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Real-Time Crime Centers

Integrating Technology to Enhance Public Safety

This technology brief explores real-time crime centers (RTCCs) and aims to orient and educate law enforcement practitioners and other stakeholders about RTCCs. This report defines RTCCs, describes the activities that RTCCs support, outlines the technology workflow of an effective RTCC, and examines the technical, operational, and governance considerations for implementation.

- A well-functioning RTCC has three core components: **data inputs** gathered from various technologies, **processing and analysis capabilities** that turn the data inputs into actionable intelligence, and **communication outputs** that ensure the right information reaches the right people at the right time.
- RTCC technology varies widely across agencies, both in terms of technology types and the quantity deployed. The structure, organization, and resources of RTCCs also differ. Despite this variability, the integration of **data inputs** and **processing/analysis capabilities**, along with **communication** of information, are keys to a successful RTCC operation.
- Existing studies indicate that RTCCs can improve clearance rates and reduce crime; however, scientific evidence on RTCCs as a comprehensive suite of technologies is limited.
- Although RTCCs may offer potential benefits in terms of improved public safety and operational efficiency, some communities and advocacy organizations have expressed opposition and concerns regarding their use. Community concerns include privacy and data security, disproportionate monitoring of select communities, and a lack of accountability and oversight.

RTCCs are centralized physical hubs[a] that integrate data from various sources to provide law enforcement agencies and their officers with actionable intelligence and enhanced situational awareness in real-time. The increasing availability of public safety technologies in communities, also known as data inputs, coupled with advancements in analytics capabilities has contributed to the growing adoption of RTCCs nationally. RTCCs have been used to support a wide range of law enforcement activities, including focused policing, real-time monitoring, and investigations. RTCCs have three core components: data inputs gathered from various technologies that capture information within the community, the processing and analysis capabilities that turn the data inputs into actionable intelligence, and the communication outputs that ensure the right information reaches the right people at the right time. The potential benefits of RTCCs include faster police response times to calls for service, improved case clearance rates (i.e., increases in arrests), and reductions in crime. Although RTCCs offer potential benefits in terms of improved public safety and operational efficiency, they also present concerns from certain segments of the community related to privacy and data security, disproportionate monitoring of select communities and a lack of accountability and oversight. Agencies implementing RTCCs should carefully consider these issues and develop appropriate policies and safeguards.

The inclusion of a product in this report does not represent a recommendation, endorsement, or validation of product claims by Department of Justice, the National Institute of Justice, RTI International, or the Criminal Justice Technology Testing and Evaluation Center.

a. Technology advancements could enable virtual operations of RTCCs in the future. See Putman, J. (2024, September 13). Calif. LE agencies testing Apple Vision Pro for use as remote real time crime center. *Police1*. https://www.police1.com/tech-pulse/calif-le-agencies-testing-apples-vision-pro-headset-for-use-as-remote-real-time-crime-center

Context

What Are RTCCs?

RTCCs are specialized units within law enforcement agencies that serve as centralized hubs for criminal information and intelligence analysis. According to the National Real-Time Crime Center Association (NRTCCA), an RTCC is defined as follows: "An RTCC is a public safety group staffed with sworn officers, professional staff, or a combination of the two that serves as a centralized location for criminal information and intelligence analysis within a public safety organization. The purpose of an RTCC is to manage real-time data and intelligence to proactively mitigate crime, reactively investigate crime, or provide situational awareness to increase officer and citizen safety. Ancillary purposes include department statistical analysis, production, and internal and external communication creation."[1]

Many sources have highlighted the growth of RTCCs,[2,3] but the exact numbers vary depending on the source and definition used. The NRTCCA estimates that over 300 agencies have implemented RTCCs,[4] whereas the Electronic Frontier Foundation provides a more conservative estimate of over 150 agencies.[5] How RTCCs are resourced, including the type of technology used and the staffing models employed, varies considerably.

RTCCs vs. Fusion Centers vs. Crime Analysis Units

Distinguishing RTCCs from fusion centers is important, as the two serve different purposes and operate at different levels. RTCCs, which were first conceived by New York City in 2005,[2] function at a municipal or county level, focusing on supporting local response and needs. In contrast, fusion centers operate at a state or regional level, are controlled by state-level organizations, and are formally integrated into the U.S. Department of Homeland Security's National Network of Fusion Centers.[6] Whereas RTCCs concentrate on local crime and public safety issues, fusion centers primarily focus on distributing information about national security threats.

RTCCs and Crime Analysis Units overlap considerably in many law enforcement agencies. In some departments, an analyst is either embedded within the RTCC or the unit is housed within the RTCC itself. Both entities share similar functions, such as evaluating data, conducting person/address workups, and leveraging technology. However, the key distinction between the two is in the timing and scope of their operations. An RTCC typically supports ongoing calls for service, providing real-time assistance while calls are still active. In contrast, Crime Analysis Units generally begin their work after the report has been completed, focusing on administrative statistics and assisting with investigations. Although the units may perform overlapping tasks, the primary role of an analyst in the RTCC is to support patrol officers during live calls, whereas a crime analysis unit is more focused on post-incident analysis and broader department-wide statistical support. This division of responsibilities ensures that each unit can specialize in distinct, complementary areas of law enforcement operations.

What Potential Value Can RTCCs Provide?

Agencies without RTCCs often face challenges with siloed data, where information is fragmented across different units and systems. For instance, a patrol officer responding to a call may not have immediate access to information, such as past incident reports, suspect descriptions, or video footage from nearby cameras because these resources are stored in separate, unconnected databases managed by different departments. RTCCs consolidate these data through integration software in a unified, real-time information hub. This capability equips agencies with enhanced situational awareness and timely intelligence, directly supporting key objectives.[7]

- **Improving incident response times:** Through the use of technology, RTCCs can provide immediate access to information, enabling faster decision-making and quicker deployment of resources. For example, many RTCCs are equipped with cameras and drone programs, which facilitate rapid response and assist in documenting events as they unfold.
- **Facilitating operational efficiency:** RTCCs can facilitate seamless communication and data sharing, ensuring that officers have up-to-date information on suspects, witnesses, and victims. For example, deploying a drone over an active incident enables more-precise identification of suspects by focusing on individuals of interest and tracking them until patrol units arrive, guiding officers to the correct suspect. Additionally, the drone operator can communicate real-time details to responding officers and directly with the 911 caller, improving situational awareness.
- **Enhancing officer safety:** Real-time information and communication can improve both officer and resident safety. Gunshot detection systems, cameras, and drones can provide critical information about the nature of the scene that may not be captured or communicated during a 911 call. These tools can provide real-time monitoring of patrol and suspect locations and activities.
- **Supporting investigations:** RTCCs provide investigative benefits by leveraging video footage and data to track and identify individuals retroactively. This capability allows agencies to analyze incidents after they occur, using recorded evidence to build cases, identify suspects, and support ongoing investigations.
- **Enhancing evidence collection:** The use of technology may support enhanced evidence collection. For example, cameras may capture when and where a suspect disposes of a weapon or may document the scene of a robbery or shoplifting incident. RTCC analysts can relay the location to officers, enabling immediate recovery of evidence and provide video evidence for use in court.
- **Improving clearance rates:** RTCCs leverage technology that can support the identification and subsequent apprehension of offenders. These capabilities could contribute to higher clearance rates (i.e., arrests). By enhancing the quality and accuracy of evidence, RTCCs could also help minimize false arrests, strengthen prosecutors' cases, and reduce the likelihood of wrongful convictions.
- **Holding offenders accountable:** Improving case clearance rates and the quality of the evidence holds offenders accountable for their crimes.
- **Contributing to the reduction of crime:** RTCCs may contribute to the reduction of crime through increased arrests, particularly for repeat offenders, but also serving as general deterrence.

How Do RTCCs Impact Criminal Justice Outcomes?

