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Looking out, looking in: competing organizational interests & the proliferation of Soviet WMD expertise

The collapse of the Soviet Union in the early 1990s raised concerns about the security of its nuclear weapons.¹ In response, the United States joined forces with countries of the former Soviet Union, especially Russia, as well as the European Union and other states, to create a series of programs aimed at securing former Soviet weapons of mass destruction (WMD), weapons-relevant materials, and scientific expertise. Of these efforts, the most troubled has been the one aimed at containing WMD skills and knowledge. Former Soviet weapons experts haven't sold their knowledge around the world; indeed, there have been almost no documented cases of such proliferation (although concerns remain about what goes unreported). Rather, it is the means chosen for fighting such proliferation – working with and reemploying WMD experts – that have proven problematic.

Cooperation with former cold war enemies certainly created a host of difficulties, as did the secrecy that surrounds nuclear, biological, and chemical weapons efforts. But there's a significant barrier to success found much closer to home. The U.S. bureaucracies tasked

with implementing programs focused on the proliferation of WMD expertise came up against a problem common to all organizations: the need to pursue and protect their own interests.

The notion that organizations have their own interests is well-established, although too often national security issues are assumed to be so important they trump this self-interested behavior. Organizations, the literature claims, seek to manage the environments in which they act. In particular, organizations that have to please similar authorities and that face comparable constraints exhibit isomorphic behavior. That is, they often respond to external pressure by aligning their interests with the interests of powerful external forces. This, in turn, means that organizations that face similar environments come to resemble one another, either through coordinated duplication or mimicry. But organizations also need to fit in at home. When organizations are given new tasks, these tasks come to be defined and implemented in ways that accommodate and reinforce the interests of the parent organization.

U.S. nonproliferation programs tried both to accommodate their external environments and to match their goals with the goals of their parent organiza-

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tions. The two largest programs, one in the State Department and another in the Department of Energy, adopted similar narratives about how their activities furthered nonproliferation. Each program, however, also adopted an implementation strategy that was heavily influenced by its parent organization. What resulted were two programs that accommodated their internal and external environments but were unable to achieve their original nonproliferation goals.

As the Soviet Union entered its final days, concerns increased about possible proliferation from its WMD complex, in part because of the potential for a violent transition, the accidental or unauthorized seizure and use of weapons, and uncertainty about the future of political relations with any Soviet successor state. Concerns also grew because Soviet security had focused on external border points, paying less attention to protective measures at individual facilities. When the Soviet Union collapsed, many newly independent states inherited weapons facilities that lacked sufficient measures to ensure that the weapons and material inside were safe from theft. In many cases, the contents of the facilities were inadequately inventoried, and sometimes little was known about what had happened inside. Moreover, economic conditions were grim for most people in the former Soviet Union, including guards and experts at the weapons facilities. Salaries were low – a weapons scientist might make \$100 per month or less, for example – and paychecks were often delayed by several months. Weapons facilities saw severely reduced government subsidies, and goods and services overall cost more.

This combination of poor security, uncertainty, and dire economic prospects

led the United States to fund a variety of efforts, collectively known as Cooperative Threat Reduction (CTR), aimed at countering proliferation from the former Soviet WMD complex. Some parts of CTR focused on securing the weapons themselves; other efforts dealt with weapons-relevant materials; and several programs were created to deal with the possible proliferation of weapons expertise. This last group of programs concentrated on providing income to weapons experts by funding short-term research contracts and, in the long term, working to reemploy the experts in commercial or non-defense, government work. Such programs were created in the Departments of Defense, Energy, and State, and included a variety of private and quasi-government efforts. The two largest programs were the Science Centers, managed by the State Department, and the Initiatives for Proliferation Prevention (IPP) program, in the Department of Energy.

IPP and the Science Centers date from the first years of CTR. In early 1992, U.S. Secretary of State James Baker announced the creation of the Science Centers during a visit to the closed nuclear city of Snezhinsk, Russia. The United States, along with members of the European Union, Japan, Canada, Sweden, and later Norway and South Korea, would create two centers that would fund short-term research projects involving former Soviet weapons experts and an outside research collaborator. The first center (also the largest) is the International Science and Technology Center (ISTC), based in Moscow, which works with scientists from Russia, Georgia, Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Tajikistan. The smaller Science and Technology Center of Ukraine (STCU), based in Kyiv, fo-

cuses on Ukraine, Azerbaijan, Georgia, Moldova, and Uzbekistan. Until 2004, the United States provided at least half of the funding for both centers; U.S. influence has dominated center policy and implementation strategies.

