Management Principles for Nonproliferation Organizations

SL Frazar
G Hund

March 2012

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor Battelle Memorial Institute, nor any of their employees, makes **any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights**. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof, or Battelle Memorial Institute. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

<div align="center">

PACIFIC NORTHWEST NATIONAL LABORATORY
operated by
BATTELLE
for the
UNITED STATES DEPARTMENT OF ENERGY
under Contract DE-AC05-76RL01830

Printed in the United States of America

Available to DOE and DOE contractors from the
Office of Scientific and Technical Information,
P.O. Box 62, Oak Ridge, TN 37831-0062;
ph: (865) 576-8401
fax: (865) 576-5728
email: reports@adonis.osti.gov

Available to the public from the National Technical Information Service
5301 Shawnee Rd., Alexandria, VA 22312
ph: (800) 553-NTIS (6847)
email: orders@ntis.gov <http://www.ntis.gov/about/form.aspx>
Online ordering: http://www.ntis.gov

</div>

This document was printed on recycled paper.
(8/2010)

Management Principles for Nonproliferation Organizations

SL Frazar
G Hund

March 2012

Pacific Northwest National Laboratory
Richland, Washington 99352

1.0   Executive Summary

The organizations responsible for reducing the nuclear proliferation threat have experienced a substantial growth in responsibility and visibility since the September 11 attacks. Since then, the international community has witnessed revelations of clandestine nuclear facilities, nuclear black markets, periodic nuclear tests, and a resurgence of interest by countries worldwide in developing nuclear capabilities. The security environment will likely continue to evolve in unexpected ways since most of the proliferation threats with which the world will be forced to contend remain unforeseen.   To better prepare for and respond to this evolving security environment, many nonproliferation organizations are interested in finding new or better ways to increase the effectiveness and efficiency of their operations.

Of course, all organizations, whether they are market driven or non-profit, must operate effectively and efficiently if they are to succeed. Indeed, as this study demonstrates, many of the management principles that this study recommends can help all organizations succeed. However, this study pays particular attention to nonproliferation organizations because of the mission they are responsible for fulfilling. Nonproliferation organizations, including nonproliferation programs that operate within a larger national security organization, are responsible for reducing the threat of nuclear, chemical and biological weapons. These organizations have an enduring mandate from the public and the international community not to fail in the completion of their mission for failure could have detrimental impacts on international security, public health and the environment. Moreover, the public expects nonproliferation organizations and programs to fulfill their mission, even when resources are limited. They are expected to anticipate and react quickly to prevent a potential threat while staying accountable to their public stakeholders, many of whom remain unaware of the very threats the organization is trying to address. When budgets are flush, it is easy to believe that money will solve all problems; but during times of economic hardship, managers must rely on creative and cost-effective management approaches to implement their missions.

Fortunately, managers of nonproliferation organizations can draw on a wealth of research on organizational design and culture to help them identify the management strategies most appropriate for them. Such research can help nonproliferation managers think about their own organizational structures and cultures and adapt accepted management principles to their unique organizational mission. This analytical process is not straight forward, as some managers may find themselves taking risks that others might not take, such as making ostensibly risky investments for the common good, or supporting creative thinking to help mission accomplishment. Some management principles that are relatively straightforward for other organizations may be difficult to envision and implement in a nonproliferation organization.

Therefore, the goal of this study is to help nonproliferation managers identify management principles that can be implemented in a nonproliferation organization and, in the process, help maximize the value of the organization's products and effectiveness of its mission.

The term organizational design generally refers to "the manner in which a management achieves the right combination of differentiation and integration of the organization's operations, in response to the level of uncertainty in its external environment."[1] Our research indicated that simply moving staff into

---

[1] "Organizational Design." www.businessdictionary.com. Accessed on December 6, 2012.

new positions or consolidating staff responsibilities does not always lead to better integration or coordination. One of the most salient arguments comes from David Nadler and Michael Tushman, who noted that structural realignments often fail because managers do not give proper attention to the processes and culture that must operate within the new structure.[2]

