

How Will Emerging Crime Analysis Technology
Affect Patrol Deployment Strategies in a
Mid-Sized Law Enforcement Agency by 2009?

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This Command College project is a FUTURES study of a particular emerging issue in law enforcement. Its purpose is NOT to predict the future, but rather to project a number of possible scenarios for strategic planning consideration.

Defining the future differs from analyzing the past because the future has not yet happened. In this project, useful alternatives have been formulated systematically so that the planner can respond to a range of possible future environments.

Managing the future means influencing the future: creating it, constraining it, adapting it. A futures study points the way.

The view and conclusions expressed in this Command College project are those of the author and are not necessarily those of the Commission on Peace Officer Standards and Training (POST).

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CHAPTER I

ISSUE IDENTIFICATION

Most police departments today utilize some form of crime analysis to assist them in making decisions as to how to address trends and patterns in reported crimes within their jurisdictions. Many of those have implemented a computer-based system that provides the data substantially faster than utilizing stickpins on wall maps. In fact, as recently as 1994, the New York Police Department, under the command of Commissioner Bill Bratton, implemented CompStat, a system of computerizing and mapping crime data.

“The original CompStat model created a system that uses current, relevant data to direct police activities rather than relying on three to six month old information, which was previously the norm” (McKay, 2003, p.20). Unfortunately, even CompStat is still retrieving data that is old, albeit days, as opposed to months. Even Bratton, now the Chief of Police in Los Angeles, California, recognized that relying on old data would do nothing more than send officers “...from crime scene to crime scene, doing little more than cleaning up after criminals” (McKay, 2003, p.20).

Other police agencies have implemented programs that also rely on crime analysis information to dictate where their officers should focus their attentions. The Redlands Police Department, a mid-size urban law enforcement agency located in Southern California, utilizes the maps generated by its crime analysis unit to determine where its recently formed Multiple Enforcement Teams should be deployed to reduce crime. Overall, the department has seen a reduction of approximately 11% in the eight categories of crimes tracked by the Federal Bureau of Investigations, known as Part I

crimes. Redlands Police Captain Tom Fitzmaurice refers to the new program as a mindset, adding that officers are now being “driven by data instead of being driven by geography” (Berry, 2004).

Currently, tools exist that allow real-time analysis of data to provide a more up-to-date or just-in-time response to problem trends and patterns, not unlike the computer scanner at the local grocery store. After scanning a purchase, these computers immediately send a report to the warehouse requesting the item’s replacement. Computers in law enforcement applications should be able to input data from a crime report in much the same manner and should determine trends and patterns immediately upon comparing the new information with already collected data.

Technology that has been in use in private industry for over a decade could give law enforcement supervisors immediate access to data as officers collect it in the field. After input, it would be immediately analyzed for patterns and trends by the agency’s software program and forwarded to the field supervisors. These supervisors would now have options for the deployment of available personnel, all within minutes of receipt. This will afford supervisors the opportunity to effectively utilize personnel to potentially stop those particular issues affecting law enforcement that historically have established patterns, such as robberies and burglaries.

This research project will explore how emerging crime analysis technology can be implemented and effectively utilized to determine patrol deployment strategies in a mid-size municipal law enforcement agency by the year 2009. Specifically, can a law enforcement agency transition away from the traditional “beat” system of deploying its

personnel to a deployment strategy that is determined real-time throughout the patrol officer's shift.

In law enforcement applications, Melissa Reuland defines crime analysis as "the analysis of crime and other incidents to support resource deployment" further adding that it is a means for "identifying those locations, times of day, or situations where crimes appear to cluster" (1997). "Emerging technology" will be defined as the application by which the crime analysis data is collected, analyzed, and transferred to the decision maker, so that it becomes real-time actionable information for field personnel. Specific examples of this technology include the notepad computers that officers may utilize to capture data from crime victims and the high-speed wireless Internet connections that transfer data to and from the field.

Since the purpose of the collection of data is to provide a historical perspective on issues, the question for consideration is whether or not data remains valuable after time, and if time is a factor, at what period does the information become less valuable for making immediate or instantaneous decisions. Based on the mission and operational objectives of law enforcement organizations to combat crime, the faster information is relayed to patrol personnel on where potential criminal activity may occur, the greater the likelihood that the criminal act will be either prevented, or the suspect apprehended.

