

# The Evolution of Policing and Technology

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## **Abstract**

*The purpose of this study is to determine the need of continuous upgrading in available technologies for Florida Law Enforcement Officers. The participants were surveyed to determine the availability of newly developing programs and equipment and their accessibility to these new technologies based on need within their workplace. The study was conducted via emailed electronic survey with participants specifically selected based on their rank within specific departments within the four agencies in Marion County, FL. This paper provides insight into the needs of updated technologies per department as well as each individuals availability to obtain these new items.*

## **Introduction**

Technology is an ever-evolving concept of innovation. Just like all other creations, inventions and innovations there are positive and negative effects. This is especially true in the profession of law enforcement. Over the history of policing there have been technological advances that have changed the way officers conduct themselves as well as the way citizens use and abuse their local police resources.

One of the main issues with advancing the technology available to law enforcement is the cost associated. All law enforcement agencies operate on budgets which fluctuate with the current economies. Often agencies must plan years in advance for major technology purchases. Unfortunately, extended periods of time go by while waiting for approval of the funds, thus, leaving the budgeted technology out of date due to the ever-changing advances. This is often a road block for agencies while requesting funds from their municipalities. With some technology there are grants available. Approved grants can expedite access to funds allowing agencies to receive the tools and resources for technology faster. With each implementation of new programs, tools and technology comes additional cost, time and logistical implementation needed for training the entire agency on proper use.

Many agencies lack technology resources for other reasons as well. The lack of reporting and crime tracking has a huge impact on the necessity for certain technologies. If the crime statistics don't illustrate a need for expensive upgrades, the agency and local governments will not have valid reasoning for allocating those funds to the agency for additional resources.

## Literature Review

When looking at the history of policing and available technologies there is evidence to illustrate the evolution of available resources and committed crimes. Some may believe that “technology” is a recent phenomenon, however, this is a history we can date as far back as the 1800’s. During this century we progressed from the multi-shot pistol, using photography to identify criminals, introducing the use of telegraphs by police and fire departments and the Bertillon system of identification was adopted to identify the human body using anthropological classifications (Seaskate, 1998). These advances were astronomical in the forward progression of technology. Unfortunately, there is little findings of accurate crime statistics from the 1800’s but future technology introduces advanced systems for record keeping and statistical data (Seaskate, 1998).

In the 1900’s we saw huge strides in the technology available to law enforcement. Beginning in 1901 the 1888 adoption of the Bertillon system was upgraded to fingerprint recognition systems to further identify criminals with advanced accuracy. The mid 1900’s adopted crime labs; both local law enforcement and FBI, one-way and two-way radios, the polygraph and radar use. The late 1900’s introduced a “special number” for emergency calls. 911 was adopted and widespread within a few years (Seaskate, 1998). The 70’s integrated applications such as computer-assisted dispatch (CAD), centralized locations collecting the calls made to the 911 phone number and management information systems. As of the 1970’s police protection was still lacking until 1972 when the introduction of Kevlar protective body armor was developed from the auto industry where it was used in the production of radial tires. This advancement was a lifesaving milestone for law enforcement officers and has since saved thousands of lives (Seaskate, 1998).

As technology continues to dramatically evolve in the 2000’s, law enforcement saw a massive change in the resources available to them. This era introduced in car computers for all officers, surveillance cameras, body cameras, GPS devices, automatic license plate readers as well as advanced assistance with drones and gunshot mapping technology (Seaskate, 1998).

In relation to the advancements of technology we can look at the crime rates throughout time. Based on an article from the Crime and Justice Atlas the crime rates from 1930-1950 were relatively level until a drastic spike in the 70’s. The crime rate in the early 1900’s was at an average of 1,000 per 100,000 population, the 1970’s increased to a rate of over 4,000 per 100,000 population. The rates have fluctuated since while increasing to over 4,600 per 100,000 in the late 90’s (U.S. Dept Of Justice, 2000). This statistic has since decreased significantly and in 2018 was at a rate of 2,580 per 100,000 population (United States Crime Rates 1960-2018, 2019). Although crime rates are statistically down, the general public believes otherwise. According to multiple surveys conducted by the FBI, Gallup, Bureau of Justice Statistic and others, 57% of registered voters believed that crime had increased since 2008 while the data shows that the rates have actually declined by double digit percentages (Gramlich, 2019). Another survey conducted by BJS showed that only 43% of violent crimes were reported to the police. The findings behind the refusal to report the crimes was the belief that the police would not or could not do anything to help or that the crime is too personal or too trivial (Gramlich, 2019).

