Durham North Carolina Police Department cuts violent crime by 39 percent

Uncovering hidden connections and insight supports more proactive policing, helping catch criminals

How do you fight a rising tide of street crime even as shrinking resources are reducing the number of police officers on the front line?

For Durham North Carolina Police Department (Durham PD), the answer is to police smarter, not harder. As part of an unprecedented initiative called Operation Bull’s Eye, Durham PD is tapping into a wealth of data to unlock hidden insights and connections that help catch criminals.

In the seven years since it was launched, Operation Bull’s Eye has delivered impressive results: violent gun crime is down 46 percent, and overall violent crime is down 39 percent. Durham PD can focus its resources more intelligently to stay ahead of criminals and make the streets safer for citizens.

Doing more with less

Like many police departments across the United States, Durham PD must work against a backdrop of rising violent crime and intensifying budget pressures. Feeling the strain of ever-tighter resources, the Department knew that winning the fight against crime meant going beyond traditional policing practices and finding a more targeted way to take down criminals.

Jason Schiess, Analytical Services Manager at Durham North Carolina Police Department, elaborates: “Police work is often very reactive by nature—officers wait for that call to come in requesting help and then go into action. We thought, what if we could go out and actively target crime instead of just reacting to incidents?”

“The challenge we faced was finding out where to direct our efforts so that they had maximum impact while still being efficient. We couldn’t simply throw out cops everywhere and expect to see results—we didn’t have the resources to do that and, more importantly, using heavy-handed tactics would just turn the community against us.”
Honing in on a crime hotspot

Durham PD decided that the best starting point was to hone in on areas of the city where crime rates were particularly high. Focusing on gun crime, the Department reviewed police calls for service records to determine the source of any reports of gunfire.

“What we found was that roughly 20 percent of all ‘shots fired’ calls were coming from just 2 percent of the city’s entire land area,” notes Jason Schiess. “Our next step was to look at violent crimes committed with firearms and, again, we saw the same disproportionate level of activity occurring within almost that exact area of the city.

“As a final measure, we examined the kind of individuals that were at the heart of this activity. We searched for the last known address of validated gang members and found that they were right on top of these other two areas. Seeing that correlation was a true ‘eureka’ moment, and we realized that we were onto something big.”

Launching Operation Bull’s Eye

Having established that the greatest density of violent crime was occurring in just a two-square-mile area, which became known as the Bull’s Eye, Durham PD needed a way to take the vast amounts of information it already held on criminal activity and turn it into intelligence that could be used to drive more targeted police action.

Business benefits

- 39 percent overall reduction in violent crime and 46 percent reduction in violent gun crime over a seven-year period.
- Drug calls down 42 percent, ‘shots fired’ calls down 53 percent and prostitution calls down 61 percent.
- Better intelligence helps Durham PD direct its policing resources where they have the greatest impact, making the most of a tight budget.
- More focused police action targets crime at its source, reducing repeat crimes and making the streets safer for citizens.
- Improved public safety has allowed the Durham Rescue Mission to attract more volunteers and expand its facilities to house nearly 400 people.

Smarter Public Safety  Cracking down on crime with visual intelligence analysis

Instrumented

Every night, structured and unstructured data is automatically imported from incident and arrest reports, citations, calls for service records and field interviews.

Interconnected

Millions of records from multiple sources are mapped and modeled into a common format, and made available for analysis in a single, centralized repository.

Intelligent

Rich analysis and visualization capabilities enable crime analysts to rapidly identify hidden patterns and connections that help catch criminals.
Jason Schiess explains: “We had mountains of data on known gang members and their associates, incidents of violent crime and illicit activities, such as drug dealing and street prostitution. What we did not have was an easy way to unearth the patterns and trends buried in this data that would allow us to link key individuals and activities to take down criminals.”

To dig deep into crime data and provide officers on the street with a better picture of criminal activity, Durham PD launched Operation Bull’s Eye—an initiative sponsored by the department’s Chief of Police, with support, project reviews and funding provided by the Durham city manager and the county manager. Operation Bull’s Eye has brought together law enforcement, city and county agencies and community stakeholders to lead an unprecedented fight against violent crime.

At the heart of this initiative is an IBM intelligence analysis platform that allows crime analysts to rapidly piece together disparate data and reveal the hidden patterns and connections that help catch criminals.

Unlocking the power of big data

Police teams need the right intelligence to pursue and convict offenders—but finding useful information amongst big volumes of structured and unstructured data can be an uphill battle.

Durham PD knew that it had to build a solid foundation of accurate, high-quality data that analysts could quickly and easily search for new insights. For this, the Department selected IBM® i2® iBase® — an intuitive database application designed to help analysts gather, structure and analyze multi-source data in a single, shared working environment.

Today, Durham PD stores approximately 10 million records in its iBase database, imported from nearly 150 different source systems. The solution has transformed the way that crime analysts access and work with information.

“In the past, our analysts spent the majority of their time simply cleaning data and getting it ready to work with, which left them very little time to actually evaluate the data,” comments Jason Schiess. “IBM i2 iBase has allowed us to automate most of that preparation work, so our teams have more time to dedicate to actual analysis. Every night, iBase automatically imports data from a variety of sources — from arrest and incident reports to calls for service records and field interviews — into a centralized repository, where it is modeled into a common format. When analysts start work in the morning, the information is all there and ready for them to work with, so they can get right down to finding actionable results.”

