

U.S. Department of State’s Overseas Wireless Program: Measuring Performance, Measuring Security

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Abstract

As a direct result of terrorist attacks on US interests, the US Department of State is working to upgrade security at its overseas posts to better protect Department life and property. Part of this effort is focused on upgrading post emergency communications networks, ensuring that post personnel are warned of danger in a timely and efficient manner. The Overseas Wireless Program, tasked with upgrading the emergency radio networks at all posts worldwide, has developed and implemented a sophisticated performance measurement system to demonstrate to all its stakeholders—State Department management, Congress, other US Government agencies, and the OWP workforce—that its program is achieving its goal of enabling post communications to protect Department life and property.

1. Enhancing Security: The Aftermath of the 1998 Embassy Bombings in Africa

Following the August 1998 terrorist bombings at US Embassies in Nairobi and Dar Es Salaam, Congress set aside funds to upgrade security at US overseas facilities in a Security Supplemental. Because of current needs to upgrade a rapidly deteriorating radio infrastructure and to enhance the security and safety of American embassies and citizens overseas, the Department of State is using part of this budget to modernize its overseas wireless communications capabilities to protect US personnel and property.

The purpose of the Overseas Wireless Modernization Program (OWP) is to assess the wireless communication needs of approximately 260 overseas posts, and to upgrade the Emergency and Evacuation (E&E) networks at each post using new radios and satellite phones, and enhanced processes. The OWP deploys teams to each post to install the new E&E networks and test their effectiveness.

When confronted with the daunting task of upgrading E&E networks worldwide, the OWP recognized that it must demonstrate its effectiveness and efficiency – merely deploying state-of-the-art radios and phones would prove nothing by itself. As such, OWP chose to implement an aggressive performance measurement program as an integral part of project management. The purpose of the performance measures was to demonstrate to a variety of stakeholders – including

¹ The author would like to thank the US Department of State—especially the outstanding staff of the Overseas Wireless Program who diligently worked to ensure the safety of US personnel stationed at US embassies and posts worldwide—for the honor of working on and contributing to this program.

State Department management, Department personnel stationed overseas, and Congress – that the OWP was enhancing communications processes at every overseas post and helping to protect Department life and property.

2. OWP Goals: Upgrading Emergency Communications

When the OWP was created to enhance E&E security at posts worldwide, a tremendous effort went into defining the purpose of the E&E networks, identifying how each post used their nets, and refining the definitions of security during specific types of emergencies. For example, when designing radio nets for each post, the OWP needed to consider at a minimum:

- Number of personnel at the post,
- Type of personnel—e.g., Marines, members of the E&E committee, general post personnel, administrative support personnel, technical staff, etc.
- Degree of risk from environmental disasters or political instability at each post
- Geography of the surrounding landscape
- How the radios were used at the post—e.g., were they a part of everyday life at high risk posts, never used, etc.
- Degree of interference in the local area due to non-post related radio traffic
- Ability to obtain host country approval for desired frequencies

Following a careful analysis of these and other factors, the OWP designed a radio net tailored to each post's needs. Of course with any program, budget considerations had to be factored into the design considerations.

Although enhancing security at US overseas posts is inherently a “good” thing, demonstrating how OWP enhancements to post radio nets would improve the security of post personnel was extremely difficult. Measuring the specifications of the radios or antennas themselves was straightforward and available from the manufacturers. Measuring the value of inserting new radio configurations into post E&E security processes was the challenge.

2.0 Measuring OWP's “Value Added” – Creative Approaches to a Tough Problem

OWP recognized that at the heart of any valuable measurement program is the organization's mission. As a first step in creating a measurement process, OWP spent a considerable amount of time defining and refining its mission. This mission statement then became the touchstone for every action within the program:

The purpose of the OWP is to enable the post emergency communication process to protect Department life and property.

This simple, elegant mission statement clarifies what was within scope for the OWP and what actions were tangential. For example, although OWP needed to understand how the post used its radios, OWP was not in the business of helping each post to improve its security processes. This mission statement laid the foundation for each of the performance areas that needed to be assessed by OWP in determining its overall performance.