Although research studies have examined the effectiveness of individual technologies used in an RTCC (e.g., body-worn cameras, License Plate Readers [LPRs], gunshot detection systems), there is limited research in assessing RTCCs as a whole on criminal justice outcomes. Despite the limited scientific literature, some evidence indicates that RTCCs improve clearance rates and reduce crime. A 2019 study of Chicago's (Illinois) RTCCs, which are locally called strategic decision support centers (SDSCs), found that average monthly crime counts declined in districts that implemented SDSCs, with reductions ranging from 3% to 17%.[7] In 2024, another study found that Chicago's SDSCs were associated with clearance rate increases of 5% for violent crime, 12% for property crime, and 11% for overall crime.[8] In Miami (Florida), using a quasi-experimental design matching RTCC-assisted incidents to a sample of incidents not assisted by the center, researchers found that RTCC-assisted cases were 66% more likely to be solved than similar cases that did not use RTCCs.[b] This advantage remained even after accounting for factors such as neighborhood, crime type, and other case details.[9] Another study examined the Hartford (Connecticut) Police Department's RTCC, which relies on an extensive network of cameras, gunshot detection technology, LPRs, and data analytics. Using a regression analysis that controls for additional case and investigative activities, the RTCC's ability to locate and analyze video footage associated with a fatal and nonfatal shooting events was associated with a 442% increase in case solvability.[10]

Agency Insights

Ogden (Utah) Police Department

Ogden's Area Tactical Analysis Center demonstrates that the true value of an RTCC lies in its daily operational support, handling thousands of routine information requests that enhance law enforcement efficiency and regional collaboration.

Ogden Police Department's RTCC, known as Ogden Area Tactical Analysis Center (ATAC), exemplifies how RTCCs can be seamlessly integrated into the daily operations of law enforcement agencies. Although RTCCs are often recognized for their role in supporting high-profile investigations, such as tracking down murder suspects, these instances are the exception rather than the norm. The true value of the Ogden's ATAC lies in its consistent, day-to-day contributions to the police department's operations.

In practice, most of Ogden's ATAC is dedicated to processing routine requests for information from both internal sources such as officers and detectives, and external agencies. These requests are essential for the smooth operation of the police department. In 2023, the center handled approximately 5,000 requests. These requests ranged from providing real-time data to field officers during ongoing incidents to offering background checks and historical data to help officers in their investigations. The ATAC also provides support to neighboring agencies, enhancing regional collaboration. By embedding itself in the daily activities of the agency, Ogden's ATAC has become a critical asset, enhancing operational efficiency and improving the overall effectiveness of law enforcement efforts in the region.

b. The Miami RTCC was only able to provide support for a small proportion of violent crime cases due to resource limitations. During the study period, there were 24,059 violent crimes, 648 (3%) of which were assisted by the Miami RTCC. This allows for a large pool of unassisted cases to be matched on key crime and incident characteristics to reduce the potential for bias and perform a more-accurate assessment of the RTCC's impact.

What Activities Can RTCCs Support?

RTCCs support a variety of police functions that range from proactive to reactive (**Figure 1**). CJTTEC has summarized these functions into three key areas:

- **Focused Policing:** Analyzing police data to proactively prioritize police efforts and enhance police and public safety. RTCCs can support focused policing by streamlining the integration and analysis from different data inputs and using advanced analytics to identify patterns and predict high-risk areas. RTCCs' support of focused policing includes identifying crime hot spots or frequent offenders, analyzing crime patterns, guiding officer deployments, and responding to requests for information or analysis. Although many of these functions can be done by a crime analysis unit, these activities can be integrated in multiple ways to support the RTCC. For example, the determination of crime hot spots enables the most efficient use of resources by identifying the areas where camera and LPR placement would be most effective. Often, crime analysts are placed within investigation units, and the requests for information on locations or individuals often come days after the incident. RTCCs can help get this information out sooner.
- **Real-Time Monitoring:** Monitoring of 911 calls and police activity. RTCCs can enhance real-time monitoring by continuously tracking and analyzing data inputs through centralized integration software, enabling rapid response coordination and improved situational awareness for officers in the field. RTCCs' support of real-time monitoring includes cameras, sensors, software, and radio feeds; providing intelligence as officers respond to calls; investigating known suspects; and tracking officer safety concerns.
- **Investigations:** Conducting post-event activities to support solving crime or identifying further information. RTCCs can provide access to integrated databases and tools that analyze post-event data to support investigations. Post-event activities support investigations by identifying suspects and other leads via video searches and querying LPRs, supporting digital evidence collection, and supporting criminal cases and prosecutor requests by searching open-sourced intelligence and police databases.

Some agencies, if they have sufficient resources, support all three functions, whereas those with limited resources might only support one or two.

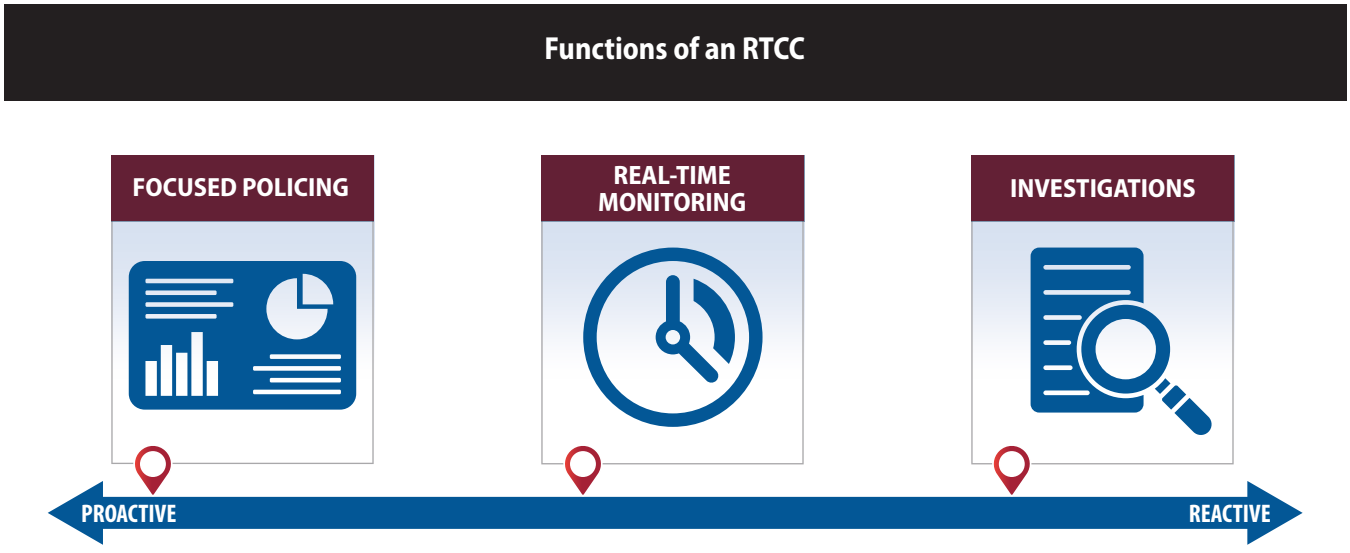


Figure 1: RTCCs can support three functions of policing, ranging from proactive to reactive support.

RTCC Technology

RTCCs harness various technologies to create a web of intelligence that can be used to quickly respond to incidents. However, not all RTCCs have or employ the full spectrum of technologies. This does not necessarily reduce their impact, as an RTCC's effectiveness is not just in the breadth of technology it uses, but in the integration of three core components: the **data inputs** gathered from various technologies, the **processing and analysis capabilities** that turn the data inputs into actionable intelligence, and the **communication outputs** that ensure the right information reaches the right people at the right time (**Figure 2**). These three components are the backbone of a well-functioning RTCC.