Solution components
Software
• IBM® i2® Analyst’s Notebook®
• IBM i2 iBase
• ESRI ArcGIS
IBM Business Partner
• ESRI

“On average, we have seen a roughly 39 percent reduction in violent crime and other quality of life crimes across the board. And IBM i2 solutions have been instrumental to this success.”

—Jason Schiess, Analytical Services Manager at Durham North Carolina Police Department
“With IBM i2 Analyst’s Notebook we can visualize large amounts of data in a more meaningful way. This has allowed us to uncover links that we had no way of seeing before.”

— Jason Schiess, Analytical Services Manager, Durham North Carolina Police Department

Breaking cases by finding hidden connections

Providing fast, easy access to big data volumes was just the first step for Durham PD. The Department still needed a way to dig deep into this information to identify connections, patterns, and key intelligence that could be used to crack cases and catch offenders.

To maximize the value of information stored in its iBase database, Durham PD uses IBM i2 Analyst’s Notebook®. The solution offers rich visual analysis capabilities, designed to help analysts discover key individuals, connections, events, patterns and trends that may otherwise have been missed. Analyst’s Notebook also includes social network analysis capabilities that deliver increased understanding of social relationships and structures within criminal networks.

Jason Schiess comments: “With IBM i2 Analyst’s Notebook we can visualize large amounts of data in a more meaningful way. This has allowed us to uncover links that we had no way of seeing before — the data was there, but we just didn’t have a way to visualize it. We knew that leveraging our big data would be valuable in helping us spot connections within an existing investigation — what we didn’t realize was how IBM i2 could help us identify connections across completely unrelated cases. It gives us an ‘uber level’ of analysis that has been really effective.

“For example, there have been a number of robbery investigations where we have obtained suspects’ phone records to find out who they were in contact with before and after the robbery. In some cases, we have seen the phone number of one of these same associates crop up months and even years down the line in a completely separate investigation. In the past, we would not have even thought to make such a connection—and it’s this ability to map relationships between individuals that allows us to build a better picture of criminal networks and activity.”

Staying one step ahead of offenders

By linking non-obvious connections and uncovering relationships between individuals and criminal activities across time, IBM i2 solutions are helping Durham PD to police smarter. The Department benefits from actionable intelligence that helps officers stay a step ahead of offenders, and optimizes the deployment of policing resources.

Jason Schiess continues: “Using IBM i2 solutions to visualize cross-connections between known criminals and their associates, and link them with criminal activity, such as robberies, drug deals or prostitution, allows us to give much more specific intelligence to frontline teams. This means we can effectively dispatch officers according to an actual need to deter and prevent crime rather than merely respond to it.”
“IBM i2 solutions are helping us to close more cases and keep more criminals off the street, making Durham a safer place to live and work.”

— Jason Schiess, Analytical Services Manager, Durham North Carolina Police Department

“The ability to target crime more proactively also helps us make smarter use of our policing resources, so we can be as efficient as possible when it comes to putting people out on the street — not only to respond to crime, but to prevent future crime from occurring. With IBM i2, we have the solid data we need to drive these smart decisions and make the most of available resources.”

**Delivering big results**

Taking a data-driven approach to fighting crime has yielded impressive results for Durham PD. Since its launch in 2007, Operation Bull’s Eye has produced a sharp and sustained impact on crime rates in Durham: overall violent crime has been reduced by 39 percent, while violent gun crime is down by 46 percent.

Additionally, Durham PD has recorded a dramatic fall in calls reporting other serious crimes. For instance, drug calls have dropped by 42 percent, ‘shots fired’ calls are down by 53 percent and prostitution calls have fallen by 61 percent.

Jason Schiess states: “The results speak for themselves: on average, we have seen a roughly 39 percent reduction in violent crime and other quality of life crimes across the board. And IBM i2 solutions have been instrumental to this success.”

**Making the streets safer**

Numbers are just a single facet of Durham PD’s success story; the true impact of Operation Bull’s Eye can be seen on a community level, in the improved safety and quality of life for the citizens of Durham.

“By running more targeted patrols and bringing down crime rates, we are helping to make the area much safer for the people of Durham,” explains Jason Schiess. “One great example is the Durham Rescue Mission — a homeless facility in the heart of the Bull’s Eye. We’ve been able to create a much greater sense of safety in the area, which has allowed the mission to attract more volunteers to help its cause. As a result, Durham Rescue Mission has been able to considerably expand its facilities and reach more people, going from a capacity to serve just 40 men to housing almost 400 men, women and children.

“IBM i2 solutions are helping us to close more cases and keep more criminals off the street, making Durham a safer place to live and work. Analytics has really opened up a whole new realm of possibilities that is transforming the way that we run our operations. Never before have we been able to make the kind of connections that IBM i2 reveals — it is helping us look at cases in a completely different way and make the intelligent decisions that lead to less crime and a safer city.”
About Durham North Carolina Police Department
Durham North Carolina Police Department provides law enforcement and investigation services in the city of Durham, North Carolina. The Department's 513 sworn officers work to minimize crime and protect the safety of more than 233,000 residents.

To find out more, visit: www.durhampolice.com

To view a video version of this case study, visit:youtu.be/sj_ltgsvEuo

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