

# Integrating Research and Researchers into the U.S. Marshals Service

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In late 2016, a newly hired biostatistician was crouched in a Boston stairwell, adjusting her new body armor. She was watching over the shoulder of a Deputy U.S. Marshal as he covered a team of officers breaching an apartment door to serve an arrest warrant. Amidst the noise and commotion, the deputy was calmly peppering her with questions about predictive modeling and risk assessment. A few months earlier she had been an assistant professor at a major university, and now she was in the trenches of law enforcement. For many, this scene is likely perplexing—why in the world do the U.S. Marshals have PhD-level statisticians, why are they participating in raids, and why are deputies asking about statistical modeling?

The U.S. Marshals Service (USMS) is the nation's oldest law enforcement agency. Established in 1789 through the very first bill passed by the first U.S. Congress, the agency has been at the forefront of crime and justice ever since (Calhoun, 1989). The critical role the USMS has played throughout U.S. history is well known, be it bringing law and order to the Old West, the appointment of U.S. Marshal Frederick Douglass (one of the first black policing executives in U.S. history), deputies protecting Ruby Bridges as she bravely walked into her new school, or the myriad high-profile cases and arrests over the centuries (Turk, 2016). Likewise, the current productivity of the agency is well-known and well-respected in the law enforcement community. The USMS has one of the smaller budgets and staffing levels in the U.S. Department of Justice (DOJ)—just 3,000 sworn officers and around 2,000 administrative staff. Yet the agency arrests more than 30,000 federal fugitives as well as another 70,000 serious violent felons via state and local warrants each year. That is more arrests than all other U.S. DOJ agencies combined.

What is less well-known is that the USMS is also the oldest statistical agency in the nation. For the first 100 years of their history, the U.S. Marshals were responsible for conducting the U.S. census for collecting, analyzing, and disseminating data. The interest and capacity to engage quantitative work certainly declined after the U.S.



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Census Bureau was established and this statistical role passed from the agency. But the long dormant interest has risen again in recent years as the agency tested the waters of, and then dove into, data science.

This reawakening was rooted in the same broad historic events driving similar interest and capacity in police agencies across the United States, including innovations in technology (i.e., computing hardware and database software throughout the 1980s and 1990s), and broad improvements in conceptualizing and executing data collection within agencies. The latter feat was tied both to the public's increasing expectation of performance-driven management and to agencies themselves seeking to quantify their contributions among downward pressure on government budgets. Most of these initial data systems were built to support routine reporting, budgetary tasks, and case management. These applications of data are not the same thing as data science or "analytics." Regardless, those simple applications also created the raw components needed to build such a thing. Finally, for the Investigative Operations Division (IOD), which oversees the fugitive investigative mission of the USMS, the most proximate turning point came from the passage of the Adam Walsh Child Protection and Safety Act in 2006 (AWA). This law not only directed the USMS to take on the role of investigating and enforcing the nation's sex offender registry laws, it also directed the agency to obtain sex offender registry and related data, and to analyze it in order to gain new insights into this mission. As such, the agency did something out of the ordinary: the IOD hired a team of quantitative researchers within the Sex Offender Investigations Branch.

In 2010, a few analytically minded positions were scattered across the agency performing statistical forecasting, performance manage-

ment, and other statistical work. But the small team of social scientists hired to support the AWA mission were different. First, the team members were not just credentialed, but highly so; they were trained at the nation's highest ranked programs, had generated a breadth of peer-reviewed publications or other scholarly products, and had hands-on experience in operational settings. Second, the group was diverse, comprising two clinical psychologists, a forensic scientist, an operations researcher, a social worker, and a criminologist. Third, the team was placed in a fusion center (the National Sex Offender Targeting Center) with its members sitting alongside Deputy U.S. Marshals, law enforcement officers from other agencies, and intelligence analysts. The team was given resourcing, plenty of freedom, and told to be creative and productive in finding cutting-edge insights or tools that would help the branch use data to accomplish its missions.

Two key types of productivity emerged. First, the team was able to clean, analyze, and display operational datasets in new and useful ways. These applications helped managers and executives articulate sophisticated responses to complex questions posed by external stakeholders (e.g., Congress, GAO, OMB), justify budget requests, and interpret changes to key performance metrics. This series of smaller projects created quick wins and began shaping the trust necessary between law enforcement practitioners and the analysts who support them. More significantly, the team imagined and then created new operational tools. A primary example was the creation of analytic dashboards containing relevant, timely, dynamic, and easily understood information. This led to widespread dissemination of analytic information—and the idea that data could be useful—throughout the agency. Executives, supervisors in the field, and inspectors throughout the agency found myriad investigative and operational uses for their newly accessible data. This, in turn, made the agency more effective as new cases were identified from the data and operational parameters could be directly applied against the data to facilitate efficient planning of large operations. No longer did operational planning necessarily require dozens of phone calls, reams of paper, a highlighter, and hours upon hours of personnel time, but merely a few clicks on a mouse.