To gain a better understanding of the processes and culture that operate within organizational structures, we tried to identify the most recognizable drivers and features that define the operational processes and culture of a nonproliferation organization. We found that the greatest challenges nonproliferation organizations face come about because of three major features: they operate in unpredictable environments using unreliable sources of funding (e.g., taxpayer money, Member State donations) while relying significantly on temporary and external staff (e.g., contractors[3], cost-free experts). In short, nonproliferation organizations are forced to anticipate and respond rapidly to events without having full control over their budget or staff.
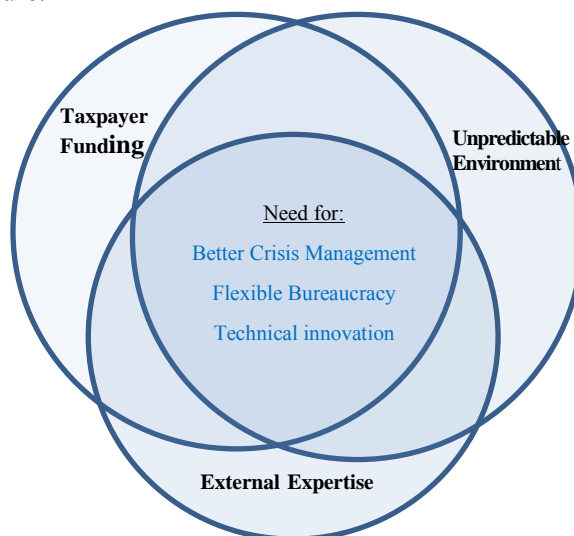

Figure 1: Management Environment in which Nonproliferation Organizations Operate

These features coalesce into a management environment that necessitates better methods for handling crises effectively and efficiently; organizational structures flexible enough to engage staff from disparate organizations in the decision making process; and technical innovation that enables the organization to generate products that will meet international challenges, even during economic downturns.

Based on these observations, we recommend several management principles that could help improve the effectiveness and impact of the nonproliferation organization's products. Each recommendation is explained in detail in section 3.0.

1. *Invest in and promote idea generation for more innovative public goods.*

2. *Establish avenues for staff to contribute to and improve the organization's mission.*

3. *Involve a broad variety of perspectives in more effective scenario-based planning.*

4. *Leverage contractor ingenuity via blind proposal calls and program reviews.*

5. *Improve crisis management by introducing aspects of a network design.*

---

[2] Nadler, David, and Michael Tushman. *Competing by Design: The Power of Organizational Architecture.* New York. Oxford University Press. 1997.

[3] For the purposes of this paper, "contractors" can refer to both federally funded research and development centers (FFRDCs or National Laboratories), whose staff and infrastructure are primarily funded by the U.S. Government, and support service contractors, which are private companies that provide services to the U.S. Government. Although FFRDCs and support service contractors serve very distinct roles and purposes, both types of contractors provides staff that are perceived as external to the primary organization. Specifically, this means staff are not on the direct payroll of the primary organization.

This study is divided into two sections. Section 2.0, entitled "Structuring a Nonproliferation Organization," describes four common organizational design structures and the strengths and weaknesses of each in the context of an organization with nonproliferation in its mission. This section is intended to establish a baseline of understanding about common organizational structures that may be found, in some form or another, in most organizations. Section 3.0, entitled "Managing a Nonproliferation Organization," explains how the features of a nonproliferation organization create a management environment that calls for consideration of more flexible management principles to improve the effectiveness of the organization. The section elaborates on the aforementioned recommendations, which focus on both structural and cultural reforms.

2.0   Structuring a Nonproliferation Organization

The term "organizational design" generally refers to "the manner in which a management achieves the right combination of differentiation and integration of the organization's operations, in response to the level of uncertainty in its external environment."[4] Specific studies examine the different approaches and methodologies for optimizing an organization's structure to support its mission.[5,6,7] Some explore the elements of an organization's culture to determine how work flow, incentive structures, staff-management relationships and performance metrics advance or hinder organizational effectiveness.[8,9,10] Others look at the process of organizational change to determine how it contributes to an organization's success or failure.[11,12] Despite the spectrum of work that exists, one common finding among the experts is that there is no one right way to structure and manage an organization. In fact, as John Kotter and Leonard Schleshinger explain, managers seeking to improve organizational performance through restructuring often encounter resistance because they do not pay proper attention to the restructuring process itself. They note that such managers often commit two common mistakes: 1) they "apply a simple set of beliefs" to the situation and 2) "few take the time to assess systematically" the changes they wish to make and who might resist those changes. They make assumptions, which are sometimes erroneous, about the people being affected by the change and don't sufficiently involve staff in the change process. Kotter and Schleshinger's work suggests that effective organizational change requires managers to analyze problems that need to be addressed, identify the factors to solve those problems, and engage

---

[4] "Organizational Design." www.businessdictionary.com. Accessed on December 6, 2012.

[5] Nadler and Tushman. *Competing by Design*.

[6] Nohria, Nitin. "Note on Organization Structure." *Harvard Business School.* Harvard Business School Publishing. 30 June 1995. Boston, MA

[7] Snow, C.C., R.E. Miles, and H.J. Coleman, *Managing 21st Century Network Organizations.* Organizational Dynamics, 1992. **20**(3): p. 5-20.