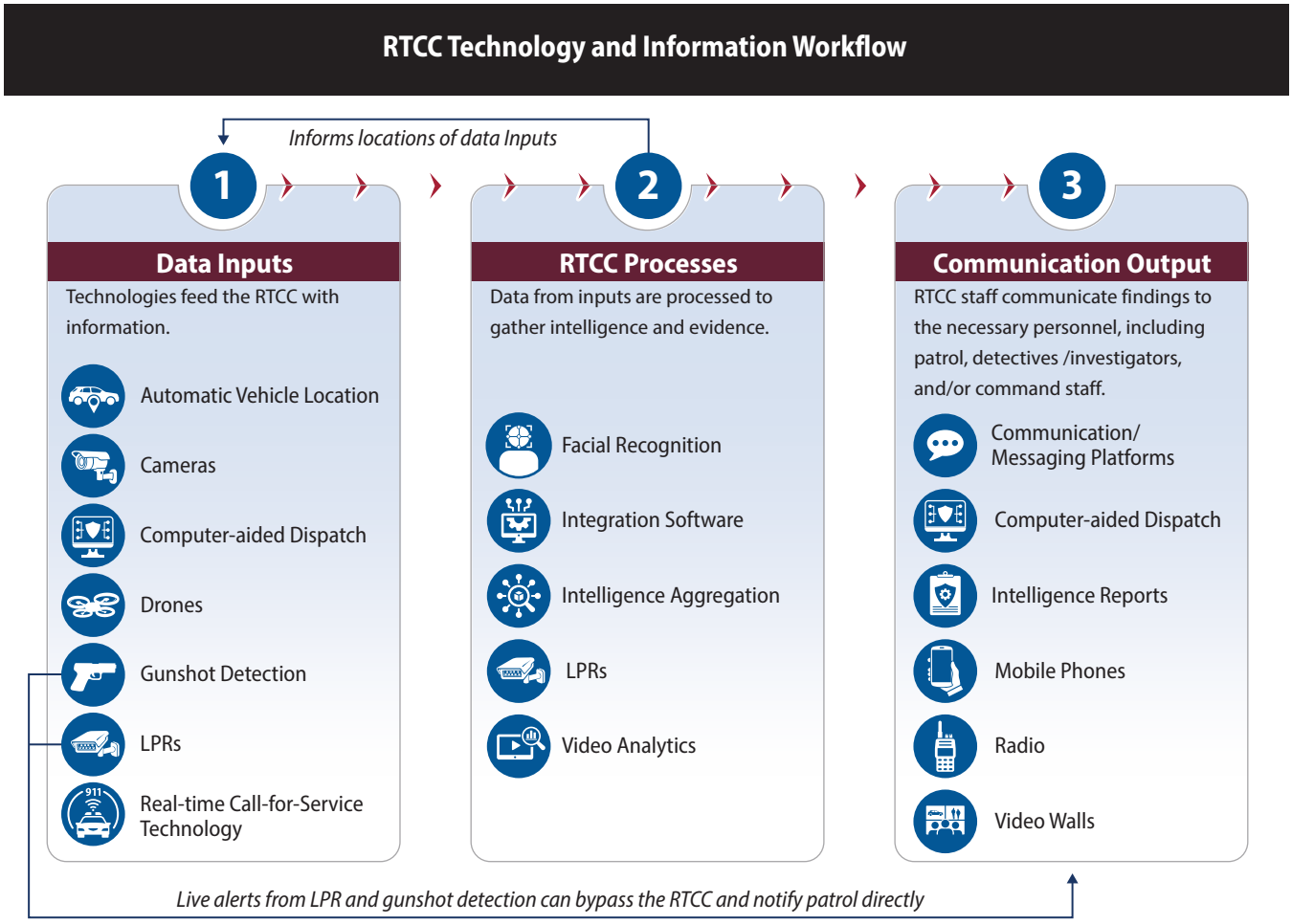


Figure 2: A well-functioning RTCC requires data inputs, processing/analysis capabilities, and communication outputs.

Data Inputs

Data inputs are technologies that feed the RTCC with information. Each technology captures and relays data to the RTCC. By leveraging these inputs, RTCCs can create a real-time picture of activities, enabling law enforcement to respond quickly and effectively to emerging situations. **Table 1** highlights common data inputs found in an RTCC.

Table 1: RTCCs are rooted in key data inputs, which are technologies that feed the RTCC information.

Data Input	Role in RTCC Operations	Example Vendors
Computer Aided Dispatch (CAD)	CAD systems are the foundation of coordinating police activity and are often the first reference point for RTCC staff about a call for service or incident. CAD systems provide awareness to RTCC staff on active incidents, enabling staff to activate nearby cameras, check any captured license plates, and provide useful information to responding officers.[11]	Central Square, Mark 43, Motorola, Hexagon
Real-Time Call-for-Service Technology	Real-time communication technology, such as Live911, allows RTCC personnel to listen to 911 calls in real-time rather than waiting for information to be relayed through a dispatcher. Additionally, this technology can identify the exact location of the cellphone/caller and track that person's location in real time. Mesa (Arizona) Police Department uses Live911 in its RTCC and notes its usefulness in providing a head start to officers in the field.[12]	Higherground (Live911), Motorola Solutions' (CommandCentral Aware)
Cameras	Body-worn cameras, pan-tilt-zoom cameras, city- or other jurisdiction–owned cameras (e.g., traffic cameras), and private residential and commercial cameras can be integrated into an RTCC. DC Metropolitan Police Department (MPD) leverages the camera network in its RTCC to boost situational awareness, aid in rapid decision-making, and enhance crime prevention and response.[13] As part of its camera network, MPD operates CameraConnect DC, which allows residents and commercial entities to register or share their cameras. Residents can register their cameras (e.g., doorbell camera), providing officers with advance knowledge of available sources of evidence should a crime occur nearby. Commercial entities can opt to integrate their cameras into MPD's RTCC for live viewing of threats and crimes as they occur.[14]	Axon, AXIS Communications, Verkada
Drones	Drones are unmanned aerial vehicles that are controlled manually or without human intervention to respond to events or monitor areas. Drones for First Responder programs are increasingly being operated out of RTCCs. Drones have live-streaming cameras, transmitting critical information and providing a bird's-eye view to RTCC staff who can communicate with on-scene officers. Drones support responses to critical incidents, including searching for missing persons, tracking suspects, and executing search warrants. MPD uses drone video to quickly assist RTCC staff and officers on the scene of an incident.[15]	Aerodome, Autel Robotics, DJI Enterprise, DroneSense, Skydio
Gunshot Detection	Gunshot detection uses acoustic sensors and advanced algorithms to quickly detect and locate gunfire. Gunshot detection systems can initiate a CAD event and can be streamed to an RTCC, where staff can draw on additional information from other data sources, including cameras and LPR to secure visual evidence.	Flock, SoundThinking (formerly ShotSpotter)
LPRs	RTCCs can use both stationary LPR cameras, which are fixed at locations like traffic lights or toll booths, and mobile LPR cameras, mounted on patrol vehicles, to capture license plate data in real time.[16] LPRs automatically capture license plate numbers, vehicle information, location, date, and time. RTCCs use LPRs to automatically identify or track vehicles of interest (e.g., vehicle has been seen at the scene of a crime, the owner is a suspect in a crime).	Flock, Vigilant, Verkada
Automatic Vehicle Location (AVL)	AVL systems use remote vehicle tracking and monitoring via GPS to provide a mapped display of the location of marked patrol vehicles. These systems allow for RTCC staff to view where patrol vehicles are, increasing officer safety and enabling more-effective resource allocation and faster response times to incidents. Additionally, the RTCC can analyze the historical location data collected by AVL systems to optimize patrol routes and identify crime patterns.	GEOTAB, HAAS Alert, US Fleet Tracking, Quartix

Processing/Analysis

A key component of RTCC operations is the ability to process and analyze data, transforming them into actionable intelligence that officers can use in real time. Technologies like facial recognition, video analytics, and intelligence systems play a crucial role in this process, helping to quickly analyze incoming data and provide valuable insights for law enforcement. For example, cameras feed the RTCC with real-time information; however, the added analysis layer of facial recognition and video analytics turn the video into actionable intelligence. Video footage, paired with video analytics software such as BriefCam, turns the video into a searchable data set, whereby RTCC staff could search, for example, a specific make or model of a suspect's car. **Table 2** highlights common processing and analysis technologies in an RTCC.

Table 2: Processing and analysis technologies transform data inputs into actionable information.