Furthermore, because this issue substantially affects the mission of these organizations, if no actions are taken to improve delivery of information, will conditions worsen? In order to maximize the use of this technology, information must be submitted in a more expeditious method to allow the evaluation and analyzation of the data to

determine what patterns and trends are apparent that could provide the information needed to make well-informed decisions as to deployment of available personnel.

A mid-size law enforcement agency will be defined as one employing between 50 and 100 full-time sworn police officers serving a population of less than 100,000 citizens. Specifically, this project will focus on implementing this program into the Colton, California, Police Department. The Colton Police Department (CPD) is currently authorized sixty-eight full-time sworn police officers serving a population of approximately 50,000 residents.

Through the process of futures forecasting, potential trends and events that could shape and affect the implementation of the intervention will be identified. Three alternative scenarios will be developed to visualize probable futures of the Colton Police Department from an optimistic, a pessimistic, and a normative view. From this futures forecasting process, a strategic plan will be developed based on a chosen scenario. Finally, with the information from the strategic plan, a transition management plan will be created to determine an implementation process to reach the intended goal of using real-time crime analysis information to make patrol deployment decisions in a mid-size urban police department.

CHAPTER II

FUTURES FORECASTING

The purpose of this chapter is to identify issues that may impede or facilitate the use of emerging crime analysis technology to determine patrol deployment strategies in a mid-size urban law enforcement agency by the year 2009. These trends or events could, independently or combined, have an impact on how emerging crime analysis technology could affect patrol operations. Additionally, this chapter offers three potential future scenarios to determine how a mid-size urban law enforcement agency can plan for a future that they see for their organization, while planning to avoid a scenario that could prove destructive for their agency.

The Nominal Group Technique

The Nominal Group Technique (NGT) was utilized to identify trends and events that may have a significant impact on the research topic. The NGT is a process that encourages a panel of diverse participants to bring their independent expertise to the table to discuss relevant issues as they relate to the research topic and futures forecasting.

In order to ensure that the panel's discussions were relevant, yet not swayed by current law enforcement practices, participants were invited who were not currently employed as police officers. The participants included the CEO of a computer technology firm, a retired Chief of Police who is now the Marketing Manager for an international computer software company, a recent college graduate who is seeking a

career in law enforcement, the Crime Analysis Manager of a local police department who is overseeing a data-sharing program funded by the federal government, an executive from a large supermarket chain, an attorney from a large private law firm who specializes in municipal law, a systems analyst from a large urban county sheriff's department currently assigned to their CAD/RMS Transition Team, a crime analyst assigned to a large urban county sheriff's department currently working on several regional task forces, and the information systems coordinator for a municipal city government. A list of the participants can be found in Appendix A. Each of the participants chosen to participate were asked if they understood the issue as defined in the issue statement, and all felt that they could provide insight on trends and events that might significantly impact the issue if implementation is deemed viable.

The NGT workshop was convened in Colton, California, in May 2004. Prior to the workshop, each participant was contacted via a letter and telephone call, and provided with a copy of the issue statement and a brief explanation of the NGT process. Additionally, an explanation of trends and events was provided, and each participant was asked to begin thinking about those trends and events that they thought could have an impact on the issue.

Trend Analysis. In order for the process to be effective, it was incumbent that each participant understood the definition of a trend. For the purpose of this NGT, the group agreed that a trend would be simply something that has a past, present, and future. The participants were asked to begin individually identifying trends that they believed might

have an impact on the issue statement. They were reminded that they were not to discuss their responses at this time.

After allowing the participants time to compile their individual lists in silence, each was asked to share their trends with the group in a round robin format. The group then decided which trends from the entire list would be selected for further discussion and analysis. A total of thirty-eight trends were shared and a list was created (Appendix B). After ensuring that each participant understood the thoughts of the participant submitting the trend, the group individually selected the ones that they believed would have the greatest impact on the issue statement. Upon tallying the votes of the group, it was decided that eight of thirty-eight would be analyzed.