As technology develops so do the challenges we face. There are ongoing advancements allowing technology in all areas to evolve. This causes both harm and good in respect to law enforcement. Technology is only as effective as the hands it is in. As beneficial as it is for first responders to have access to these advancements it can cause equal harm when misused or in the hands of a criminal. The innovation of drones, for example, were implemented to assist in surveillance to deter threats. However, considering drones as armed “robots” are unable to recognize a threat versus an innocent citizen, therefore they become the threat to the public (The Positive and Negative effects of Technology in Law Enforcement, n.d.). These drones have the potential to enter an in-progress crime scene and relay real time video to law enforcement officers prior to them arriving and entering a potentially life-threatening situation. Drones allow officers to be less reactive and more proactive in a situation (Purdue, 2018). These robots record their activity and provide vital evidence that a human would not be able to record while addressing the situation and protecting themselves and others (Roufa, 2019). Robots, or drones, come with an incredibly high price tag, making them untouchable to many agencies nationwide. With that said, the government has come up with a program to assist agencies in acquiring this technology. The Justice Technology Information Center has a “1033 Program” that was created to allow law enforcement agencies to gain access to excess property unused by the United States Department of Defense (Purdue, 2018). The law enforcement robot market is estimated to increase from a 1-billion-dollar industry to more than 5-billion-dollar industry in 7 short years (Purdue, 2018)

In car computers were established to save on time and money agencywide. The use of paperless reporting on computers and tablets aids in the accuracy of data collection by instantly saving and uploading reports, decreased errors and omissions on reports and remote access to avoid missed details. Although providing computers for each and every officer may be expensive it is a necessity to modern day policing. This technology is based around saving time, accuracy, safety and the ability to remain in constant communication when in the field (Purdue, 2018).

Law enforcement officers use crime trackers to better police their communities and know when and where they need to patrol specific areas. This is beneficial to the local agencies giving them the ability to find criminals in a timelier manner and also keep the citizens of specific neighborhoods safer by creating a police presence to deter crime (The Positive and Negative effects of Technology in Law Enforcement, n.d.). This concept is also beneficial to the local citizens or those coming to the area and the data is available to review on many available sites such as; law enforcement websites, social media accounts and even real estate listings. This advanced concept of policing is a technique not only to reduce crime but also save agency dollars. When using crime tracking and having officers in the right locations this prevents crime outbursts, increases the chance of arrest, cuts down on travel time after dispatched and saving personnel costs (Strom, 2017). When crime tracking is implemented appropriately, this can save and reallocate funds to additional resources needed by the agency.

Sensor technology has improved information available to solving crime and recording data (How Technology Is Impacting Our Criminal Justice System, 2017). A crime is only known if reported and as stated earlier only an estimated 43% of violent crimes are reported. Advanced sensor technology has provided the ability to sense acoustics from gunfire to inform law enforcement of a shooting in progress. These

sensors also have the ability to detect how many shooters and narrow the location within a very small radius. Since the inception of this technology in several agencies there has been at least a 20% decrease in shootings and homicides in just 1 year (Purdue, 2018).

The advancement of communication has created an avenue for law enforcement officers to solve and prevent crime by the ability to tap into cell phones without a warrant and track individuals by location of their cell phone. While assisting with solving crime, or potentially saving a life, many people believe that this is breaching their privacy and are being treated like criminals (The Positive and Negative effects of Technology in Law Enforcement, n.d.).

Usage of cameras have impacted law enforcement agencies in many ways. Today more than 70% of agencies nationwide have cameras mounted in patrol vehicles (Strom, 2017). The use of car cameras was developed to deter citizen assaults on officers and document the reasoning for arrests (Strom, 2017). Cameras aid in prosecution and training as well as agency accountability. The integration of in car cameras began in the 1960's when evidence of driving while intoxicated and racial profiling against police were becoming an issue. As the issues became more of a problem and awareness spread in the 90's, the Department of Justice initiated the "In-Car Camera Incentive Program" to provide funding to allow agencies the funds to purchase and integrate these systems (Strom, 2017).