Processing and Analysis	Role in RTCC Operations	Example Vendors
Facial Recognition	Facial recognition technology analyzes video feeds from an RTCC's camera network, comparing detected faces against databases of known individuals (e.g., jail photo system). Some agencies, such as Cobb County (Georgia) Police Department, have crafted policies that prevent the use of facial recognition in RTCCs due to concerns raised from community members about false matches.[3]	Clearview AI, Vigilant
Integration Software	Integration software aggregates multiple data inputs into one unified application, such as dashboards that display CAD calls, live camera feeds, and LPR alerts. Integration software enables RTCC staff to access multiple tools in a single application, streamlining operations and eliminating the need for staff to access multiple systems. See below for more information on integration software.	Flock, Fusus, Genetec
Intelligence Aggregation	RTCCs pull intelligence data from a wide variety of sources to gather more information on a person, car, or address. These sources include open-source databases, DMV records, criminal records, prior calls for service, social media, and crime trends. This intelligence data can inform RTCC staff on where to place patrol officers and cameras.	Babel, Cobwebs, CrimeTracer, Street, TLO, Idicore
LPRs	LPRs are not only a helpful input, but also critical to gathering intelligence. These data allow RTCCs to query suspect license plates and identify a pattern of travel through scans within the system for that vehicle (e.g., if the vehicle is consistently scanned at an address, the suspect likely visits the address often). It can also be used to find a photo of a suspect vehicle to send out to responding officers.	Flock, Motorola, Vigilant
Video Analytics	Video analytics software can analyze video footage for inputted variables such as vehicle and people descriptions and can flag whether a certain object, such as a gun, enters the live video feed. Video analytics software supports RTCCs in efficiently processing and investigating video feeds by reducing hours of video footage into minutes of consolidated footage.[17] For instance, imagine a theft where police know the suspect fled in a red truck. Instead of manually reviewing hours of footage from across the city, video analytics can rapidly filter and display only clips featuring red trucks within the specified time frame.	BriefCam, Motorola Solutions (Avigilon), ZeroEyes

Integration Software

Integration software aggregates multiple data sources into one application, typically creating a unified map-based interface of assets, feeds, and personnel. Integration software seeks to combine relevant sources of data to create insights and opportunities for better proactive and reactive policing and investigations. Police departments often have dozens of unconnected data sources, which typically require separate logins and interfaces, limiting opportunities to glean insights and limiting usefulness. Through effective integration, agencies may find force-multiplier opportunities. Flock Safety, Axon, and Genetec are three of the most widely used vendors offering integration software for RTCCs.

Vendor Spotlight

Flock	Axon	Genetec
Flock's FlockOS is a cloud-based vendor-agnostic[c] public safety platform that integrates first- and third-party data, including video, LPR, and CAD, to deliver real-time intelligence and aid in crime solving. Flock is vendor agnostic, meaning its software can integrate data regardless of vendor. Flock's website estimates that 3,000+ law enforcement agencies use FlockOS.	Axon's FususONE is a cloud-based, vendor-agnostic map interface that unifies public and private video streams and CAD data into a single feed. FususONE creates a public safety ecosystem that combines video with other data utilities, like floor plans and camera registry maps. Additionally, if an agency has integrated its gunshot detection system, FususONE can automatically register the location of a shot fired on the map and turn on cameras in a predefined radius.	Genetec's Citigraf is a vendor-agnostic situational awareness solution that unifies data streams and operations across city departments. It consolidates video feeds, LPR, gunshot detection, CAD, and other Internet of Things data into a single platform, regardless of vendor.

c. Vendor-agnostic solutions can integrate data from various providers, allowing agencies to avoid reliance on a single hardware or software vendor.

Communication

Effective communication is essential for the RTCC to promote real-time interactions between personnel and patrol or specialized units. The RTCC relies on and enhances this communication by enabling real-time conversations, which can involve simple processes like using police radios and CAD to create new calls for service or update existing ones. Additionally, the RTCC facilitates the sharing of detailed intelligence reports for command staff to address areas with high crime activity.

Some technologies can bypass the RTCC processing and analysis step and communicate directly with patrol units. These include live alerts from LPR and gunshot detection systems. Such technologies also alert RTCC personnel, who can then monitor cameras in the area of the alert and provide additional information to responding officers. **Table 3** highlights the common communication technologies used in an RTCC.

Table 3: RTCC staff use different technologies to share information with patrol.

Communication Output	Role in RTCC
CAD/RMS	CAD/RMS is a primary tool for RTCC staff to communicate updates and vital information to responding officers. Through the CAD system, staff can send real-time updates about ongoing incidents directly to officers' devices, ensuring they receive critical information without needing to use the radio. The RMS component allows for the documentation and dissemination of reports related to incidents, which can be accessed by officers and command staff for situational awareness and post-incident analysis.
Intelligence Reports	Intelligence reports compiled by RTCC staff serve as formal communication outputs that synthesize crime data, suspect information, and trends. These reports are distributed throughout the department to inform strategic decision-making, guide resource deployment, and enhance long-term crime-prevention efforts.
Mobile Phones	Mobile phones are used by RTCC staff to communicate quickly and directly with officers in the field. They are especially useful for sending visual information, such as suspect photos or maps, that can be immediately acted upon by officers. The Chicago (Illinois) Police Department issued cell phones to all employees and trained responding officers to check their phones for possible information from the RTCC, which will often send photos of potential suspects or videos from camera footage in the area.
Communication/ Messaging Platforms	RTCC staff may use communication platforms like Microsoft Teams and Slack to support rapid department-wide communication. Hartford (Connecticut) Police Department uses Slack as an internal communication platform for the sharing of information, intelligence, and real-time communication between RTCC staff and investigating officers.[18]
Radio	Radio provides live, voice-based updates to officers during active situations. It allows for immediate dissemination of information to all units involved in an operation, ensuring that everyone is on the same page and can respond quickly to changing circumstances. The Columbus (Georgia) Police Department's RTCC helps solve and prevent crimes by using technologies and identifying suspects and suspect vehicles, then relaying that crucial information to officers via radio. The RTCC has been key in resolving cases, including murders, by providing real-time updates during incidents, which enhances officer response and suspect apprehension.[19] The RTCC uses extra precaution when using the radio to ensure that not too much radio space is taken and to prevent officers from becoming desensitized when the RTCC communicates over the radio.
Video Wall	The video wall in an RTCC acts as a centralized visual communication platform, displaying live camera feeds, maps, and other data that can be viewed by staff in the operations center. This setup allows for the collective monitoring of incidents and facilitates rapid information-sharing among RTCC personnel and command staff, enabling coordinated and informed decision-making. The Atlanta (Georgia) Police Department's Video Integration Center uses an 18-monitor video wall to view a network of city and private cameras, enhancing real-time crime detection and investigations.[20]

Technology Challenges

Technology challenges are inevitable when introducing new systems, especially in RTCCs where multiple technologies must be integrated and work together. These challenges include **lag** when accessing data inputs through an integration software, which can hinder real-time monitoring; difficulties in **data access and sharing** across multiple systems, which can impede the flow of information; and **insufficient computing power**, which can create issues or delays in accessing data inputs.

Integration across multiple data inputs is essential for RTCC operation, but it can introduce delays that make it challenging for monitoring data inputs, including cameras, in real-time. For example, imagine a scenario where RTCC staff are monitoring a large public event through live video feeds to coordinate the deployment of resources and response to incidents; however, due to a lag in the video, staff are viewing the event with a delay. For instance, if a fight breaks out in the crowd, RTCC staff would ideally direct officers to the scene immediately to deescalate the situation. However, with lag, by the time officers are dispatched and arrive on scene, the individuals could have already dispersed or the incident could have escalated. This example underscores the consequences of lag time in RTCC operations, emphasizing the need for sufficient computing power and internet bandwidth to handle multiple data inputs. However, agencies that select a single vendor for its technology solutions typically experience fewer delays when using integration software.

Another technology challenge is the integration of data across multiple systems. RTCCs rely on a host of technologies, and each system may store data across multiple databases, servers, and vendors. This setup can lead to difficulties in accessing and sharing data. Furthermore, RTCC staff often access dozens of databases and interact with multiple pieces of software—each of which may require unique logins and multi-factor authentication, resulting in staff spending more time shifting between systems or, more likely, relying on fewer resources, reducing the efficiency of the RTCC.

Agency Insights

Modesto (California) Police Department

The Modesto Police Department's Challenges with Integration Software

The Modesto Police Department has operated its RTCC since 2016. Over the years, the RTCC has encountered various challenges with integration software. Although these technologies provide the benefit of accessing multiple databases, such as cameras, LPR, and calls for service from a single interface, they can prove to be overwhelming to look at in a single screen. There are also issues with connectivity, response time delays, and information accuracy that have posed problems.