Although the ISTC was to be up and running in 1993, domestic political problems in Russia caused delays. Some legislators questioned the motives behind the center, wondering whether it was an excuse to spy on Russia's national security complex. Further delays arose from the wider struggle for power between the Duma and Russian President Boris Yeltsin. In September 1993, Yeltsin dismissed the Duma, which had not yet approved the measures needed to start the ISTC. By the end of the year, Yeltsin himself approved the necessary documents, and the ISTC was able to begin operations in March 1994. The STCU was also delayed, largely due to administrative issues associated with creating a government in the newly independent state of Ukraine. It began operations in November 1995.

Delays with the Science Centers prompted calls for more immediate action from the U.S. nuclear weapons laboratories. U.S. nuclear weapons experts had a long history of scientific collaboration with their Soviet counterparts that dated from discussions in the early 1960s about research on large magnetic fields. Later, joint experiments were conducted for the purposes of arms-control verification. By the early 1990s, some experts from the U.S. labs were well-aware of the dire economic and security problems in Russia, so when the Science Centers were delayed, U.S. labs at Los Alamos and Livermore began to fund research collaborations with a few key Russian nuclear weapons facilities. In 1993 funding was appropriated by Congress, and the next year IPP became a formal program.

Similar to the Science Centers, IPP funds collaborative, non-defense-related research between former Soviet WMD experts and outside scientists. Unlike the Science Centers, collaborators in the IPP program usually come from the U.S. lab complex. Careful not to be perceived as duplicating the work of the Science Centers, IPP created a second type of cooperative research that required matching contributions from U.S. industry. In theory this would help businesses enter the market in a post-Soviet country and hire away former weapons experts whose skills and products had been evaluated through the small-team research collaborations made possible by IPP.

Both the Science Centers and IPP were born from the assumption that economically desperate weapons experts are potential proliferation problems. The founding documents and debate that led to each of the programs show that they share the same mandate. In the short term, they are to fund collaborative research between teams of weapons experts and an outside collaborator. Besides providing income to the former Soviet scientists, engineers, and technicians, such research is supposed to help them become aware of Western research standards and how weapons skills can be translated into private, non-defense-related jobs. Over the long term, the Science Centers and IPP are supposed to help these former Soviet experts transition to reemployment outside of the weapons complex. This long-term mandate, designed to help Russia and other post-Soviet countries permanently reduce the size of their weapons complex, uses commercial interests as a way to, over time, end U.S. government funding of such efforts. This mandate gave both programs significant discretion to implement their programs and to respond

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to constraints they would encounter in the United States and the former Soviet Union. As predicted by the literature, both programs ultimately sought to accommodate the constraints that arose from these external environments in much the same way.

Organizations have no choice but to accommodate the demands of their external environments.² These environments set not just standards for results, but assumptions about legitimate outcomes, and about how outcomes are to be measured and what constitutes significant progress. When the actors who control an organization's funding, scope, and autonomy also define these assumptions, the actors can be ignored only at great cost to an organization's budget, mission, and possible future. Thus organizations come to do and measure what is valued by their environments, regardless of whether it is a rational or efficient means of achieving their original goals.

Further, the literature on organizations suggests that when asked to perform similar missions in a similar environment, organizations will adopt the same myths as justifications for their tasks. And they do so without conscious coordination. Over time organizations tend to look and act alike, not because there is general agreement that they are rationally and efficiently pursuing their goals, but because they share the same myths about what they consider to be legitimate activity.

The Science Centers and IPP demonstrate this isomorphism in several significant ways, including how the two programs prove that their projects involve genuine weapons experts; their responses to pressure to develop an exit strategy; their measurement of job creation; and their recent decisions to

cease work in Russia in favor of other countries. In each case, the programs adopted similar rules and procedures as legitimate, yet they did so without significant coordination. This unintentional alignment caused the programs to stray from their original nonproliferation goals.

Both IPP and the Science Centers are supposed to focus on engaging people with WMD credentials, including engineers and technicians, but especially scientists who have the core skills needed for making weapons. Both programs needed to demonstrate that they were dealing with the most dangerous proliferation concerns, but the legacy of mistrust and secrecy between the United States and the Soviet Union often made it impossible, or at least impolitic, to inquire about the skills of specific WMD experts. The programs, therefore, adopted two strategies for legitimization. One used the process of selecting project teams to make claims about reaching people with critical weapons skills. The second drew from the notion that U.S. project managers "just knew" who was or was not a weapons expert.