Many would agree that technology is a double-edged sword. As technology advances so does the crimes that are committed. Throughout time crime has advanced to using the technologies that have evolved to benefit our lives. Specifically, social media platforms, internet access to our youth, personal information exposed on the internet and data tracking. For example, take human trafficking, abductions, rape and other crimes that begin on internet platforms. These situations have become easier to access due to the usage of social media in today's world. As perpetrators utilize and advance their knowledge of social media outlets and other avenues of reaching victims, the access of the victims becomes more obtainable. We can look at the population of our youth and social media. More and more children are gaining access to social media platforms every day and at younger ages. Many of these users are not properly educated or informed of the dangers on the internet and are naïve to the potential harm. It is one of the first stages of psychological developments in life to trust. Erik Erikson states that trust is established in the first 18 months of life (Cherry, 2018). The youth population is predisposed to trust and the perpetrators thrive on this. With lacking heavy oversight and supervision leaves the internet a feeding zone for opportunity. It is vital that law enforcement agencies have up to date technology, or better yet, advanced technology applications and training to stay ahead of internet risks. In relation to economics, staying ahead of these risks although expensive on the front end, pays off when compared to the cost of pursuing the incident. For example, once a crime is committed and law enforcement is involved there is a timeline of steps, all with a price tag. Time and potential overtime, specialized units and use of additional resources, involves the court systems and community resources making them unavailable to others. Currently the United States has an estimated cost of 27 million dollars in cybercrime related costs (Crane, 2019). The US has budgeted more than 17 billion dollars for the 2020 budget, nearly 800 million more than 2019 (Crane, 2019). A portion of this budget, over 156 million dollars, has been allotted to "early-stage

research”, in other words, increase resilience, cybersecurity and emergency response (Crane, 2019)

While social media and internet platforms become a playground for predators, we can also look at the benefits the internet brings to law enforcement agencies. Most agencies have begun using social media platforms such as; Facebook, Instagram, Twitter and several others as an avenue to connect with the community. These platforms have a \$0 cost to the agencies in terms of use. We can dive past the surface of this use and see that not only is this positive agency involvement with the community but it allows citizens to assist, identify, remain in the know of situations in the area. A study in 2016 concluded that more than 75% of law enforcement agencies utilize social media for useful intel for investigations (The Link Between Criminal Justice and Social Media, 2020). The role that social media plays in the law enforcement field increases in value with each coming year and the proficiency in these programs is vital to the agencies (The Link Between Criminal Justice and Social Media, 2020).

Evolution is inevitable. Evolution of technology, evolution of law enforcement agencies, evolution of crime and the evolution of economics. Each phase of evolution brings its benefits along with its challenges. It is vital that law enforcement agencies get and stay one step ahead of each new phase in order to be successful in protecting and providing for the communities in which we serve. Funding these resources should not hinder the ability to serve our communities.

## **Methods**

This study was designed to identify the availability and need of advancements in technology in today's policing.

### **Participants**

This study consisted of 20 Law Enforcement Agency Supervisors to provide insight into the current technology within their respective departments, as well as the need for improvements. These supervisors provided intelligence in regards to the tools afforded to them and where they see a need for updates. All supervisors were selected from the 4 law enforcement agencies within Marion County, Florida. Each participant oversees one of five departments within their agency. These departments include; Community Policing, Major Crimes, Special Operations, Communications and Computer Services. All participants have at least 10 years of experience in policing and have attained the rank of Lieutenant or greater with the exception of 2 non-sworn participants that hold the title of “Director” in their respective departments.

### **Materials**

The study was comprised of a detailed survey to obtain data from four separate agencies. Of these agencies' participants were chosen from five selected divisions. The selected divisions were chosen based on department size as well as specific job duties. The survey questions were designed to identify the usage of technology within each

department along with possible advancements. The questions provided included identifying whether there is a need for updating technology and the funding available to the departments.

## **Procedure**

All of the participants were directly selected according to their rank within their department within their respective agency. Each individual was provided with the electronic survey to identify the availability and usage of technology, or lack thereof, as well as budget allocation within their departments. The survey was provided to each individual via direct communication and e-mail.

## **Results**

This survey was sent to a total of 20 law enforcement supervisors in Marion County, FL agencies. A total of 10 were received for a response rate of 50%. The survey consisted of 14 questions to analyze the interdepartmental opinions of the individuals included.