For staff who were initially unfamiliar with the locations of cameras around the city, integration software was helpful in connecting calls for service to nearby cameras. However, once staff became more familiar with the camera locations, they found that manually switching between individual systems was faster than relying on the integrator. Because of the RTCC's focus on real-time operations, even small delays can impact its effectiveness. Specifically, using integration software introduced a 6-second delay each time the camera view was adjusted. This lag can be problematic when tracking a suspect who is moving quickly within the camera's field of view.

Technical Considerations

Law enforcement agencies should consider quality and computability and integration when implementing an RTCC or individual technologies within the RTCC. The following sections highlight technical considerations for agencies, including quality, computability, and integration.

Quality

Having real-time, accurate information in a single location increases reliability regarding the location of victims, suspects, and officers, facilitating a more-efficient response. Having better visual and spatial suspect information leads to fewer unnecessary stops and safer outcomes. RTCCs may be even more beneficial to agencies that have officer shortages resulting in long wait times and investigative backlogs. However, technologies employed by RTCCs vary across agencies, leading to differences in the quality of operations from one location to another. Two key factors are likely to drive the quality associated with RTCCs:

- **Technology dosage:** The level of technology implementation and coverage in a jurisdiction. For example, although RTCCs leverage both publicly (e.g., department of transportation cameras) and privately owned cameras, coverage will always have gaps because it is not feasible to monitor every area. Similarly, if LPRs are mainly mounted on patrol vehicles, the quantity of vehicles and their locations will affect coverage. Nevertheless, increasing the number of LPRs on more vehicles does not automatically lead to an increase in identified and recovered stolen cars, as crime is not evenly distributed within a community.
- **Resources to respond:** Although RTCCs can gather and analyze large amounts of information and identify emerging incidents, agencies must have the resources to respond to these demands for services. Agencies may receive thousands of 911 calls each month, and not all calls will require RTCC assistance. For those that do, the RTCC may not have the resources to assist in real time or have patrol officers available to respond immediately. Further, depending on the technology being used, information overload could occur, creating inefficiencies. If staff need to comb through large volumes of information, including video, gunshot detection records, and phone transcripts for each incoming case, being able to efficiently and effectively resolve cases becomes challenging, and key information could be overlooked or lost. Balancing the right technologies with proper staffing and analytical resources is critical.

Compatibility and Integration

The effectiveness of an RTCC largely depends on its ability to seamlessly integrate various technologies. Agencies should prioritize integration software vendors that have an open ecosystem and are vendor-agnostic, meaning agencies are not forced to use a specific vendor, allowing them to pick the vendors and products that work for them. Agencies should also consider the interoperability of their technologies with those of neighboring jurisdictions or federal partners to enable efficient information-sharing.

Operations of an RTCC

Staffing

Staffing an RTCC with the right personnel is necessary to maximize the effectiveness and impact that the RTCC has on the department and community. The range of databases and latest technologies will be of little use if the RTCC is staffed with personnel who cannot effectively use the tools and resources to communicate information to officers and detectives. Despite the importance of staffing, there is minimal guidance or research to suggest optimal staffing structures and composition. Two key considerations are relevant in staffing an RTCC: (1) the number of personnel and associated hours of operation and (2) the composition of staff and positions.

Number of Personnel and Hours of Operation

The *NRTTCA Best Practices White Paper*[1] provides staffing coverage guidance, based upon the "level" of an agency's RTCC. Level corresponds with the scope of the RTCC's function, impact, and resources, ranging from Level 1, which is the most limited model, to Level 5, which is robust and impactful. As seen in **Table 4**, the number of personnel, hours of operation, and activities increase as agencies move from a Level 1 RTCC to a Level 5 RTCC.

Table 4: The NRTTCA has defined different levels of RTCCs, based on activities, number of personnel, and hours of operation.

RTCC Level	Activities	Expected Number of Personnel	Hours of Operation
Level 1	• Searching local, state, and federal databases to support patrol responses • Monitoring radio traffic to identify calls for service to assist • Creating and disseminating crime bulletins internally and externally • Researching calls for service	1–2 dedicated professional staff, sworn staff, or a combination of both	8–15 hrs./day on specific days of the week
Level 2	• All duties from Level 1 • Researching calls for service proactively and developing leads for patrol • Developing investigative leads on cases using investigative resources • Performing reactive or investigative low-level camera operations and research related to active investigations	8 line-level staff and a supervisor	8–15 hrs./day, 7 days a week
Level 3	• All duties from Levels 1 and 2 • Monitoring known high-crime locations in real-time • Generating calls for service from real-time camera monitoring and communicating real-time intelligence to field personnel • Leveraging LPR cameras during investigations and in-progress incidents	12 line-level staff, 4 specialty positions,[d] and 2 supervisors	15–20 hours/day, 7 days a week
Level 4	All duties from Levels 1, 2, and 3	16 line-level staff, 8 specialty positions, 3 supervisors, and a manager	20–24 hrs./day, 7 days a week
Level 5	All duties from Levels 1, 2, and 3	24 line-level staff, 16 specialty positions, 6 supervisors, 2 managers, and a director	20–24 hrs./day, 7 days a week

d. Specialty positions may include special events planning and operations, drone operations, or investigations support.

The functions and staffing of an RTCC will depend on the need and the resources available to an agency. RTCCs often begin small and gradually expand their resources to include additional technologies and staffing as the need and impact are demonstrated. Agencies will typically start staffing their RTCCs by analyzing calls for service to determine the number of personnel and hours of operation. Agencies should start by assessing their needs and identifying what RTCC activities will address and support these needs. Once that is established, agencies can determine the appropriate staffing resources.

Staffing Composition

Generally, staff in law enforcement agencies are considered either sworn or nonsworn. Sworn personnel are recognized law enforcement officers and may include patrol officers, detectives, commanders, etc. Nonsworn personnel—sometimes called professional staff or civilians—are not sworn law enforcement officers. Nonsworn roles in a department may often include dispatchers, analysts, records clerks, crime scene technicians, laboratory analysts, etc. Multiple factors may inform staffing an RTCC with sworn personnel, nonsworn personnel, or a hybrid approach that includes both. As shown in **Table 5**, the benefits and drawbacks differ based on the approach to staffing composition.

Table 5: Each approach to staffing an RTCC has benefits and drawbacks.

Approach	Definition	Benefits	Drawbacks
Sworn	RTCC personnel comprises only law enforcement officers	• Practical policing and investigative experience • Staff receive ongoing training • Easier to assign sworn personnel to an RTCC due to job classifications	• More expensive than nonsworn positions • Higher turnover than nonsworn positions • May lack specialized analytical skillsets
Nonsworn	RTCC personnel comprises only civilian staff	• Specialized analytical skillsets that may be a force multiplier for the field • Less turnover due to fewer nonsworn opportunities within agency • Considerably less expensive than sworn positions	• May lack practical field experience, which may limit usefulness of the information relayed and the credibility of the RTCC
Hybrid	RTCC personnel comprises both sworn and nonsworn personnel	• Combines practical field experience of sworn personnel with analytical skillsets of nonsworn personnel	• Potential for communication and organizational culture challenges between sworn and nonsworn personnel

Sworn personnel bring practical field experience that provides them with a perspective on what information will be most helpful to officers responding to an incident. For example, officers will often have better understanding of the law, probable cause, and investigative processes and have more in-depth knowledge of streets, locations, and particular addresses and people, all of which may make the information transfer to officers in the field more actionable, accurate, and quick.[11,21]

Nonsworn positions often bring with them specialized skillsets that are generally lacking among sworn personnel, such as advanced analytic skills (e.g., hot spot analysis, GIS mapping) that may create greater engagement with and use of the various technologies.[21] In instances of dispatchers and other telecommunicators, advanced knowledge of CAD and other associated systems and familiarity with police procedures and use of police jargon and codes are beneficial.[22] Nonsworn positions may experience less turnover due to specialization and limited opportunities for nonsworn personnel elsewhere in the agency, which is one of the reasons cited by Elk Grove's (California) RTCC for employing all civilian staff in its center.[23] Moreover, opportunity to create a dedicated nonsworn career trajectory within the RTCC may encourage growth and longevity.[1] Nonsworn positions often cost less than sworn roles[1] due to costs of training sworn personnel, associated equipment, and differences in retirement contribution expenses. Moreover, with policing shortages typical

across many agencies nationwide, use of nonsworn staff can serve as a force multiplier without further diminishing available field resources.[21] However, nonsworn personnel lack some of the benefits that sworn personnel would provide. For example, nonsworn personnel often lack the experience and practical knowledge of working in the field, which may limit the effectiveness of the information relayed to the field by nonsworn positions.[11] Additionally, research has highlighted that agencies should be mindful that the cultural orientation of nonsworn staff within a police agency creates organizational friction wherein civilian employees are made to feel "less than."[24]

A hybrid approach to staffing an RTCC can maximize the benefits of the different personnel while limiting drawbacks. For example, coupling the field experience of sworn staff with the specialized skillsets (i.e., technological, analytical) of nonsworn staff may amplify the relevant experiences of the staff. The joint perspectives of sworn and nonsworn staff working together is likely to be the most successful approach to staffing an RTCC.