[8] Cosier, Richard and Charles Schwenk. "Agreement and thinking alike are ingredients for poor decisions." *Academy of Management Executive.*

[9] Nadler, and Michael L. Tushman. 1983. "A General Diagnostic Model for Organizational Behavior: Applying a Congruence Perspective." In J. Richard Hackman, Edward E. Lawler III, and Lyman W. Porter (eds.) *Perspectives on Behavior in Organizations*. Toronto: McGraw-Hill: 112-124.

[10] Lawler, Edward E. III. *Choosing an Involvement Strategy." Academy of Management Executive. 1988. 197-204.*

[11] Kotter, John P., and Leonard A. Schlesinger. 1979. *Choosing strategies for change*. Boston, Mass: Reprint Service, Harvard Business Review.

[12] Beer, Michael; Russell Eisenstat and Bert Spector. "Why change programs don't produce change." *Harvard Business Review.*

staff in change implementation.[13]   Managers following such an approach will be in a better position to develop a strategy that reflects the organization's unique operating environment. Organizations often will undergo several restructuring efforts before finding the right fit. According to David Nadler and Michael Tushman, this concept of "fitness" has the most impact on an organization's success or failure, i.e., "…the greater degree of congruence, or fit, among the various components, the more effective the organization will be. Put another way, the degree to which the strategy, work, people, structure, and culture are smoothly aligned will determine the organization's ability to compete and succeed."[14]

Determination of the best fit for all the elements of the organization begins with an examination of the organization's structure. Organizational design researchers generally agree that identifying the optimal structure of the organization plays a critical role in determining organizational effectiveness. "Grouping…focuses the organization, determine[s] what the organization will be able to do well and deemphasize[s] other work."[15] This section will focus on the structural forms that are often found in organizations and discuss the strengths and weakness of each type of form within the context of a nonproliferation organization.

In general, there are three basic forms of organizational grouping: by activity, by output, and by customer/user or geography.16

Nitin Nohria uses more traditional descriptions of these groupings as organizational forms:17

1. The Functional Form, which groups people by activity (e.g., similar functions, disciplines, skills or work processes).

2. The Divisional Form, which groups people by output, product or service.

3. The Matrix Form, which is a hybrid of the functional and divisional form and similar to grouping by user, customer or geography.

4. The Network Form, which is based on the matrix concept but emphasizes the reliance on fluid teams of so-called "knowledge workers" who serve as direct intermediaries with the environment.

We will now turn to a more detailed description of the different types of organizational designs and their impact on a nonproliferation organization. It is important to note that the pure forms of the structures described here can impose certain limitations on organizations. Most organizations adapt these pure forms to meet their needs and mitigate any limitations that may be imposed. Regardless, understanding the benefits and drawbacks of each pure form can help inform managers' decisions about the types of management principles that might work best within each type of organizational structure.

Functional Form: The structure of the organization is hierarchical with activities grouped together by common function (e.g., engineers are grouped with other engineers; analysts with other analysts, and

---

[13] Kotter. "Choosing."

[14] Nadler. *Competing by Design.*

[15] Nadler. *Competing by Design.* p. 73.

[16] Nadler. *Competing by Design.*

[17] Nohria, Nitin. "Note on Organization Structure."

technology developers with other developers). The functional structure is designed to promote economies of scale with planning and budgeting conducted by each function. Quality and efficiency of product delivery is paramount, thus ensuring customer satisfaction and product sustainability. For this reason, an organization operating with a functional form "is most effective in a relatively stable environment"[18] where it has high confidence in its ability to anticipate and adapt to minor upsets in the market and demand for its products.

Regardless, a functional form can be very appealing to nonproliferation managers who must maintain high levels of accountability to their public stakeholders. Lines of authority and accountability are clear to those inside and outside the organization operating under a functional form. However, such high levels of accountability can hinder an organization's ability to "respond to environmental changes that require coordination between departments…decisions pile up and top management cannot respond fast enough."[19] This can be detrimental in a nonproliferation organization since the full scope or nature of a potential threat does not manifest itself until two or more perspectives come together to connect the dots. This phenomenon is most prevalent when dealing with problems such as illicit trafficking. In such cases, the ability to efficiently coordinate and integrate activities and information is more important than ensuring economies of scale.

Another feature of pure functional forms that some nonproliferation managers may find appealing is that "each employee has a restricted view of the overall goals of the organization."[20] In a national security environment, the restriction or compartmentalization of information is necessary to protect the release and dissemination of sensitive information. However, productive nonproliferation organizations must balance the need to protect information with the desire to share information quickly and efficiently. Moreover, restricting information according to function precludes staff from feeling their work contributes to a greater cause, a motivating feature that will be discussed in section 3.0.