Many questions were unanimous in response. 2 questions had one or more individuals skip over and move on to the next question.

All participants were in agreement that technology was important to them in order to complete daily tasks in regards to question 1. Question 2 asked if technology-based equipment is used to assist in daily duties, such as license plate readers and facial recognition devices. 100% of those participating answered "yes".

Question 3 looked further into technological software available and the utilization of that software. 100% of the participants answered yes to the usage of programs such as, Pawn Broker, CIS, etc., in their daily activities.

Question 4 asked about the accessibility of the systems and software to all employees within the relative department. 80% of the participants answered yes, while the remaining 20% answered no.

Question 5 resulted in a unanimous response of "Yes" for advancements of technological resources being budgeted within their respective agencies.

Question 6 asked whether or not the individual held any responsibility for applying for grants or providing additional funding for their departments. 30% responded yes while the remaining 70% answered no, they did not have any responsibility for providing funding for their departments.

Question 7 asked if the specific divisions would benefit from having access to additional funds to purchase advanced tools and equipment for investigations and assignments. There was a 100% response of "yes".

Question 8 also resulted in a 100% response of "yes" when asked if their divisions would benefit from additional funds to purchase advanced programs.

Question 9 asked, would the specific division benefit from additional technological resources if available, and the result was a unanimous "yes".

Question 10 looked into the benefit factor of local agencies sharing information with partner agencies for full spectrum knowledge of their county. All 10 of the participants

selected yes, they believe their agency would benefit from all agencies working together sharing information within.

Question 11 asked about the opinion of sharing the information throughout all agencies within the county. 90% of the 10 participants agreed that they and their agency would benefit from the sharing of intel across agencies.

Question 12 asked whether or not the specified individuals have personally identified certain programs or equipment that may be out of date of need replaced by newer advanced technology, 70% answered yes while the remaining 30% answered no. The survey indicated that responses from; PIO/Investigations, Special Ops and Major crimes did not currently see a need in their respective departments for newer updated programs and equipment.

The last two questions analyzed the departments willingness to consider new ideas and updates as their agencies evolve. 90% of the participants responded with a "yes", while there was one left unanswered.

Following the question regarding the agencies willingness to consider new ideas, the last item asked whether or not their division would benefit from having an employee that would be solely responsible for the training of new technology and programs for the employees within that department. 90% of the answers were "yes", with one response from the Public Information Officer/Investigations unit answering "no".

## **Discussion**

The results of the electronic survey remain relatively consistent from one question to the next. As anticipated, most responses leaned towards the desire and need to provide continuous upgraded technology.

The initial implication of the evolution of technology in policing pointed towards the vital need of providing officers the resources of newer and advancing technology as new products and software evolve. This need being vital because of the nature of the job and the ability to "be ahead of the game" when it comes to solving cases, catching criminals, saving victims and reporting accurate information to the public. There was a universal agreeance from participants on the usage and importance of the equipment and programs to perform their daily duties to the best of their ability.

All participants agreed that having additional funds allocated to these said updates would be of benefit to their departments, however, only 30% of them have any say so in producing and applying for additional funding or grants for their divisions within their agency. The ability to locate and obtain additional funding could potentially rise if the supervisors at the center of each department had the authority to make these recommendations and seek out their own funding.

The method of research conducted was limited to the willingness to participate from the selected individuals from each agency. The participants were selected specifically based on their role within the agency as well as the agency they worked under. The research was intended to obtain internal opinions and knowledge from the supervisors from the largest divisions in the agencies. The supervisors selected were from the same divisions across the 4 agencies in Marion County, FL.

As stated earlier, one of the main issues with technology available is the cost associated and law enforcement agencies operate on budgets which fluctuate with the current economies. This fact is relative to the need for individual supervisors to have the authority or ability to seek and find additional funding and/or grants available. Also, when new programs, tools and technology are awarded the agency will incur additional cost, time and logistical implementation needed for training the entire agency on proper use. This relates directly to the survey question regarding each department having an employee that specializes in the new items and can train their team as necessary. 90% of the responses were in agreement that their departments would greatly benefit from this position being available.