"We use a hybrid model. Sworn officers are a hot commodity. Having a hybrid model allows us to leverage nonsworn to be a force multiplier."

—Darin Hall, Captain, Special Response & Technologies, Cobb County (GA) Police Department

However, beyond the focus of sworn or nonsworn personnel, an RTCC should ultimately be staffed with personnel who are motivated and have the talent and skills to leverage the technologies available and seek for opportunities to have an impact in the department. Oftentimes RTCCs are staffed with light-duty or modified-duty employees—either those who cannot be field active due to injury or discipline. Motivated light-duty employees may be beneficial because they can create a bond between patrol personnel and the RTCC, and when they return to regular duty, they will have first-hand knowledge of the benefits of the RTCC.[1] However, RTCCs should not be used as a place to hide problematic or unmotivated officers, as that will undermine the impact and effectiveness of the RTCC.

A different approach that may yield positive results is the use of temporary employees. A rotation of sworn personnel may be beneficial in that the person will be familiar with current practices in the field and will have recent knowledge of the experiences and needs of officers and detectives. The person in the temporary role will have opportunity to learn about the resources available and, when they return to the field, will have a fuller knowledge of the RTCC and can broaden its usage and awareness in the field.[25] Given the time it takes to learn the systems and technologies in a RTCC, considering how long the person will be assigned to the center and whether it is worth upskilling is important.

Training

The establishment of an RTCC must come with proper training on topics ranging from technology use to legal considerations of using camera footage. Training needs will differ depending on how an agency staffs its RTCC (i.e., sworn, nonsworn, or hybrid). For example, nonsworn personnel may require additional law enforcement training investment, such as probable cause to monitor an individual with CCTV resources or basic radio communication protocols.[21]

RTCC personnel require a strong foundation in technical skills, an understanding of law enforcement's operational context, and effective communication skills. Technical training for RTCC personnel may focus on how to use specialized software, such as integration platforms, LPRs, and video monitoring systems. Sometimes, vendors offer technology-specific training programs on their products to help users understand how to use them. For example, BriefCam, a video analytics vendor, offers an e-learning platform that hosts self-guided training courses and interactive exercises to help users expand their competency with the solution.[26] Operational training should prepare staff for real-time decision-making during critical incidents and familiarize them with standard operating procedures. However, no training module

or class will ever prepare RTCC personnel more than on-the-job experience. On-the-job training allows personnel to immerse themselves in real-world scenarios where they can apply operational practices; hone their decision-making skills; and gain experience in managing fast-paced, high-pressure situations. For an agency in the beginning stages of setting up a RTCC, peer-learning opportunities with other agencies may offer an effective way for training operational skills. For communication and soft skill training, agencies may emphasize communication techniques during high-stress incidents, interpersonal communication, and report writing.

Although providing comprehensive training tailored to the staffing model of an RTCC is critical, it is evident that the rapid pace of adoption of RTCCs and innovation in RTCCs has outpaced the professionalization of these centers. Currently, there is a lack of formal, RTCC-specific training mechanisms. However, agencies typically pull from technology-specific training from vendors, crime analyst training, and on-the-job training. The International Association of Crime Analysts, for example, holds in-person and online trainings in fundamental RTCC skills, such as open-source intelligence, person and vehicle lookups, and crime analysis fundamentals.

Costs and Funding

The costs associated with RTCCs vary across agencies (**Figure 3**), depending on factors like the size of the department and the technologies implemented. Some RTCCs may start with a minimal setup by leveraging existing infrastructure, whereas others may invest heavily in cutting-edge technologies.[27] This variability means that, although some centers can operate on a relatively modest budget, others require substantial financial commitment to achieve their desired capabilities. **Table 6** outlines the different types of costs that agencies should consider when budgeting for an RTCC.

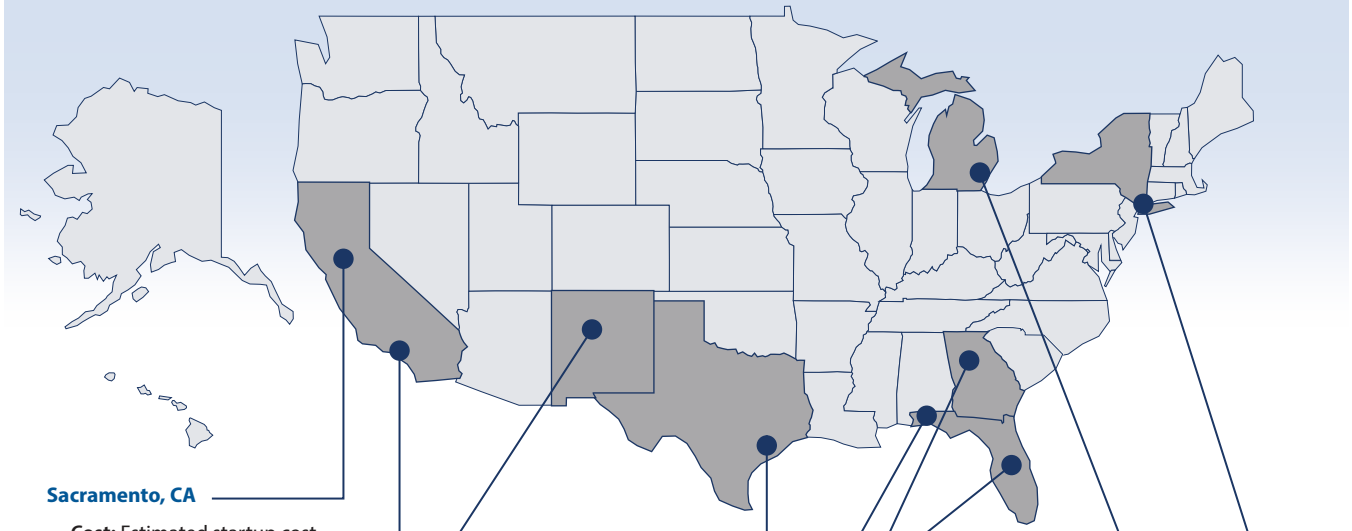
Table 6: Different types of costs are associated with RTCCs.

Cost Type	Definition	Examples
Initial Costs	Expenses related to the setup and installation of an RTCC.	• Community engagement campaign (e.g., community outreach activities such as community meetings and surveys) • Labor to select and implement technology (e.g., RFPs, vendor validation, test equipment) • Hardware (e.g., cameras, LPR systems, supporting equipment) • Software • Facilities (e.g., office space, furniture) • Labor for transferring and transitioning to new vendor if change is needed (e.g., agency decides to switch vendors, vendor goes out of business)
Operating Costs	Ongoing expenses required to run the RTCC on a daily basis.	• Staffing and training • Utilities • Data storage • Telecommunication expenses (internet and network costs)
Maintenance Costs	Costs associated with the upkeep and updates of the RTCC's equipment and software.	• Hardware repair/upgrade • Software repair/upgrade • Upkeep and/or expansion of facilities • Server upgrades • New system integrations • Labor for maintenance

Agencies also need to consider the downstream costs of RTCC implementation and the increased demand for resources as new information is captured. Downstream costs are expenses arising from RTCC implementation, such as increased patrol activity, incident responses, and staffing. For example, gunshot detection technology collects information from previously unidentified firearm incidents that may require a patrol response, extended on-scene time for evidence collection, and increased resources for evidence processing.