Divisional Form: The divisional organization groups diverse functions into divisions, combining all the resources necessary to produce a product into one group. A single division would have elements responsible for manufacturing, research and development, and marketing. Coordination across functions within a division is maximized, enabling each division to operate as a separate business. Each division is has its own manager, while a higher-level office typically oversees and coordinates resources across the divisions. Each division is held accountable for its performance, creating an atmosphere that enables intrinsically-motivated employees to "identify with their division."

Matrix Form: When an organization needs both specialized expertise within functions and close coordination across functions, it may utilize a matrix structure. Under a matrix structure, divisional and functional managers share authority and staff have multiple responsibilities that warrant reporting to both. For example, while staff are grouped by function (e.g., nuclear engineering), they work as team members with staff from other functional groups to support specific projects, each with its own leader. When that project is complete, the team disbands. The multiple lines of authority, coupled with flexible resource allocation, enable the organization to address a spectrum of demands from multiple clients simultaneously. As a result, the matrixed organization is able to respond quickly to a dynamic environment while offsetting the loss of economies of scale typically offered under a functional form.

---

[18] Ibid.

[19] Ibid.

[20] Ibid.

Network Form: The network structure is similar to the matrix concept in that it emphasizes staff integration and coordination. More importantly, it gives precedence to the informal network over the formal organization. In the functional, divisional and even matrix structures, managers play a key, if not defining role in the organization. In an informal, networked organization, "knowledge workers" are key decision makers. Together, they serve on cross-functional teams that work on demand, based upon the needs of the environment or clients. Although these teams work under minimal supervision, high level managers provide broad strategic direction directly to the teams, eliminating the need for middle management. Of course, this structure raises an important question: how does the organization hold accountable these knowledge workers and ensure they are acting in the best interests of the organization? As Marshall Van Alstyne explains, "For autonomous employees to make decisions favoring the organization, the employee's and the organization's goals must coincide. Networks resolve this problem by moving project ownership and the *locus of decisions* closer to the point of action within the network."[21] As we will elaborate in section 3.0, organizations organized in ways that promote accountability could also integrate certain aspects of the informal, network structure to enable a more effective and effective response to fast moving crises.

3.0   Managing a Nonproliferation Organization

If organizational design focuses on the manner in which management achieves the right combination of differentiation and integration of the organization's operations, management principles are the guidelines management follows to achieve the right combination of activity differentiation and integration.

To identify the management principles that are most likely to optimize an organization's products, we first sought to identify the most recognizable features that define the operational processes and culture of a nonproliferation organization.   We found that the greatest challenges nonproliferation organizations face come about because of three major features: they operate in unpredictable environments using unreliable sources of funding (e.g., taxpayer money, Member State donations) while relying significantly on temporary and external staff (e.g., contractors, cost-free experts). In short, nonproliferation organizations are forced to anticipate and respond rapidly to events without always having full control over their budget or staff.
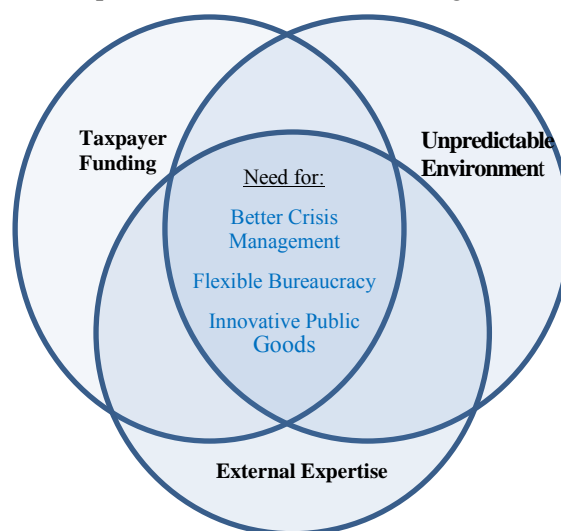

Figure 1: Management Environment in which Nonproliferation Organizations Operate

---

[21] Van Alstyne, Marshall. "The State of Network Organization: A Survey in Three Frameworks." *Journal of Organizational Computing and Electronic Commerce.* Vol. 7, Issue 2-3. June 1997. Pp. 83-51.