2.1 Identifying OWP Performance Areas and Defining Success in Each

After OWP set its mission statement, it next identified the core performance areas it wanted to measure. After a careful examination of OWP's stakeholders, their expectations, and the needs of the program to accomplish its mission, OWP identified the following performance areas for evaluation. Each performance area is critical to the overall success of OWP – from a programmatic, mission, stakeholder, and workforce perspective. As important, each performance area's definition maps back directly to the OWP mission:

- Technology – Select, deploy, and evaluate highly robust, secure, and integrated wireless technology to enable post communications processes to protect Department life and property.
- Client/Customer – Provide customer satisfaction and assistance to those clients/customers that support enabling post communications processes to protect Department life and property.
- Communications – Effectively exchange actionable information about OWP plans, status, and issues with all stakeholders through appropriate communication tools to enable post communications processes to protect Department life and property.
- Workforce – Build and support a motivated, skilled, flexible, and trained staff that efficiently accomplishes the goal of enabling post communications processes to protect Department life and property.
- Processes – Develop and implement processes in the OWP that reflect industry best practices for program management and technology deployments in order to enable post communications processes to protect Department life and property.
- Resources – Accurately allocate and manage project funds, people, facilities, and time to support enabling post communications to enable post communications processes to protect Department life and property.



Figure 1. Key performance areas

Once the performance areas were agreed to within OWP, the staff defined “success” in each performance area. These definitions of success were critical in guiding OWP in the identification and selection of performance measures.

2.2 Creating Measures to Address Each Performance Area

After identifying the critical performance areas, the OWP started the task of identifying measures for each of these areas. The Program started by brainstorming measures in each area, creating hundreds of specific indicators. Next, OWP evaluated each measure to determine which measures would provide the best types of information to assess the definition of success for each performance area, including the OWP mission. Measures were sorted according to their level of evaluation—whether they provided data on outputs or outcomes—and the list was quickly cut to a few in each performance area.

OWP first focused on those performance areas and associated measures that would provide direct assessments as to the quality and effectiveness of the new E&E nets at each post. Performance areas aligned with programmatic aspects – Resources, Processes, and Workforce – were to be worked later in the program. Ideally, all performance areas would be worked simultaneously, as results in one area could be highly correlated with results in another area. For example, the use of well-defined, repeatable processes could have a very favorable influence on the ability to communicate effectively with the posts. These associations, however, were

postponed until the OWP had concrete feedback on the testing and performance of the E&E nets at the posts.

OWP also determined that it would need to evaluate client satisfaction with carefully crafted questionnaires that were distributed to all post personnel using E&E radios. OWP used questionnaires tailored for different population groups at the post—Marines, Administrative support personnel, E&E Committee members to include the Ambassador, technical staff, and general post personnel—to determine whether the expectations of all groups were being met. The questions for the post surveys focused on the client perceptions of the technology, the communications between the post and the OWP prior to and during installation of the radio nets, and whether or not the radio nets enhanced security at the post.

Figure Two displays the specific measures chosen by the OWP. The measures were categorized according to whether they were technology measures—those associated with the performance of equipment and systems designs—or procedure measures. The Cycle Measures are directly related to the Mission Performance Area, while the Reach, Distance, Clarity, and Accessibility measures are related to the Technology Performance Area. Evaluations of the Client/Customer and Communications Performance Areas were based on the feedback received from the post surveys.