Next, each participant was asked to evaluate each trend, beginning the evaluation of each trend using the year 2004 as a benchmark with a value of 100. They were asked to determine a value of each trend looking back five years from present day, and then forecasting the future, five years and then ten years from the year 2004. Additionally, using a scale of 1 to 10, they were asked to determine the level of concern that the particular trend might bear on the issue as defined in the issue statement. The results were totaled and the mean of the group's values were placed in a table that is displayed as Table 1.1 below.

Table 1.1 Trend Summary Table

		1999	2004	2009	2014	CONCERN
TREND #1	ACCEPTANCE OF INFORMATION SHARING	45	100	200	380	10
TREND #2	AVAILABILITY OF REAL-TIME CRIME ANALYSIS INFORMATION	50	100	200	350	7
TREND #3	INTEGRATION OF PAPERLESS REPORTING	25	100	150	350	5
TREND #4	AVAILABILITY OF HIGHSPEED WIRELESS ACCESS	40	100	150	350	5
TREND #5	AVAILABILITY OF FUNDING SOURCES	65	100	120	175	5
TREND #6	ROUTING ACTIONABLE INFORMATION TO FIELD PERSONNEL	30	100	225	400	10
TREND #7	ACCEPTANCE OF TECHNOLOGY	40	100	200	350	8
TREND #8	INTEGRATION OF DATABASES	25	100	250	600	8

Trend 1: Acceptance of information sharing.

The panel shared a perception that most organizations resisted sharing information in the past for fear that knowledge is power, and that the organization with the knowledge had the power. It was discussed that with the amount of information currently available on the Internet, it is ridiculous for anyone to believe that they can hide data anymore, thus their opinion that the acceptance of information sharing would be doubled in five years and tripled in ten years. They felt that the sharing of information was integral to the success of having accurate crime analysis data to make patrol deployment decisions, ranking their level of concern as a 10.

Trend 2: Availability of real-time crime analysis information.

The panel felt that getting real-time crime analysis information out to the officers in the field was not a matter of if, but rather a matter of when. With the majority of the panel members currently involved in technology in the private sector, it was shared that the technology to get the information out to employees and supervisors in the field is already successfully in use in many organizations from Federal Express to Stater Bros Markets. Based on their backgrounds, the panel saw the availability of real-time crime analysis doubling in five years and tripling in ten. Although the panel members were confident that it could be done, they rank their level of concern as a 7, fearing that external issues could hamper the integration of the required technology, thus affecting an agency ability to transfer the data to the field for decision-making purposes.

Trend 3: Integration of paperless reporting.

For the purpose of discussion, paperless reporting was defined as reports routed via a computer as opposed to hardcopy distribution. The consensus of the panel was that the current business culture is still reluctant to dismiss the printed document. The feeling was that the current workforce is still entrenched in putting pencil to paper, which they reflected in their belief that the integration would move slowly over the next five years. They felt that until the next generation, which is weaned from this rudimentary method of communication, enters the workforce in the year 2014, workers would continue to print copies in order to mark them up for review. While they believed this was a waste of precious resources, their level of concern was still only a 5, and that was based on a concern over the delay of getting corrected information into the database to ensure accurate information was available for decision-making.

Trend 4: Availability of high-speed wireless access.

The group defined high-speed wireless access as the method and speed in which information is transferred from one computer or server to another computer without the need for the equipment to be physically linked via cables. High-speed allows larger amounts of data to be transferred within a period of time that allows the information to be useful. According to the panel, technology and infrastructure are already in place to move the desired information at a speed that makes it useful. They had a mid-level concern that the costs of accessing the system, as well as security concerns as to system vulnerability would prohibit many law enforcement agencies from linking their systems until these security issues were addressed. They believed that

while the first five years would be slow, the availability would triple within the next ten years.

Trend 5: Availability of Funding Sources.