These features coalesce into a management environment that necessitates better methods for handling crises effectively and efficiently; a management philosophy flexible enough to engage a staff from a disparate organizations in the decision making process; and technical innovation that enables the generation of products that will meet international challenges, even during economic downturns. The following recommendations are intended to help managers identify and adapt some accepted management principles to this environment and improve the organization's ability to reduce the threat of nuclear, chemical and biological weapons.

3.1   Recommendations:

Generating Innovative Public Goods:

1.   Invest in and promote idea generation for more innovative public goods

The products of a nonproliferation organization are activities such as services, inspections, reviews, and training; or tangible deliverables such as equipment, inspection reports, or technical documents containing policy or regulatory guidance, guidelines and information. Such products can be considered public goods or a "good that …the marketplace cannot provide by itself: property rights, national security, safety, standards, or fundamental research are all examples of public goods."[22] The IAEA's nonproliferation, technical cooperation assistance, standards setting, and research and development activities can all be considered public goods. It is important to distinguish these goods from similar commercial products since there is often a distinct lack of demand for some products of a nonproliferation organization. For example, one NNSA program is designed "to remove or secure significant quantities of excess, vulnerable radiological materials that exist worldwide and could be used to make a dirty bomb."[23] This is a top U.S. national priority that requires significant investment by another country. However, partners in this mission often have their own national priorities that may supersede this.

To be successful in completing their mission, nonproliferation organizations need ways to support innovative thinking, particularly during times of economic downturn. Resource-constrained organizations often choose to focus their resources on addressing immediate problems; they don't always invest in solutions or methods that enhance product quality, efficiency or effectiveness. They look for solutions that are sufficient for getting the job done. However, nonproliferation organizations responsible for anticipating unforeseen problems and handling sensitive materials, technologies and information must rely on creative solutions that produce effective, efficient and high quality products, regardless of available resources. There are a number of options that managers can pursue to advance innovative thinking to help them complete their mission.

---

[22] Toomey, Chris; Kurzrok, A; Wyse, E; and Ford, B. *Assessment of Alternate Funding Mechanisms for the IAEA.* Pacific Northwest National Laboratory. October 2011. PNNL-20830

[23] National Nuclear Security Administration, Office of Global Threat Reduction. Website available at: http://www.nnsa.energy.gov/aboutus/ourprograms/nonproliferation/nuclearradiologicalmaterialsecurity/radiologicalsecurity. Accessed on 4 August 2011.

One option is to solicit ideas for high-risk/high-payoff technologies, which "…if solved, will be of enormous benefit to U.S. national security, even if the risk of technical failure is high."[24] These investments can be difficult to justify, particularly during times of economic uncertainty. If the project is perceived as too implausible or does not bear fruit immediately, the investment will be perceived as a waste of public funding, drawing limited resources away from more pressing problems. There may be a perception that an ostensibly failed investment may put future funding at risk. Moreover, there is sometimes great reluctance to consider politically unpopular or controversial ideas, out of fear of retribution or unfavorable media coverage.

The Defense Threat Reduction Agency and the research and development office at NNSA already invest in these types of projects, and organizations or programs focused on other aspects of the nonproliferation mission, such as international engagement or nonproliferation policy, could benefit from these types of ideas as well. For example, analyses of seemingly unpopular or politically infeasible ideas could prepare the organization to respond more effectively to unforeseen events or even position the organization to help shape future nonproliferation decisions.

Another option is to give staff more autonomy to innovate and contribute ideas for implementing the mission. There are a number of studies that suggest greater autonomy to contribute to the mission leads to increased creativity but also serves as a strong incentive to those who want to contribute to a greater cause.[25] In his presentation to the Royal Society for the Encouragement of Arts, Manufactures and Commerce, Dan Pink, best-selling author and former White House speechwriter, describes software companies that offered staff one day of "pure, undiluted autonomy" to address the needs of the organization. [26] He explains that the results of that day led to a whole array of new products that otherwise would not have emerged. Pink added that rather than offer innovation bonuses and raises, managers who said "you probably want to do something interesting, let me just get out of your way" experienced an "unprecedented" level of high performance and innovation among their staff.

This is not an easy option to consider. Most would feel that the removal of oversight, no matter how temporary, from a high-consequence, high-risk environment, is unacceptable. It's important to clarify that we do not advocate removal of oversight or accountability. Rather, we see great benefit in offering staff opportunities to explore new ideas with each other in an accepting and politically neutral environment without concern for whether the idea will make it through the bureaucracy. This could mean encouraging staff to dedicate time specifically for brainstorming new ideas with key stakeholders or supporting staff development of controversial ideas that might otherwise be seen as "rocking the boat." This could also mean offering discreet opportunities to explore cutting-edge technologies or policies that might otherwise be considered impossible or unimaginable. A network organization that moves project ownership and the locus of decisions closer to those doing the work might be the most effective structure for supporting this type of innovative thinking.