Funding for RTCCs typically comes from a mix of budget allocations and grants. Many agencies rely on their annual budgets to cover the ongoing expenses of RTCCs, whereas others seek grants from federal, state, or local sources to help with the initial setup or specific technology acquisition. For example, Santa Rosa (California) received $898,000 through a federal appropriation to establish its RTCC, enabling the implementation of gunshot detection software and other crime-prevention technologies.[28] Additionally, the Tupelo (Mississippi) Police Department secured approximately $191,000 from the Department of Justice's Office of Community Policing Services to enhance its Real Time Intelligence Center with new assets.[29] These examples demonstrate the crucial role of external funding sources in maintaining essential law enforcement infrastructure .

Examples of RTCC Costs and Funding Mechanisms



Sacramento, CA
- **Cost:** Estimated startup cost of $430,000
- **Funding Mechanism:** Federal Justice Assistance Grant fund and contributions by Regional Transit

Los Angeles, CA
- **Cost:** Projected cost of $1 million
- **Funding Mechanism:** Budget request and existing funding from the LAPD's surveillance projects, including Project Blue Light

Albuquerque, NM
- **Cost:** $800,000
- **Funding Mechanism:** City bonds and federal grants

Houston, TX
- **Cost:** $2.9 million setup cost
- **Funding Mechanism:** State grant

Escambia County, FL
- **Cost:** Nearly $1 million
- **Funding Mechanism:** Local Option Sales Tax

Dunwoody, GA
- **Cost:** $360,000
- **Funding Mechanism:** Special Purpose Local Option Sales Tax (SPLOST)

Volusia County, FL
- **Cost:** $600,000
- **Funding Mechanism:** Drug forfeiture funds

Detroit, MI
- **Cost:** Initial cost of $8 million to build, followed by $4 million expansion
- **Funding Mechanism:** Municipal bonds

New York City, NY
- **Cost:** $11 million to build
- **Funding Mechanism:** Mayor's Executive Budget, the Police Foundation, and federal funds

*The language used in this graphic to describe costs of RTTCs is sourced directly from reference materials. It reflects the terminology and framing used in the original sources, which can be found in the reference section of the report.

Figure 3: Initial costs associated with RTCCs vary widely, depending on the size of the agency, and agencies use different funding sources, such as grants, internal budgets, taxes, and donations, to pay for them.[30,31,32,33,34,35,36,37,38]

Other Operational Considerations

In addition to staffing, costs, funding, and training, agencies must also consider policies, processes, data management, and governance.

Policies and Processes

Agencies must assess how the implementation of an RTCC aligns with existing organizational policies, guidelines, and workflows. Agencies interested in building an RTCC must first determine whether approval is needed by a local governing body. Over 20 U.S. jurisdictions have adopted laws that impose regulatory guardrails on law enforcement's use of surveillance tools.[39] Additionally, agencies must ensure that criminal intelligence systems associated with RTCCs comply with relevant federal regulations, such as 28 CFR Part 23, which establishes standards for the collection, maintenance, and dissemination of criminal intelligence information while safeguarding privacy and ensuring data security.[e] Agencies also need to consider how the implementation of an RTCC will impact existing workflows and may need to create or update organizational guidelines and workflows to accommodate the new unit.

Data Management, Governance, and Ownership

Agencies must consider robust data management and governance policies to safeguard collected data and address community concerns. Data management and governance policies include retention policies, which provide guidelines and protocols for how long data are stored and maintained; access-control policies, which define the rules and procedures for who can access specific data and systems; data storage policies, which specify the methods and technologies used for storing data; and data sharing policies, which outline the protocols and conditions under which data can be shared with other agencies and stakeholders (e.g., prosecutor's office). Seattle (Washington) Police Department outlined its robust data management and government policies for its RTCC software in a Surveillance Impact Report. These policies include the following:

- **Retention Policies:** "Data that [are] not part of a criminal investigation will be subject to a 30-day retention policy, after which it will be purged from the system."
- **Access-Control Policies:** "Only authorized Seattle Police Department and the Office of Inspector General users can access the RTCC software platform. Access to the systems/technology is limited to authorized personnel via password-protected login credentials or single sign-on access. Data extracted from the system/technology and entered into investigative files [are] securely inputted and used on SPD's password-protected network with access limited to authorized detectives and identified supervisory personnel."
- **Data-Sharing Policies:** "Data obtained from the technology may be shared outside SPD with the other agencies, entities, or individuals within legal guidelines or as required by law. Data may be shared with outside entities in connection with criminal prosecution."[40]

When working with vendors, agencies should clarify data ownership. In some cases, vendors may retain ownership of the data and provide the agency with a licensing agreement to access or use them. This approach can create challenges for agencies, as it may limit their control over the data, restrict how it can be used, or complicate efforts to switch vendors or integrate data with other systems.

e. For example, IACP provides guidance on policies related to criminal intelligence that includes "suggested guidelines and principles for the collection, analysis, and distribution of intelligence products" with the goal to adhere to regulations relative to civil rights including 28 Code of Federal Regulations [CFR], Part 23. https://www.theiacp.org/system/files/migrated/Criminal%20Intelligence%2008.2021.pdf

Case Study

Winston-Salem (North Carolina) RTCC Case Study

The Winston-Salem RTCC was established to try to do more with less; driven by ongoing staffing deficits, the agency sought to adopt advanced technology to fill gaps.

Like many agencies around the country, Winston-Salem Police Department (WSPD) faced staffing challenges, with over 125 officer vacancies. To address these resource limitations, WSPD established its RTCC in 2021 to enhance public safety by filling key operational gaps. Before building out the RTCC, WSPD looked to other agencies for inspiration, touring their RTCCs to gain an understanding of essential technologies and operational considerations. With a understanding of the key assets needed, WSPD began setting up its RTCC with technologies that could easily be expanded and adapted as the center evolved over time. This careful planning allowed the RTCC to grow, meeting the city's changing needs while maximizing its impact on public safety.

As the RTCC demonstrated its value, its mission evolved from its role in supporting field officers to becoming a comprehensive intelligence hub for the entire police department.

In the beginning, the mission of the RTCC was limited to investigations. During this time, the RTCC was housed in the Criminal Investigations Division, and the RTCC aimed to provide officers and detectives with critical information and intelligence to make better decisions. When the agency went through restructuring, the RTCC transitioned to being located within the newly formed Criminal Intelligence Bureau. As the RTCC proved its effectiveness, its mission expanded beyond supporting investigations to encompass three key functions: intelligence, investigations, and real-time strategic support. This shift marked a significant transformation, as the RTCC grew into a central hub for all operational and investigative needs within the department.

Winston-Salem RTCC aligns technology adoption with its mission, identifying and filling gaps through a layered approach.

When the Winston-Salem RTCC was first established, the agency leveraged existing assets, including about 100 cameras and their video management system, Fusus. These initial assets provided a solid foundation for the RTCC's operations, allowing the agency to monitor various locations in real time and respond promptly to incidents. Despite some initial success, the RTCC recognized that there were still gaps in its operations. One major gap was the inability to efficiently access information from the internet and social media. Many crimes had important details online in social media, but manually gathering this information required skilled staff and considerable time. To address this, the RTCC adopted open-source intelligence tools to help with the quick aggregation of data from various sources. Another critical gap identified by the RTCC was the inability to gather vehicle information after it left a crime scene. To fill this gap, the agency invested in LPRs. This investment provided a means to identify suspects by capturing vehicle information, creating leads, and offering investigators valuable pieces of information that were previously unavailable. The Winston-Salem RTCC's strategic layering of technology has been instrumental in its success. By leveraging existing assets, identifying operational gaps, and strategically investing in advanced technologies, the RTCC has enhanced its role in supporting the department.

The RTCC's growth has been driven by strategic, layered technology adoption, increased officer engagement, and strong support from both the department and the community.