The panel recognized that government agencies are tied to different funding sources than are private-sector organizations. Funding sources were defined as any source of funding likely to be designated for the purchase of equipment or software to facilitate the implementation of data sharing or routing to field personnel. These funds would include General Fund Accounts, Grants, Asset Forfeiture Accounts, as well as other funds used by law enforcement agencies. Although the panel shared the belief that law enforcement agencies received funding when a need was presented, they did not see a significant increase in the availability of funding in the next five or ten years. It was felt that with all the other issues plaguing government, funding for new technology would be in short supply. The group felt this was still of medium concern, because they felt that the costs associated with this technology would become more reasonable and thus affordable to acquire.

Trend 6: Routing actionable information to field personnel.

The panel defined actionable information as information that can be utilized to make immediate and accurate decisions in the field. It was the panel's opinion that the trend in organizations is to no longer be satisfied that they are merely communicating with their personnel in the field. Success of an operation depends on information that is accurate and beneficial to the task of the employee in the field. Their level of concern

was a ten, based on their belief that success hinged on an organization's ability to determine what information was necessary to make the decisions needed in the field, and the organization's ability to get that information where it needed to be. They believed that the availability will double in the next five years and increase four-fold within the next ten years.

Trend 7: Acceptance of technology.

Acceptance of technology is defined as an employee's willingness to utilize tools, to include computers and other similar type devices that are intended to improve the employee's ability to perform their assigned tasks. The panel believed there to be a high level of concern if acceptance was to become an issue. It was their opinion if the organization's employees did not accept and embrace the tools and what they could provide in terms of data, they would be less likely to ensure that they collected accurate and relevant data that was incumbent for the success of the program. With the applicant pool that most agencies are currently recruiting from much more technologically literate, the panel saw the acceptance doubling within five years and more than tripling in ten years.

Trend 8: Integration of databases.

The integration of databases is defined as the combining of multiple agency databases into one large database. Each member agency would be able to determine how they desire their data to be analyzed along with data supplied by other members. Integration differs from information sharing in that one agency does not have to ask for

another agency's information and analyze it themselves. It was the belief of the panel that this was avoided in the past because of the fear that data could be compromised. They saw the trend to integrate more than doubling within the next five years. Believing that integration was definitely in the long-term future of law enforcement, they foresee it increasing by six times in the next ten years. They project that as more organizations realize the benefits of not only sharing, but also working through a single system to gather all the information they need, it will allow them to perform their operations more seamlessly. Because the panel saw this as an integral part of the success of this program, they had a high level of concern, an 8, that resistance could be extremely detrimental.

Event Analysis. As with the trend analysis, it was incumbent that each member of the panel shared the same definition of an event. For the purposes of this workshop, an event was defined as a single event that had not yet occurred. After ensuring that the group was clear with this definition, the group was asked to begin the initial process of individual event identification by writing down significant events in silence. Once the group completed this task, each member shared with the group the events that they had identified in a round robin format. In total, the group identified thirty-two events that they believed were worthy of further discussion and a list was again created (Appendix C).

The group was polled to ensure that everybody understood each event that had been submitted for consideration. Each participant individually ranked the events that they believed might have the greatest impact on the issue statement. After tallying their results, a total of seven of the events were selected for further discussion and analysis.

Each participant was asked to evaluate each of the seven events to project when they believed the event was mostly likely to occur, as well as the percentage of likelihood that the event would occur within the next five or ten years. Finally, using a scale of -10 to +10, the participants were asked to gauge the impact that the specific event might impact how emerging crime analysis technology will affect patrol deployment in a mid-size urban law enforcement agency by the year 2009. The results of the group's input were tallied and the mean was documented in Table 1.2 below.

Table 1.2 Event Summary Table

		YEAR > 0	5 YEARS	10 YEARS	IMPACT
EVENT #1	MILITARY SHARES DATA COMPRESSION TECHNOLOGY WITH LOCAL GOVERNMENT AGENCIES	2	100	100	8
EVENT #2	FEDERAL GOVERNMENT MANDATES INFORMATION SHARING BETWEEN FIRST RESPONDER AGENCIES	6	0	100	10
EVENT #3	HOMELAND SECURITY GRANT AWARDED TO LOCAL LAW ENFORCEMENT AGENCIES TO FUND INFORMATION SHARING DATABASES	7	0	100	7
EVENT #4	MULTIPLE, SIMULTANEOUS 7.0 EARTHQUAKES PARALYZE CALIFORNIA	6	0	100	8
EVENT #5	COMPUTER VIRUS INFECTS LAW ENFORCEMENT COMPUTER NETWORK	7	0	100	10
EVENT #6	CRIMINAL HACKERS INFILTRATE LAW ENFORCEMENT COMPUTER NETWORK	6	0	100	3
EVENT #7	STATE GOVERNMENT TIES FUNDING TO REGIONAL INFORMATION SHARING PARTICIPATION	3	100	100	10

Event 1: Military shares data compression technology with local government agencies.