---

[24] Defense Threat Reduction Agency. *Strategic Plan.* February 2003. Page 5. Available at: http://www.missilethreat.com/repository/doclib/20030200-DARPA-strategicplan.pdf. Accessed on 30 December 2011.
[25] Lawler, Edward III. *Choosing an Involvement Strategy*. Pink, Dan. "Drive: The surprising truth about what motivates us." http://www.youtube.com/watch?v=u6XAPnuFjJc. Accessed on July 26, 2011.
[26] Pink. "Drive"

Operating a Flexible Bureaucracy:

2.   *Establish avenues for staff to contribute to and improve the organization's mission.*

While staff performance is a common concern among all organizations, the issue takes on heightened importance in organizations that primarily rely on temporary or contractor staff to implement their mission. How does a manager motivate staff who are not on his/her direct payroll; what incentives does he/she have at his/her disposal? How can managers effectively and efficiently inform and engage temporary employees, such as the cost-free experts who support the IAEA, in advancing the mission and strategic direction of the agency? How does a manager minimize the risks associated with contractor involvement in government projects? How do you retain technical or specialized skill sets when competing budget priorities can't sustain certain positions? How do you minimize waste, fraud and abuse?   The biggest challenge these questions raise is how does an organization incentivize staff over whom they have temporary, limited or no control? This is an important question since mission effectiveness has been shown to be, in part, dependent on staff understanding and ownership of the overall mission. Staff disaffection can lead to low productivity, poor product development, project delays and an increase in security risks, which hinder the organization's ability to accomplish its mission.

Edward Lawler understood the significance of staff understanding and ownership of the organization's mission.[27] Lawler explains, "If individuals are going to care about organizational performance, they need to know about it, and be able to influence it, be rewarded for it, and have knowledge and skills to contribute."[28] Staff who don't know or understand the rationale behind their day-to-day activities will never feel motivated to improve their performance or be empowered to take action. When staff are left out of key organizational decisions, they feel isolated and unappreciated.

Without ceding total control over key decisions to lower-level staff, there are steps managers can take to help staff feel like they are part of and can influence the process. For example, holding periodic off-site meetings that offer staff opportunities to interact in a politically-neutral environment devoid of daily distractions can lead to more focused and creative discussions about innovative or even unpopular ideas. For federal managers, simply dedicating a single "off-site day" every month or quarter for staff to convene and assess the continuously-changing environment, resolve ongoing issues and brainstorm new ideas for accomplishing the mission could lead to creative new solutions that reinvigorate staff morale and reassert staff involvement in the program. To ensure these meetings are not perceived to be just another day off from work, staff concerns and ideas could be solicited before the meeting and addressed explicitly during the off-site. Skilled facilitators who understand the organization's mission and culture should be used to guide discussion toward specified goals. Follow-on meetings with key stakeholders should focus specifically on ways of implementing recommendations and ideas that arose during the meeting. When staff feel their ideas, no matter how unconventional, are recognized and appreciated by management, they are more likely to continue thinking of new and better ideas.

Strategic, communication and project management plans are important vehicles for encouraging staff involvement in the program or organizations. Strategic plans that contain a clear vision statement and description of important goals, objectives and performance metrics can promote staff acceptance of and

---

[27] Edward Lawler is a professor of business at the University of Southern California Marshall School of Business and an author of more than 40 books on effective management strategies.
[28] Lawler, Edward III. *Choosing an Involvement Strategy*.

investment in the organization's mission. Communication plans that reflect the views expressed in the strategic plan can give stakeholders a window into the organization's decision-making process. Meanwhile, program management plans that describe the office or program's operational practices can help staff understand how they can best use their skills to support the program's mission. Finally, giving staff the ability to provide feedback on lessons learned and to drive initiatives that improve the organization's operations allow staff to remain invested in the organization's wellbeing.