Second, the team created new knowledge for use by the agency as well as the academic community. The team produced a number of studies published in peer-reviewed journals. This included research on violence against police officers, myriad papers on sexual offenders, studies on fugitives, and several theoretical pieces offering advice on better ways to approach quantitative methods within criminology. Each of these papers answered relevant questions and contained methodological features or innovative datasets which made them groundbreaking.

For example, the agency (as well as law enforcement in general) needed to know whether offenders who had a criminal history of only child pornography possession were in fact a risk in terms of hands-on offending. Myriad academic papers addressing this



Two deputy U.S. Marshals with a statistician

question had reached a relative consensus that they were not, although there were murmurs among practitioners that they were seeing a different reality. In reviewing this literature, the team became concerned that most used self-report methods—researchers would ask offenders convicted of child pornography possession (with no arrests for hands-on offending) if they had ever molested children. Most reported they did not. But what if they lied? In contrast, the team gathered 127 cases of child pornography arrests where the offender had absolutely no history or indication of hands-on offending. All had been interrogated at arrest, and six offenders had admitted to hands-on offending. However, each arrestee was then polygraphed. As a result, 67 (55 percent) admitted to carrying out a total of 282 unique hands-on sexual assaults. Further, enough information was obtained to allow agents to find and assist many of these victims (Bourke et al., 2013). That's persuasive evidence. The study was groundbreaking because it derived from a dataset and methodology that was unequivocally more accurate and actionable to law enforcement practitioners than prior research. As such, it upended longstanding conclusions among scholars. The same commitment to finding relevant questions and attention to methodological rigor are driving themes in the studies and publications the group has produced.

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In 2014, a second turning point in analytics was emerging in the USMS. The agency's top executives now consisted of the first two branch chiefs who oversaw this innovation in operational analytics. In addition, the DOJ Office of the Federal Detention Trustee, an office responsible for realizing cost savings and gaining efficiency in federal detention, was integrated with the USMS. This integration brought together a number of highly skilled statisticians and a pool of leaders who had a strong familiarity with, and respect for, data science. Collectively, an increasing number of executives embraced the idea that USMS leadership should be supported by staff members capable of informing business decisions through sound analytics. In short, the proof that highly skilled statisticians and social scientists could deliver enormous value to the USMS, and the presence of leadership that was open and interested in analytics, came together in one time and place during 2014. Building on this alignment of the analytic stars, the agency made an additional and enormous leap forward with respect to engaging data science: the agency created the Business Integration Center (BIC).

The concept of a BIC was taken from the private sector, as the name implies (see Davenport & Harris, 2007). The BIC is a separate branch (not a mere unit of a branch as in the experimental years described above), which means the team has its own budget and organizational roles needed to streamline and execute its mission. That mission is to act as the central analytic hub of the numerous other branches in each division of the USMS; to identify data, analyses, research, and policy that helps each branch maximize effectiveness and efficiency. To do this, the BIC is composed of a branch chief, at least one statistician, one business engineer, and a variety of support staff. Finally, and importantly, the agency didn't just create one BIC. It created one for each division.

Notably, then, the agency did not follow the more typical path of other federal agencies and merely establish one "office" of research to serve the entire USMS. Rather, each BIC is integrated into its division such that the team is working hand-in-hand with deputies, intelligence staff, and others. This integration, as noted above, is crucial. The teamwork and constant interaction of the BIC and other operational branches facilitate communication of complex research and statistics to the other members of the branches (i.e., translational criminology) and also ground the BIC in real and nuanced knowledge that comes from the field staff (i.e., receptive criminology). Both the operational and the research staff do better work because of the value they gain from one another. The BICs are positioned to anticipate problems and questions, thus leading to proactive analysis and data collection. Long since have the days passed when executives solely asked each other their opinion on an issue, but now often ask, "What do the data show?"

Thus, it should be no surprise that the USMS recently hired a highly skilled biostatistician, or that she found herself a few months later crouching in a stairwell with deputies translating cutting-edge knowledge about predictive modeling while she also received innovative information about policing in America. That is translational criminology in action.

## References

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