Data compression technology was defined for the group as the technology necessary to allow transmission of a vast amount of data over a wireless connection at high speed without affecting or slowing down the system. The participant who identified this event shared with the group that he has personal knowledge that this technology should be made available to local government agencies within the next couple of years,

which is reflected in the table results. After the discussion of the technology, the panel felt that its impact was going to have a very positive effect, not only on getting the crime analysis information to the field, but also on other applications. It was their shared belief, which they reflected in their impact score of 8, that getting large data files such as photographs and maps to personnel in the field was integral in effectively using crime analysis information to make deployment decisions. They felt data compression technology to be the most effective method to attain it.

Event 2: Federal government mandates information sharing between first responder agencies.

This event was defined as specific legislation enacted that required all first-responder agencies (e.g., law enforcement and fire) to share data that is accumulated by their respective agencies. The majority of the panel members believed that these mandates would most likely come within the next six to ten years as the federal government struggles with homeland security issues. It was believed that it would require extremely stringent sanctions to ensure cooperation among all the different agencies that would be required to participate in order to obtain the necessary data required to make accurate decisions in the field. The impact of such an event was significant to the panel, which scored it as a 10 on the scale.

Event 3: Homeland Security Grant awarded to local enforcement to fund information-sharing databases.

The panel felt that a Homeland Security Grant that specifically funded information-sharing would be a significant event as opposed to the current round of funding that is labeled as Homeland Security but contains few restrictions on use. It was a shared belief that funding was going to be a major obstacle in building an information-sharing database in a mid-size or any size law enforcement agency. The panel felt that in order to design a system that could be shared amongst many agencies, a large funding source would be necessary. They believed the federal government would become the funding source when it realizes that it needs information collected by local law enforcement agencies in order to ensure homeland security. There was some concern as to what agency will ultimately become the controller of the data as the agency that initially submits it will bear responsibility to what goes in, but little control as to how it is used. The panel felt the impact was fairly significant, hence their score of 7, but did believe that even if the federal funds never materialize most local agencies will find funding to create regional databases.

Event 4: Multiple, simultaneous 7.0 earthquakes paralyze California

The panel described this event as a total catastrophic event where numerous 7.0 or greater earthquakes strike all the major fault lines throughout the state. They defined paralyze as the destruction or total disabling of the major transportation corridors, communication mediums, as well as the shutdown of all facets of services (e.g., grocery stores, gas stations) for at least one week. Most of the panel felt that an event of this magnitude was inevitable within the next seven to ten years. It was their opinion that if

the infrastructure of the crime analysis program was not in place prior to the event, the impact to implementation would be substantial, scoring it an 8 of 10. Their concern was that if funds were required to build a system to use crime analysis technology to determine patrol deployment, the rebuilding of the state's infrastructure would take precedence, thus derailing the implementation.

Event 5: Computer virus infects law enforcement computer network.

The panel defined this virus as one that substantially corrupts the database files of all agencies attached to the network. It was agreed that while the current technology is addressing the concern today, as agencies become more reliant on their networks and paperless systems, the likelihood of a virus being introduced becomes greater. While they believed that a virus could be introduced, they felt there was no probability that it would occur within the next five years. This panel was certain it would occur within ten years. Furthermore, they believed that this event would have such a significant impact on the future of the program that they scored it a 10 on their scale. What the panel saw as most concerning was the reluctance of agencies to continue participating in sharing the data that would be required for accurate crime analysis if the agency saw reliability compromised.

Event 6: Criminal hackers infiltrate law enforcement computer network.