By 2023, the RTCC had grown in both scope and staffing, expanding its staff from 2 to 10 over the last three years. This strategic layering of technology has enabled the operations of the RTCC to grow. The acquisition of new technology provides new opportunities for the RTCC to support the department. As the capabilities of the RTCC have expanded, so too has officers' use of the RTCC. Officers' trust in the RTCC has fostered strong support internally by department leadership, garnering support from command staff. Moreover, efforts around community engagement have supported the growth of the RTCC. RTCC leadership highlight successes in the media and organize tours with local community groups to foster a mutual understanding on the value the center plays in public safety. Through this fostering of mutual understanding, community members are more willing to share their residential and businesses' security cameras, which contributes to more technology assets that the RTCC can leverage to fight crime and maintain public safety.

Through its strategic deployment of advanced technologies and a strong commitment to public safety, the Winston-Salem RTCC has become a model for how RTCCs can transform law enforcement, enhance public safety, and address complex challenges facing modern police departments.

Governance Considerations

Governance considerations around RTCCs include the responsible use of technology. As RTCCs increasingly rely on sophisticated technologies, the potential for misuse grows. Law enforcement agencies must establish clear, ethical guidelines that prioritize transparency, accountability, and the respect of civil liberties.

Community Considerations

The relationship between law enforcement and the communities they serve is a critical consideration in the deployment of RTCCs. Community trust is important for effective policing, and the use of advanced technologies may undermine this trust, depending on how they are implemented. Law enforcement agencies should actively engage with community members, ensuring that they are informed about the purpose and capabilities of RTCCs. Public involvement in the decision-making process, including through public hearings and transparency reports, is essential for fostering a sense of ownership and accountability. Some cities have even mandated public involvement in decisions regarding surveillance technology. For instance, Grand Rapids (Michigan) requires any city department intending to acquire surveillance technology to hold a public hearing.[41] Hence, agencies should be transparent in how technologies will be used when engaging the community around RTCCs to appease concerns around privacy, data security, and accountability.

Privacy Concerns and Data Security

Community members and advocacy groups have raised concerns about the extensive data collection capabilities of RTCCs. These centers employ a variety of technologies, enabling monitoring of public spaces and the aggregation of large amounts of data.[42] Some residents worry about the lack of clarity regarding how long their data are stored, who has access to them, and how they might be used in the future. There is concern that RTCCs could continuously track individuals' movements and activities, even when they are not suspected of wrongdoing.

Accountability and Oversight

Advocacy organizations, such as the American Civil Liberties Union (ACLU) and the Electronic Privacy Information Center, argue that the implementation of technologies that monitor[43] or use predictive algorithms[44] occurs without accountability, leaving many residents feeling excluded from crucial decision-making processes. Centers established with minimal public input or transparency, prompt questions about the checks and balances in place to prevent potential misuse of power.[45] Additionally, community members argue that the independent mechanisms in place to monitor, regulate, and control RTCC operations are insufficient, further exacerbating concerns about potential overreach. The lack of transparency in the implementation of RTCCs can create a disconnect between law enforcement agencies and the communities they serve, ultimately undermining public trust.[11]

Fairness Considerations

The placement of technologies in select communities may contribute to a cycle of distrust between communities and law enforcement and may perpetuate biases. Technologies used in RTCCs, such as facial recognition technology, may also rely on data sets that reflect biases, disproportionately impacting certain groups.[46] For instance, predictive policing systems that use historical crime data can perpetuate biases by directing more police resources to already heavily policed neighborhoods, often populated by minorities.[47] This approach can result in the disproportionate monitoring of select communities, where residents in these areas may experience more frequent stops, searches, and monitoring, regardless of actual crime rates.

To mitigate the potential disproportionate monitoring of specific communities, agencies should regularly assess RTCC practices. MPD, for example, outlines six considerations for district commanders to assess CCTV camera requests, providing a structured approach to ensure that the deployment is justified:

- The number and type of calls for service
- Any crimes committed
- Any requests or recommendations made by the Advisory Neighborhood Commissioners and/or civic or community organization
- Any other objectively verifiable information from which the chief of police may ascertain whether the health, safety, or property of residents who live in the area are endangered by crime or other illegal activity
- Whether the area falls within a hot spot (i.e., a location targeted for additional crime-prevention surveillance and/or tactics based on crime data)
- Other practical factors such as effectiveness in combating crime, ensuring placement does not infringe on individual privacy rights, safety of the equipment, and viewable area of the camera[48]

Legal and Regulatory Considerations

Agencies interested in implementing an RTCC must navigate and adhere to laws regarding data privacy, surveillance, and civil rights, ensuring that all technological deployments align with local, state, and federal regulations. For example, some cities have adopted surveillance ordinances modeled on the ACLU Community Control Over Police Surveillance (CCOPS) effort. These ordinances are designed to ensure residents—through their local governments and elected officials—are empowered to decide whether and how surveillance technologies are used.[49] Somerville (Massachusetts) has adopted a surveillance ordinance as part of the CCOPS movement. The ordinance requires mayoral approval and public notification on the purchase and implementation of surveillance technology, with exceptions made for emergency police investigative or public safety needs.[50] Because RTCCs use a host of technologies, agencies should work with elected officials and community members to comply with the necessary legal procedures during implementation.

Key Questions to Ask Prior to RTCC Implementation

Implementing an RTCC is a big undertaking that requires careful planning and consideration of various governance, operational, and technical factors. These questions summarize the key points from the report and are meant to serve as a resource to help agencies assess their needs; define their goals; and ensure alignment with community values, agency operating procedures, technical infrastructure, and legal requirements. This list is not meant to be comprehensive; rather, it is a starting point for agencies considering the implementation of an RTCC.

Considerations	Questions to Ask
Purpose and Goals	☐ What problems or challenges are you trying to solve by building an RTCC? ☐ What are the primary and secondary purposes of the RTCC? ☐ What desired outcomes are you trying to achieve? How likely are these outcomes? How will you measure those outcomes? ☐ What is the suite of technologies that the agency needs to consider? ☐ What types of technologies are best suited for the agency and the community?
Technical Considerations	**Compatibility and Integration** ☐ Can individual technologies effectively integrate? **Quality** ☐ How will the quality of RTCC operations and technology be monitored and maintained? ☐ Who is responsible for the maintenance of the technologies?
Operational Considerations	**Funding** ☐ What is the estimated budget for RTCC implementation? ☐ Where will the agency procure funding for the RTCC? ☐ In addition to initial implementation costs, has the agency considered how it will fund ongoing operating and maintenance costs? **Policy and Procedure** ☐ What policies and processes need to be established or updated to support the effective operation of the RTCC? ☐ How will these policies be communicated and enforced across the organization? ☐ Does the agency have policies to ensure transparency and accountability in RTCC activities and the use of technologies? **Data Management** ☐ Are there policies for access to and retention of data collected by the RTCC? ☐ Has the agency established data sharing policies with neighboring agencies? ☐ What measures are in place to protect privacy and ensure data security? ☐ Will there be regular audits done to review who accessed systems and which data were retrieved? ☐ Are there policies around how long data are stored, who has access to them, and how they might be used in the future? **Workforce and Culture** ☐ What type of staff will be employed in the RTCC (sworn, nonsworn, or both)? ☐ What will be the operational hours of the RTCC? ☐ Is the IT department equipped to handle the technological demands of an RTCC, including additional technology requests, data integration, and vendor collaboration? **Training** ☐ What is the training plan for RTCC staff? What specific skills and knowledge will they need, and where will they receive this training?

Considerations	Questions to Ask
Governance Considerations	**Community** ☐ How are community concerns around increased surveillance and privacy violations addressed? ☐ How will the agency engage the community about the development of the RTCC? **Fairness** ☐ Is there a plan to ensure technologies (e.g., camera and LPR placement) are used responsibly? ☐ Are there procedures in place to regularly assess the RTCC's impact across different geographic and demographic areas? **Legal and Regulatory** ☐ What legal and regulatory frameworks must be adhered to in the operation of the RTCC that are specific for the jurisdiction? For instance, does the agency need approval by a local governing body for any new technologies? ☐ Is there any type of oversight from these governing bodies? ☐ Is there any mandatory reporting to these governing bodies once an RTCC is established? ☐ What are the legal guidelines for retention of data collected through an RTCC?

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