3. *Involve a broad variety of perspectives in more effective scenario-based planning.*

Unanticipated events can have a direct impact on a nonproliferation organization's ability to complete its mission effectively and efficiently. Unexpected events such as revelation of a clandestine nuclear program, a nuclear accident or theft, even a declaration about a country's plans to give up its nuclear weapons program, can redirect funding and resources away from planned activities to address the immediate crisis. Such funding redirection places significant strain on existing nonproliferation programs, plans and priorities. For example, the International Atomic Energy Agency's (IAEA) received an "unanticipated request in 2007 to conduct verification activities related to the shutdown of nuclear facilities in Democratic People's Republic of Korea," which required "a sudden fundraising effort to finance this unfunded activity."[29] The strain is most acute in organizations funded by taxpayers, Member States or other voluntary contributions. Financial stakeholders and regulatory bodies often place restrictions or conditions on how the money can be spent while holding organizations accountable for responding to crises quickly and efficiently. As stated in a 2005 GAO report on the IAEA's Nuclear Security Programs, the "IAEA's heavy reliance on these voluntary contributions …creates challenges for the agency in planning and implementing its activities. For example, the conditions most donors place on the use of their funds limit the IAEA's ability to direct resources to meet program needs."[30]

Given the pressure to address crises while remaining accountable to those who hold their purse strings, many organizations use strategic planning, and scenario-based planning, to help them plan for the future. For example, at the IAEA, "There is a renewed and transparent effort by the IAEA Secretariat to…develop a management culture that emphasizes accountability, a readiness to accept change, and effective coordination with other organizations."[31] It is making concerted efforts to improve short and long-term planning; link budget requests to clear statements of need; and demonstrate systematic, objective evaluation of program implementation."[32]

Achieving these goals requires a clear understanding of the strategic environment in which the organization is operating. Effective strategic planning that involves scenario-based planning[33] can be particularly useful for a nonproliferation organization whose greatest challenge is anticipating the next big threat. Scenario-based planning enables staff and managers to stimulate innovative thinking about ways

---

[29] *20/20 Vision for the Future*, report by IAEA Director General for the Commission of Eminent Persons, February 2008.

[30] U.S. General Accounting Office. *IAEA has Strengthened its Safeguards and Nuclear Security Programs, but Weaknesses Need to be Addressed*." GAO-06-93. Washington, DC: General Accounting Office, 2005. P. 47. http://www.gao.gov (accessed August 6, 2011).

[31] International Atomic Energy Agency. "Report of the Commission of Eminent Persons on the Future of the Agency." Board of Governors General Conference. GOV/2008/22-GC(520/INF/4. Page ix.

[32] Government Accountability Office. "IAEA has Strengthened its Safeguards and Nuclear Security Programs, but Weaknesses Need to be Addressed." October 2005. GAO-06-93.

[33] Scenario-based planning is the process through which managers create and then consider in-depth future scenarios, including seemingly implausible scenarios.

to reduce high levels of uncertainty through a structured, coherent methodology. Peter Schwartz, an expert in scenario based planning, offers managers a ready set of resources to guide them through the process.[34,35] He writes that, "[s]cenarios are not predictions…[but] vehicles for helping people learn. Unlike traditional business forecasting for market research, they present alternative images of the future."[36] In general, scenario-based training improves organizational response to crises because it enables staff and managers to consider potential crises and effective responses. They may expose staff to how other disciplines approach problem solving, thereby promoting the formation of informal, yet informed, networks that can be effective during crisis response. Limiting participants in this process could unnecessarily restrict the vision necessary for effective scenario-based planning.

4. *Leverage contractor ingenuity via blind proposal calls and program reviews.*

A major challenge for any organization is how to promote creativity and innovation through unbiased but accountable mechanisms. This recommendation has unique application in the U.S. Government. Blind proposal calls in which new ideas are presented to decision makers without attribution eliminate personal or political agendas that can often plague a proposal process. They also preclude "equitable funding" practices whereby several contractors are allocated an equitable share of the budget to avoid the perception of favoritism. Blind proposal calls also encourage more productive, creative competition among the contractors. One approach for implementing this idea is to use a "concept sharepoint" for proposal submissions to each program. Those submitting ideas will retain attribution for their ideas while staff members assigned to the program could then eliminate all identifying information from each proposal. Anonymity often facilitates the sharing of ideas and allows the program to evaluate each idea based on its relevance to the mission.

Program reviews enable all stakeholders to review ongoing activities, measure their progress and evaluate their impact. These exercises can reveal duplication of effort, opportunities for collaboration, and problems due to inappropriate staffing or inadequate funding. The absence of such reviews or excluding key stakeholders from the process could preclude opportunities to make more informed decisions that could significantly improve product quality.