The panel defined this as actually accessing databases and utilizing the information for illegal purposes. They felt that although it is certain that this event will occur within the next ten years, it is unlikely to occur to a level that would create concern among the member agencies. Based on their professional experience in the

industry, it is their belief that security software is continuously improving to stay one-step ahead of the hackers. The impact was felt to be almost insignificant by the panel, thus their score of 3.

Event 7: State government ties funding to regional information sharing participation.

This event was felt to have such an impact on the success of a program relying on crime analysis the panel gave it a score of 10. They felt certain this event would occur within the next five years. They felt if the state saw enough value in regional information sharing, and tied funding to it, success would be guaranteed. It was believed in most cases, law enforcement agencies follow the money. If sharing information gets funds for agencies to buy tools, the majority of them will participate. They agreed funding levels would have to be significant enough to make decision-makers take notice, or many might just reject the funding and remain at status quo.

Cross Impact Analysis. The next process in the Nominal Group Technique (NGT) was to conduct a cross-impact analysis. The cross-impact analysis analyzes the impact that the events have on the trends, if the event was to actually occur. A second panel consisting of three different members was convened one week after the NGT workshop. This cross-impact (CI) panel included a management intern for a local municipal agency, a finance director for a local municipality, and a redevelopment manager for a local municipality. A list of participants can be found in Appendix A. After a short explanation of the NGT process, an explanation of the issue statement was provided to ensure this CI panel had a basis from which to conduct their analysis. Finally, the trends and events as defined by the NGT panel were explained and discussed to ensure that

this panel understood what each one meant. When the CI panel was comfortable with their understanding of the process and the definition of the issue statement, the trends, and the events, the process was begun.

The CI panel was asked to individually evaluate how each of the seven events might impact the eight trends if the event was to actually occur. They were provided with a scale of -5 through +5, with zero representing a null impact. A score of -5 represents an extremely negative impact on the issue, while a score of +5 would represent an extremely positive impact on the issue. After each member had completed their individual evaluation, their results were shared in a round robin format. After further discussion, the mean of their scores were recorded in Table 1.3 located below.

Table 1.3 Cross Impact Summary Table

EVENTS/ TRENDS	Trend 1. Acceptance of Information sharing	Trend 2. Availability of real- time crime analysis information	Trend 3. Availability of paperless reporting	Trend 4. Availability of high- speed wireless access	Trend 5. Availability of funding sources	Trend 6. Routing actionable information to field personnel	Trend 7. Acceptance of technology	Trend 8. Integration of databases
Event 1. Military shares data compression technology with local government agencies	3	5	4	0	1	5	2	4
Event 2. Federal Government mandates information sharing between first responder agencies	5	3	5	0	2	5	3	5
Event 3. Homeland Security Grant awarded to local law enforcement agencies to fund information sharing databases	5	5	4	5	5	5	4	5
Event 4. Multiple, simultaneous 7.0 earthquakes paralyze California	3	1	1	5	1	5	N/A	1
Event 5. Computer virus infects law enforcement computer network	-5	-4	-5	0	1	-4	-5	-4
Event 6. Criminal hackers infiltrate law enforcement computer network	-5	-3	-3	0	1	-3	-3	-2
Event 7. State government ties local funding to regional information sharing participation	5	5	4	5	5	5	4	5

Numerous observations can be made based on the group's findings. For example, if funding from the state or federal government (E3 and E7) were made available, all eight trends would be significantly positively impacted. This supports the NGT panel's concerns that funding would be the motivating factor in implementing any type of new program. If the military shared data compression technology with local government agencies (E1), the availability of real-time crime analysis information (T2) and the availability to route actionable information to field personnel (T7) would also be positively impacted. In order to ensure that agencies participate in information sharing, the federal government should mandate it (E2). This would positively impact the acceptance of information sharing (T1), the availability of paperless reporting programs (T3), which would be a collateral benefit, the availability of actionable information to field personnel (T6), and the integration of available databases (T8).

