors reference applicable project management standards during their review, references to which will be included in recommendations and reports, as appropriate.

5. Results Achieved

5.1 Results of Individual Reviews

Program management reviews were held in Washington, DC during May and November 2007 and during March and July 2008. Each review consisted of two days of meetings, along with reviews of documents before and after the meetings. Each meeting consisted of presentations by GTRI program management team members and briefings by G2 project management on the status of the overall program, the new G2 PMIS being developed, key program management documents, training and other related matters. Each meeting was attended by the four PMForum advisors, the full team of representatives from the National Labs, and GTRI program management representatives. At the end of each meeting, an Outbriefing of major findings, positive observations, concerns and recommendations was provided to the GTRI Program Executives.

Over the course of the two years and four reviews significant progress was made by the GTRI program management team. Suggestions arising from the review process in 2007 resulted in improvements in the overall program organization, project management documents and maturing of the system.

5.3 Summary of Findings and Recommendations

Over the course of the two years and four reviews, significant progress was made by the GTRI program management team. The Review Team duly recognized and commended the program on the following major positive aspects:

- Strategic – top down – program planning was quite thorough and well done
- Executive leadership, direction and sponsorship are extremely strong
- Teaming with the National Labs seemed effective, with important projects being accomplished

- The G2 PMIS is headed in the right direction, has been developed very fast, and has very impressive features, flexibility and functionality – the geographic mapping interfaces and web-enabled features are very strong
- The emphasis on project management, and cost and schedule control, is strong
- The Program planning and budgeting is carefully and fully aligned with DOE's annual budget cycle
- The emphasis in the system on Change Control is well defined, practical and very strong

Suggestions arising from the review process in 2007 resulted in improvements in the overall program organization, project management documents and maturing of the system. The most significant recommendations included:

- Alignment of program, portfolio and project management issues and requirements
- Additional emphasis on the development and usage of the Work Breakdown Structure
- Additional emphasis on stakeholder communications and Risk Management
- Additional emphasis on clearly defined Roles and Responsibilities
- Additional emphasis on Integrated Program Management with Earned Value Management and reporting
- Care needed to ensure alignment with OMB and GAO budgetary and cost reporting guidelines
- Care needed to ensure consistent use of program and project management terminology and concepts

5.4 GTRI Responses, Actions Taken

At the end of each review, a summary report with recommendations was presented to the GTRI Program Executive. In every case, GTRI responded to each identified issue and recommendation. Over the course of the two years and four reviews, significant progress was made. Suggestions arising from the review process in 2007 resulted in improvements in the overall program organization structure, project management documents and maturing of the G2 system. Based on review comments, additional emphasis was placed on organizational development, delineation of roles and responsibilities, and communications. The independent review team was impressed with the responsiveness of GTRI management.

6. Benefits to GTRI and the Public

We feel that the Program Management Review process, and the use of outside independent PM experts, has resulted in significant benefits to the program and to other governmental and public stakeholders. Benefits to the GTRI program have included (a) reduced risks, as the program planning has become more comprehensive with emphasis on program risk management; (b) more comprehensive program and project planning; (c) program and project management policies, processes and systems are more closely aligned and consistent with globally recognized project management standards and best practices; and (d) additional assurance that the removal, conversion and protection projects will be planned, managed and completed on time, within the budgets allowed, and according to the high quality demanded for such a program. We have been quite excited to be involved with such an important program, where better program and project management can actually result in greater global security. We have

been even more thrilled to see professional program and project management improvement processes taken so seriously by the leaders of this important governmental agency.

References

- [1] *The Radiation Source Protection and Security Task Force Report, Report to the President and the U.S. Congress Under Public Law 109-58, The Energy Policy Act of 2005, 2006.*
- [2] *Program Management Plan, Office of Global Threat Reduction, National Nuclear Security Administration, US Department of Energy, Washington, DC.*
- [3] *Global Threat Reduction Program Management Information System, System Development Plan, April 23, 2007, GTRI program office, Washington, DC.*

Editor's note 2: the GTRI program/project management approach, including its PMIS, might be ideally suited for application to the infrastructure portion (\$150 billion+) of the American Recovery and Reconstruction Act of 2009. The latest version of the GTRI Strategic Plan is available for public review at <http://pmmanifesto.ning.com/forum/topics/an-example-of-a-large>.

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