Without any obvious coordination, both IPP and the Science Centers came to focus on the rules of project selection as a means of verifying the weapons credentials of the people involved. At IPP, projects are normally not approved unless at least 60 percent of the project members are weapons experts. Although the Science Centers were largely independent of each other, they also adopted similar criteria: for basic scientific collaboration, project teams need to be at least 50 percent, preferably 60 percent, WMD experts before U.S. funding is considered. Both programs assumed that, as long as they funded at least some WMD experts, they addressed proliferation concerns;

thus the number of experts on each project team took priority, with little emphasis on the quality of those weapons skills or whether they were critical or tangential to weapons development. Moreover, there is no evidence that either program identified the weapons experts most likely to proliferate, or considered whether program funding should be focused according to the poverty level of experts or in terms of the relative value of their skills to a potential proliferator.

As a second measure to verify weapons credentials, the Science Centers adopted a process by which they asked each weapons expert to identify his or her particular skills according to a standard list of specialties and sub-specialties. IPP adopted a process and list that was close to identical, and neither program insisted on much external validation of the Soviet experts' self-identified skills – despite potential incentives to misrepresent abilities. Having more team members with weapons credentials increased the likelihood of a project being funded, and project funding meant that weapons institutes, crippled by economic conditions, stood to gain updated equipment, spare parts, and supplies for their operations. Eager for such enhancements, institute directors had little incentive to make sure their employees were forthright about their skills.

Instead of verifying weapons credentials rigorously, both the Science Centers and IPP assumed that secrecy prevented this. Over time, trust did develop between the United States and former Soviet institutes, and verification became less sensitive, even at places in Russia still engaged in nuclear weapons work. Instead of pursuing more rigorous options however, both programs relied increasingly on the “you just know”

method of verification. Program managers claimed that over time they got to know weapons experts in specific facilities and that their own expertise suited them to judge commensurate ability. Rather than collect additional information or verify what was offered by former Soviet experts, U.S. programs relied on an ambiguously described and informally gained sense of the skills of former Soviet experts.

In 1997, both the Science Centers and IPP came under increased pressure in the United States to show concrete results and to demonstrate an exit strategy for U.S. government assistance. In response, both programs reinvigorated their efforts to move beyond short-term research collaborations between scientists to more commercial-focused efforts that involve partial funding from businesses. At IPP these were referred to as Thrust II projects. They required that companies match U.S. government contributions and that research emphasize a commercial application. (There had always been a commercial component of IPP activities, but most funding had gone toward Thrust I projects, involving collaborations between scientists over basic research questions.) Similarly, the Science Centers also began to emphasize projects with contributions from third parties, only some of which were private companies. Referred to as Partner Projects, the research focused more on potential commercialization and less on basic research. Beginning in 1997, the Science Centers and IPP both placed more emphasis on these activities, and by 2000 they constituted at least half of project funding in both programs.

These new types of projects, with third-party participants, represented the means by which both programs sought to reemploy former Soviet ex-

perts, reduce the number of potential proliferation problems, and, in turn, provide a strategy for eventually ending U.S.-funded assistance. Economic conditions in the former Soviet Union, however, dampened hopes for business expansion or investment. Repeatedly, teams of weapons experts found it difficult to meet international quality standards, produce on a competitive basis, or incorporate market demands into their products. Moreover, the State and Energy Department personnel who managed these projects had, on average, little commercial business experience. As evidence multiplied that significant job creation was probably impossible, some in academic and policy communities suggested other alternatives, such as retirement subsidies, increased immigration to the West, or subsidies for U.S. companies to transfer and hire former Soviet experts in the United States, although there is no evidence that any alternative was seriously considered.

As both IPP and the Science Centers concentrated on creating jobs for former weapons experts, Congress pressured the programs to demonstrate their success. Instead of measuring the number of jobs created, both programs emphasized the number of scientists "engaged." According to the Science Centers, through 2005 their projects have involved almost seventy thousand people. IPP claims to have engaged some sixteen thousand, as of the end of 2006. These figures, however, raise three issues. First, both programs record the number of project participants in general, not the number of weapons experts in particular. If both programs adhere to the goal that 60 percent of project teams are weapons scientists, this makes questionable the proliferation danger of the remaining 40 percent of people engaged. Further,

neither program established a concrete estimate of its target population. In the absence of this context, it is difficult to know whether the reported numbers represent significant progress.

Second, even though the goal is job creation, neither program measures this result rigorously. The Science Centers keep no records of job creation, and although IPP does ask for this information periodically, it is satisfied with gross estimates from project managers or, sometimes, no information at all. Indeed, repeated investigations by the U.S. Government Accountability Office have faulted IPP for poor record keeping. Additionally, neither IPP nor the Science Centers investigate the activities or jobs of WMD experts once they cease working on U.S.-funded projects.