Improving Crisis Management:

Layers of accountability typical in government organizations, particularly those with critical missions, can dampen creative thinking and hinder effective and efficient mission implementation. There is a clear need to identify strategies for mitigating the challenges created by accountability in order to improve organizational response to crises. Ben Page, chief executive of Ipsos MORI, a leading global research company in the United Kingdom, addresses this issue by advocating for more transparency, communication and trust among staff and managers. "It's making people feel they are listened to, giving people autonomy, and making sure there are clear goals…You have to accept that some things will go

---

[34] Schwartz, Peter. *Art of the Long View: Planning for the Future in an Uncertain World.* New York: Doubleday, 1996.
[35] Schwartz, Peter. *Inevitable Surprises.* New York: Doubleday, 2004.
[36] Schwartz. *Art.* P. 6.

wrong, but do so in a controlled, sealed way that will not destroy the organisation."[37] The problem with giving staff and particularly contractors more autonomy to act in the best interests of the organization is that product delivery tends to be high risk. The consequences of an unintentional slight, an insensitive remark or a political flap can have a negative impact on national or international interests. Thus, there is a strong desire, and need, to control staff, dictating their approach to implementation.   Managers who are able to balance individual initiative with accountability through use of small, trusted teams who operate under clear, specific guidance will be positioned to create better products as a result.

5.   *Improve crisis management by introducing aspects of a network design.*

As government bodies responsible to stakeholders, many government agencies, including DOE, NNSA and the IAEA, are structured along hierarchical designs that promote accountability. While such accountability is critical for organizations that answer to Congress and the taxpayer, it can also discourage collaboration and cooperation among staff. Thus, managers who introduce aspects of a network organization through utilization of ad hoc task forces, working groups and rapid reaction teams encourage teambuilding and other collaboration practices. This is a common practice in many nonproliferation organizations. Such groups often form in reaction to a specific but potentially transformative event such as a pending nuclear test or a revelation that a country has been developing clandestine nuclear facilities. Since such groups are intended to be complementary to ongoing work within the organization, they disperse once the urgent or near-term needs have been addressed. Such groups enable ongoing collaboration among multiple stakeholders to acquire breaking information, track ongoing events and coordinate organizational responses. They also place the decision-making process directly with those who have the most timely and relevant information about the event.

However, simply forming these ad hoc groups will not necessarily have any impact on how the organization functions. Granting the group of knowledge workers with the authorization to make certain decisions during fast-breaking events, under the leadership of senior level managers, can help the organization make rapid and informed decisions during a crisis. Alternatively, allowing the groups to communicate directly to senior management during times of crisis enables them to avoid the multiple layers of bureaucracy that often delay critical decision making while keeping accountability with the most senior members of the organization. In doing so, these teams enable the organization as a whole to adapt and respond quickly to a rapidly changing environment.

There is a large amount of uncertainty and risk inherent in this approach. Managers are often reluctant to concede control to staff purely on the assumption they will operate in support of the best interests of the organization. Successful efforts to provide autonomy must be accompanied by clear strategic direction that is inextricably linked with the organization's core nonproliferation values, beliefs, and vision. Such direction is often found in higher levels of a nonproliferation organization, but it is not always prepared for the lower levels. Strategic direction must be prepared for every major program in the organization to ensure each subprogram understands its role and function within the larger organization. It must also be communicated to all staff members on a regular basis and be accompanied by meaningful performance metrics that are easily accessible and comprehensible to the knowledge workers acting on

---

[37] Guardian Government Computing. "Pollster: Performance has little to do with pay, bureaucracy." *The Register.* June 10, 2011. http://www.theregister.co.uk/2011/06/10/pollster_says_autonomous_staff_best_for_business/. (Accessed on August 6, 2011).

behalf of the organization.   Ineffective guidance, communication and direction force staff to make their own assumptions about management's strategic vision for the organization. This, of course, increases the chances that staff will eventually work at cross purposes with the organization. Assuming, however, that appropriate guidance is communicated effectively, and staff are able to act independently in support of the mission, the greatest advantage of this approach is influence on the organization's adaptability in an uncertain, volatile environment.

4.0   Conclusions

For many managers, implementing reforms at their organization in an effort to improve product quality begins with some form of organizational restructuring. Decades of research into organizational culture and design demonstrate that simply moving boxes around an organizational chart is not sufficient for implementing desired reforms. Organizational design research tells us that managers must consider the processes, personalities and procedures that reside within the organization to ensure structural reforms have a positive impact on the organization. Because of a nonproliferation organization's mission to reduce the threat of nuclear, chemical and biological weapons, managers should consider how common management principles can help them complete their unique mission. This paper recommends a number of management principles that could help improve product quality and mission effectiveness. Ultimately, the most compelling message for nonproliferation managers comes from Edward Lawler: "If individuals are going to care about organizational performance, they need to know about it, and be able to influence it, be rewarded for it, and have knowledge and skills to contribute." When nonproliferation managers include staff in as many decisions as possible, enable them to feel ownership of the organization's activities and allow them to invest themselves in the organization's mission, the quality of the organization's products will likely improve.