Figure Two. OWP Performance Measures

<i>Measure Type</i>	<i>Measure Name</i>	<i>Definition</i>
<i>Mission (Procedure)</i>	Cycle Measure – Broadcast Segment	The amount of time from the initiation of the E&E broadcast message to the point when the last person receives the message.
<i>Mission (Procedure)</i>	Cycle Measure – Confirmation Segment	The amount of time it takes to verify that everyone who is supposed to hear the E&E message can confirm that they did hear it.
<i>Reach (Technology)</i>	Number of Radios per Post	Number of direct-hire Americans who have E&E radios
<i>Distance (Technology)</i>	E&E Location Confirmation	Whether or not the radio net can reach the E&E location that is farthest from the E&E repeater
<i>Clarity (Technology)</i>	Interference	Percentage of time the E&E net is unavailable for emergency situations because of external interference
<i>Clarity (Procedure)</i>	Whisper Game	Ability to understand the message clearly and with little interference
<i>Accessibility (Technology)</i>	Transmit to Receive Ratio	Amount of time every E&E repeater is in the transmit mode, compared to the amount of time the repeater is in the receive mode
<i>Accessibility (Technology)</i>	Congestion (Radio Discipline)	Percentage of time the E&E net is unavailable for emergency situations because of internal interference or congestion (e.g., misuse of radios)

At every post, baseline tests were performed on the old E&E systems. The exact same tests were performed after the new E&E nets were installed at each post. This ensured that OWP could measure directly the impact that the program was having on mission performance at each post. If baseline measures could not be obtained, the post-installation measures were not counted in the performance data.

3.0 Developing Collection Methods to Obtain Data

After developing the performance measures, OWP wrestled with how to collect the data elements for each measure. Because of the difficulty and expense of sending performance measures specialists to each of 260 posts to collect the data, the OWP realized that it would need to identify a cost-effective alternative. The decision was made to train the installation teams—the technical staff hired by OWP to perform the physical installations of the radio nets—to collect, record, and report the data. This option then presented the challenge of training 30-60 technical personnel on how to collect data elements for the measures.

In addition to the technical training received by the installation teams, the OWP created a segment in its training course that taught:

- Why performance measures are important
- Who would be viewing the results, including Congressional oversight bodies
- What constituted the measures and their component data elements
- How to collect and record the data accurately
- How the posts used the radios in their emergency communications procedures and the importance of the radio designs

The OWP also developed an electronic collection form, that is, a form in Microsoft Word in which the installation teams would fill out specific blanks and then e-mail the form back to the OWP offices in Northern Virginia. Using an electronic form minimized opportunities for recording inaccurate data types, misreading numbers from poor quality faxes, or the days required for international mail to deliver the forms to OWP. Although the installation teams originally were uncomfortable with the role as the collectors of performance measures, all of the installation members adapted this aspect of their work as a critical job component.

OWP also decided that the installation teams would distribute and collect the survey forms at each post. The posts were told that the installation teams were not allowed to leave the posts until the survey forms were filled out and collected by the installation teams. Because the posts wanted to minimize disruptions—to include hosting the installation teams—this requirement became an incentive for post personnel to fill out the survey forms and return them in a timely manner. As such, the response rate from the posts was running above 50 percent, which was a respectable response rate.

4.0 Establishing Methods for Analysis

Because OWP wanted to be able to interpret and communicate their performance results accurately and efficiently, the decision was made to use a statistical software tool to perform this task. When OWP received collection forms and survey forms from each post, the information

was entered into “StatView, ” a simple, yet powerful statistical tool. StatView provided OWP files that were easy to maintain and manipulate.

Initially, OWP decided to keep the analysis of the performance measurement elements uncomplicated. Mean averages and simple correlation analysis were performed on the data, with the intent of performing more sophisticated analysis as the program matured.

5.0 Results: What the Measures Indicated

When the OWP compared the results of the baseline tests against the post-installation test, the results were dramatic. All stakeholders could see quantifiable, clear, and understandable results from OWP’s efforts. After assessing 39 posts, the OWP could demonstrate that:

Reach. The number of direct-hire Americans who have dedicated E&E radios had increased approximately 2000 percent.

Distance. 92 percent of posts could reach the farthest critical E&E location with their new radio nets, resulting in an 85 percent improvement in the post’s ability to reach this point.

Clarity. Interference (e.g., from taxicab calls) was reduced by 33 percent.

Accessibility. A 66 percent decrease in transmit to receive ratio occurred, while a 71 percent decrease in congestion on the net occurred.

Cycle Measures. The time to reach the last person at the post was decreased by 36 percent, while there was a 439 percent increase in the number of end users receiving emergency messages within 10 minutes of the first emergency broadcast.