Finally, IPP and the Science Centers do little to coordinate their project funding. Therefore, it is difficult to assess reliably the degree to which they fund duplicate projects or the same former Soviet experts.

In the face of external pressure to develop concrete indicators of success, both the Science Centers and IPP focused on the myth that the number of people who participate in their activities is a legitimate measure of progress. The programs ignored measures that would have more accurately reflected progress toward the reemployment of WMD experts or the ultimate goal of reducing the danger of the proliferation of WMD expertise.

The response to U.S. concerns about Russia's reassertion of power illustrates further isomorphism between the Science Centers and IPP. During the early 2000s, under Putin the internal security forces in Russia regained authority. In turn, they were more likely to use

security as an excuse for limiting cooperation, making it more difficult to interact with former Soviet weapons experts and gain access to facilities. Russia also began to resist U.S. priorities for such cooperation, and broader foreign policy disputes brought some programs to temporary halts. The Bush administration, in fact, pursued an across-the-board rollback of cooperative work with Russia.

The Science Center in Moscow and IPP both responded by claiming that Russia could now afford to assume more of the burden for nonproliferation efforts, freeing the United States to focus funding in other countries. In the early 2000s, both programs began to reduce funding for projects in Russia and redirect efforts toward other parts of the former Soviet Union and points farther afield, such as Iraq and Libya. Four years later the State Department proposed including North Korea, South Asia, and the Middle East. In 2006, IPP, too, expanded its activities to Libya and Iraq and changed its name to Global Initiatives for Proliferation Prevention.

This expansion, done with no obvious coordination between programs, arose from the increased external constraints of working in Russia. Yet as both programs moved into other countries, they did so in the knowledge that Russia remained a key proliferation concern. Neither program had demonstrated significant job creation for former weapons experts, and Russia, while committed to downsizing its nuclear workforce, hesitated to do so until jobs were available for the excess workers. Economic improvements did not extend to all areas of the nuclear weapons complex, and even where they did they were contingent upon oil and gas prices, the source of much of the Russian government's revenues. Some policy experts

expressed concerns that the Russian government, despite an increased ability to do so, had been unwilling to invest in the utilities, spare parts, and equipment necessary to keep U.S.-funded cooperative security upgrades in place and functional. They lamented the absence of a "security culture" in Russia. Thus, in response to external constraints – and with plenty of evidence to the contrary – both the Science Centers and IPP adopted the myth that Russia could assume more of the funding and administrative burden itself.

Organizations face one set of constraints from the environments in which they operate; they face a different set at home. New organizations created to implement novel tasks are more likely to be successful if they do so in ways that reinforce the mission, interests, and goals of their parent organization. In other words, new programs need to fit in at home.

The literature on organizations attests to the problems experienced by programs that are significantly different from their parent organizations.³ Goals and activities that contradict standard routines, or that require significant changes to them, tend either to be marginalized, given away, or terminated, or implemented in such a way that forces them to line up with the interests of the parent organization. Although both IPP and the Science Centers adopted the same strategies for dealing with external constraints, they adopted significantly different implementation strategies, in an attempt to align their program goals with the interests of their parent organization.

For the Science Centers, this meant overcoming several characteristics that put them out of sync with normal State

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Department routines. The Centers are multinational organizations, and U.S. participation is managed by the State Department. At first glance, this would appear to indicate key commonalities: the Centers require the sort of skills and processes that make up the core of the State Department's diplomatic activities. However, some in the department saw the Science Centers as a security issue that more appropriately belonged to the Defense Department. To others, the Science Centers seemed out of place because they were functional activities, focusing on a particular type of work, in contrast to the State Department's tendency to organize along country or geographic-specific lines. Further, the Agency for International Development (AID), a quasi-autonomous part of the State Department, oversees most cooperative efforts like the Science Centers. In the past, there have been frequent conflicts between AID and the State Department over priorities, strategy, and program direction. The staff of the Science Centers also tends to be drawn from the executive service, rather than Foreign Service Officers (FSOs), and so they often do not enjoy the clout, authority, or career advancement opportunities that the State Department affords its FSOs. Finally, the Science Centers were out of step with normal State Department routines because they inherited especially strict oversight and accounting rules from the Defense Department, which helped lay the groundwork for the Centers in the early 1990s.