This method, electronic survey, was informative, however due to the level of participation this method indicates that not all who receive the requested survey will participate. To obtain further research and linear comparisons between agencies, face to face interviews would provide a broader scope on the subject as well as more conclusive results. Each department has its own jurisdiction and the needs will differ accordingly resulting in greatly different needs based on their location, population, statistic, etc. It would be a vital component to conclusive research to have the responses from each of the supervisors contact from all four departments.

This study shows the importance and desire of each agencies need for evolving technology and continuous training. We are able to visualize the opinions of the supervisors responsible for an entire division and the officers they are responsible for. Each participant answered the survey questions with the agency, their department and most of all the well-being of their officers in mind. As they work day to day in the field, they are privileged to recognize the strengths and shortcomings of their department and officers. Just as they would provide assistance to a specific officer if they witnessed their deficits, they also recognize the strengths and weaknesses of the equipment and programs they are provided by their agency.

## **Recommendations**

Based on the research conducted, inclusive of the research and surveys of law enforcement officers, the need exists for open accessibility to evolve as technology evolves within law enforcement. There are significant effects on every aspect of law enforcement officers and their agencies. When offered updated equipment officers are trained appropriately meanwhile refreshing existing skills. Software and program updates allow ease of access and increased security. Additionally, the need for a "training specific" employee within each department is a significant tool to maintain a firm knowledge base on interdepartmental equipment and tools. This position allows for the departments to have an "expert" available at all times to assist and enhance usage of existing tools. This employee would also train on new developments ahead of time to gain expert knowledge and usage of tools prior to implementation in respective departments. Having this training available would also offer individual and department wide training and assistance at all times.

It is recommended to grant each department supervisor the authority to seek and obtain additional funding sources as needed for their departments. This will allow the

supervisors to discover and remediate any deficits within their department without taking away from existing budgets where funds have already been allocated.

Utilizing a multi-agency platform, i.e. Microsoft Teams would allow information to be readily available. This can be used for BOLO's or in-progress incidences where real-time information can be shared county wide. This is a low-cost solution for first line supervisors. Using technology to accomplish tasks that once took minutes or hours, can be completed in seconds. This will allow for safer situations for officers and better results for citizens in which they serve.

Captain Dustin Keuntjes started his career with the Ocala Police Department in June of 2003 as a Police Officer. He spent time as a member of the Intel unit, Canine Handler, SWAT Operator, Narcotics Agent and later assigned as a Task Force Officer (TFO) with the DEA. In March of 2016, he was promoted to the rank of Sergeant and assigned to the Community Policing Bureau and later Narcotics while maintaining his position as a Team Leader on SWAT. He was promoted to the rank of Lieutenant and assigned as a Watch Commander within the Community Policing Bureau and as the agencies SWAT Commander, where he held that position until December of 2020 when he was promoted to the rank of Captain and assigned as the East District Commander within the Community Policing Bureau. Captain Keuntjes graduated from the Florida Leadership Academy Class 42.

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## Appendix A

### Survey

- Q1 Is using technology for daily job tasks important to you?
- Q2 Are you and your employees utilizing technology-based equipment to assist with your daily duties? (i.e. License Plate Reader cameras, Facial Recognition or Drones).
- Q3 Are you and your employees utilizing technology-based programs to assist with daily tasks? (Shot Spot, Linx, Pawn Broker, License Plate Reader software, CIS, Coban, Getac).
- Q4 Do all employees in your division have access to current systems, software, tools and equipment used within your agency?
- Q5 In the current division you're assigned to, does your agency budget for advancements for technological resources? (i.e. updated computers, cameras, vehicles)
- Q6 Are you responsible for producing and applying for grants/additional funding for your division?
- Q7 Would your division benefit from having extra funding allocated to purchasing advanced tools/equipment to assist in investigations and/or assignments?
- Q8 Would your division benefit from having extra funding allocated to purchasing advanced programs specific to your duties to assist in investigations and/or assignments?
- Q9 Would your division benefit from additional technological resources if they were available?
- Q10 Would agencies within your county benefit from sharing information gathered?
- Q11 Would your division benefit from shared information and programs throughout your county?
- Q12 Have you identified programs or equipment within your department that needs to be replaced with newer advanced technology?
- Q13 Do you believe the agency that you work for is open to new ideas and updates as they evolve?
- Q14 Taking into consideration training and learning curves with new advances, would your division benefit from having an employee to work specifically on understanding and training of new technology and programs specific to your division?