Regarding customer satisfaction, post surveys indicated that 82 percent of radio users said that the radio nets met or exceed their expectations. On a scale of 1-5 where “1” was poor and “5” was excellent, the users, on average, gave the OWP ratings of “4” across the board for the ease of use and portability of the radios, the quality of training by the installation teams at the posts, the general quality of the equipment, and whether or not the radios enhanced security at each post.

5.1 Displaying the Results for All to See

As part of its performance measurement program, OWP decided at the outset of the program to post its performance results where they were easily accessible for stakeholders, as well as easily maintained. OWP created web pages at its website dedicated to the performance measures and creatively and attractively displayed the results in an easy-to-understand format. The definitions of each measure and the actual results—updated bi-weekly—were posted for everyone to see.

6.0 The Addition of Satellite Phones

In 1999, with the “Y2K” crisis threatening to disrupt electricity supplies, communications links, and general services, OWP was tasked with providing satellite phones to posts worldwide. Although this was a late addition to the overall duties of the program, it fell within the program’s mission area. As such, OWP decided to apply performance measures to this aspect of its program as well.

OWP decided to assess two critical factors of the satellite phones: call clarity and interoperability among posts and State Department Headquarters. The tests were simple – upon receiving a satellite phone, a post would call other key posts and upon completion of this task, would call the OWP office and leave an assessment of the call clarity. Once the OWP received this final quality check call from the post, it would immediately e-mail a user survey form. The post would fill out this electronically form and e-mail back to the OWP, often within 24 hours of completing the clarity call. This simple, effective process allowed the OWP to assess call clarity immediately upon receipt of the phones at the post, while receiving customer feedback on the phones within hours of their activation.

The results from the measures were stunning: over 90 percent of the posts indicated that the satellite phones met or exceeded their expectations. The OWP also received very high marks for overall quality of the equipment, the training instructions that accompanied the phones, and the quality of service provided by the OWP staff to the posts.

7.0 Conclusions: The Importance of Mission-driven Measures

Although the development and inclusion of performance measures in the OWP was difficult, the pay-off was self-evident. OWP could clearly demonstrate to all of its stakeholders—State Department management, personnel at the 260 posts, Congress, other agencies with security concerns, and the OWP workforce—that its efforts were making a positive impact on security at posts worldwide. It was the only program in the Security Supplemental to do so.

In developing and implementing this aspect of program management, OWP can pass along lessons learned for other Government organizations:

- The OWP handled its performance measurement the "right" way by developing measures as the program was maturing, instead of merely adding them after the program was up and running. This guaranteed that meaningful—not convenient—measures would be collected.
- Displaying the results of the measures on the web page allowed the OWP to effectively and efficiently communicate results to stakeholders. This action also showed the “value added” of investing in performance measurement work – the results were quantifiable, not anecdotal, and could be shared with a broad audience.
- By focusing on mission-driven indicators, OWP could ensure the quality of its overall program. Instead of getting mired in the details for specific radio performance attributes, OWP could continue to focus on the big picture – ensuring the security of Department life and property.
- By establishing efficient means for collecting performance data, OWP could track the performance of its installations and made mid-course corrections quickly where required. By requesting and receiving feedback, OWP minimized the risk of facing costly corrections late in the program.

Finally, the OWP experience demonstrates the importance of performance management for organizations dependent upon effective C2. Too often C2 measures focus on the technical aspects of a project and ignore other important elements, such as mission goals, processes, and client satisfaction. By laying out the success achieved by the OWP, this paper has demonstrated the value of taking a broader, mission-focused approach to performance management.

Unfortunately for OWP, the scope of its program was gradually increased without a concomitant increasing in budget. When this occurred, the decision was made to cut back on the performance measures. True to form, OWP developed a creative approach to the situation by shaping a package of indicators referred to as “performance light.” OWP made the tough decision to conduct only the most critical measures—performance light—at several posts, while still conducting the full performance testing at high risk or high visibility posts. It is unfortunate that budget constraints make the application of performance measures anything less than robust, but the OWP is to be commended for its creative response to the situation.