Conscious that they did not share many of the features of usual State Department programs, the Centers attempted to fit in by adopting the State Department's focus on process. The State Department negotiates agreements and implements decisions that

are made elsewhere, and is widely considered to be a "process organization," focused on the routines needed to ensure implementation, not on the decision-making needed to determine policy itself. Similarly, the Science Centers made administering the Science Centers their main focus. They established and came to value a set of detailed rules and procedures for project development, selection, and management, thereby helping to facilitate decision-making between the different member nations, all of whom retained the right to determine their own funding priorities while emphasizing decision-making by consensus. For these reasons, the Science Centers emphasized the process of project administration, reasoning that nonproliferation goals were met if due process was respected.

Unfortunately, this led the Centers to neglect the periodic reexamination needed to ensure that program activities still furthered nonproliferation goals. Take the Partner Projects, for example. The Science Centers, through U.S. leadership, considered these projects a success because they involved external funders and met established project criteria. However, they neglected to consider whether they resulted in job creation – a serious problem given that the vast majority of partners are now U.S. government agencies and not commercial entities.

At IPP, the pressure to fit in was different. IPP was conceived and established by experts from the U.S. nuclear weapons labs. These labs are part of the Department of Energy, which has traditionally allowed them considerable autonomy. As a result, IPP remained a largely decentralized program in which most significant decisions, including those about strategic direction and program funding, were made by the individual

labs. There was a small IPP staff, but it had the power only to persuade, not command.

Initially the independence of the labs proved very useful, enabling the flexibility and individual variation necessary to develop trust and cooperation with former Soviet weapons institutes. Over time, however, this independence led to coordination problems as each lab sought to send their own teams of experts to Russia. The result was frequent and excessive visits, which raised concerns in Russia about spying. In the United States, the labs allocated IPP resources through logrolling rather than prioritization, so project spending tended to reflect the need to harmonize funding between U.S. labs rather than the allocation of money according to project merit. Additionally, IPP was unable to force the labs to keep accurate or detailed records of their projects or the former Soviet experts involved. This led to a series of problems, including discoveries that more U.S. funding was going to U.S. labs than to Russian ones, and, most recently, to concerns that the U.S. labs have funded project teams in Russia that are also involved in nuclear energy and, possibly, weapons activities in Iran.

Looking at U.S. nonproliferation activities through the lens of organizational interest yields important policy-relevant conclusions. Both the Science Centers and IPP pursued inefficient strategies for fighting the proliferation of WMD expertise from the former Soviet Union, largely because they skewed implementation of their given tasks in an effort to conform to the activities valued by their parent organization. For the Science Centers, this meant emphasizing the process of project selection rather than considerations of project quality, relevance, and outcomes. Focusing on rules and proce-

dures over substance helped the Centers overcome some of the factors that put them at odds with normal State Department activities. IPP, on the other hand, preserved the structures of authority that typically characterize relations between the U.S. labs and the Department of Energy. As a result, IPP was unable to enforce overall priorities or standards of accountability.

But another source of pressure forced the Science Centers and IPP away from their original nonproliferation goals: that of their external environments. Because of domestic political demands in the United States and constraints in Russia, both programs adopted similar narratives for justifying their actions and answers to how they verify weapons credentials, pursue exit strategies, measure success, as well as why they are pulling back from work in Russia. These actions, responses to organizational interests and external constraints, ultimately caused both programs to diverge from the successful and efficient pursuit of their nonproliferation goals.

These cases show that the literature on organizational interests has important implications for U.S. nonproliferation policy. However, this study of the Science Centers and IPP also provides leverage for understanding organizational interest. Although it is well-established in the literature that organizational interest requires the accommodation of both external and internal constraints, there is insufficient attention to how organizations manage these conflicting demands. The cases of IPP and the Science Centers demonstrate how organizations become isomorphic as they adopt strategies to legitimize their activities in a way valued by their external environment, but also remain different in an effort to fit in with their parent organization.

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ENDNOTES

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- ² For a good summary of this literature, as well as a discussion of isomorphism, see John W. Meyer and Brian Rowan, "Institutionalized Organizations: Formal Structure as Myth and Ceremony," *American Journal of Sociology* 83 (2) (1977): 340–363; and Paul J. DiMaggio and Walter W. Powell, "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality," in *The New Institutionalism in Organizational Analysis*, ed. Walter W. Powell and Paul J. DiMaggio (Chicago: University of Chicago Press, 1991), 63–82.
- ³ Classic examples include Anthony Downs, *Inside Bureaucracy* (Boston: Little Brown, 1967); Charles Perrow, *Complex Organization*, 3rd ed. (New York: McGraw-Hill, 1986); James G. March and Johan P. Olsen, *Rediscovering Institutions: The Organizational Basis of Politics* (New York: The Free Press, 1989).