Events found to negatively impact the trends were a series of earthquakes paralyzing California (E4), most significantly impacting the availability of high-speed wireless access (T4); or a criminal hacker infiltrating a law enforcement computer network (E6), which might create a concern as to the acceptance of information sharing (T1). Finally, a computer virus infecting a law enforcement computer network (E5) would have a negative impact on the acceptance of information sharing (T1), the availability of real-time crime analysis information (T2), the availability of paperless reporting (T3), the availability of routing actionable information to field personnel (T6), the acceptance of technology (T7), and finally, the integration of available databases (T8).

Alternative Scenarios. The data collected from the NGT process was used to develop three alternative scenarios. Each scenario forecasts a different outcome based on the specific events actually occurring. In the pessimistic scenario, the events occurring have a negative effect on the issues and the organization suffers accordingly. This scenario should be avoided. The optimistic scenario is the scenario that is to be encouraged based on the research hypothesis that the intervention achieves its objectives. Finally, a normative scenario is a future in which no interventions are introduced and the organization remains at the status quo. While a normative future is more desirable than a pessimistic future, it should not be encouraged for fear that an organization will become complacent and never grow.

Scenario 1: A Pessimistic Scenario.

It is the beginning of another weekend graveyard shift for officers of the Colton Police Department. The year is 2009, and most of the employees have been with the organization for less than two years. After the Great California Earthquakes of 2006 that paralyzed the state for several weeks (E4), most of the department's veteran officers left the agency. While they had looked forward to a future utilizing emerging technology (T2), (T3), (T4), (T6), and (T7) to assist them in their crime-fighting efforts, the department had failed to capitalize on available state and federal funding sources (T5), (E3) and (E7) to secure the necessary computers and other equipment to implement any changes. With the funding for technology and other equipment improvements now designated for the state's infrastructure rebuilding, they were left with obsolete equipment that was now useless because the vendor went bankrupt after the quakes

and nobody else supports their equipment. Colton was the only city in the county not to join the San Bernardino County Regional Information-Sharing Network (T8), so while all the other agencies used the latest in crime analysis technology to determine patrol deployment strategies, Colton still operates on a five-beat patrol plan. Several of the few remaining officers and supervisors are holding out hope that if the city is not able to identify a funding source, maybe the city council will decide it might be beneficial to contract law enforcement services with the sheriff's department. It is their belief that at least as deputies they will have the tools that are needed to accomplish their mission.

Scenario 2: An Optimistic Scenario.

It is the year 2009, 91PAUL1 of the Colton Police Department has just been assigned to a burglary call in his patrol sector. He acknowledges receipt of the call, not by picking up a microphone like he did when he first started with the department in 2004, but by using his vehicle's MDC and its voice recognition technology (T7). He tells the MDC to record his on-scene arrival time, grabs his notepad computer, which the department had purchased when they went completely paperless two years prior (T3), and heads to the victim's front door. When the victim answered, she advised that she had returned home to discover her house had been burglarized and that her laptop computer and money had been taken while she was away at work. As he entered the information on the form page of his notepad, the information was immediately being transmitted via a high-speed wireless Internet connection (T4) to the countywide regional uniform data-sharing (CRUD) network (T8) for analysis. The network had been created after the federal and state governments began mandating information sharing

among first-responder agencies (E2 and E7), and tied funding (E3 and T5) to encourage participation. After obtaining the necessary information from the victim and a neighbor who saw a suspicious red truck park on the street earlier in the day, he returned to his car. Before he could tell the computer to put him back in service, the computer alerted him to a map that had been sent from CRUD (E1). The map included information about other burglaries that had occurred earlier in the day, as well as additional license information on the red truck which had also been seen at two of the other burglaries scenes (T2 and T6). CRUD had also routed the information to the Watch Commander's computer, and a sergeant analyzed the information and decided to deploy three available officers into 91PAUL1's sector. As the officer's began patrolling the sector looking for the vehicle, the Watch Commander received notification on his computer that the victim's laptop had just been entered into a pawn shop's database linked to CRUD (T8), with a note that the seller was still at the location. All four officers responded to the pawnshop that was located in 91PAUL1's sector and found the red truck in the parking lot and quickly apprehended the suspect as he tried to flee. As 91PAUL1 transported the suspect to the jail, he quickly dictated his report to his computer (T3). While he was enroute to the jail, the Watch Commander was able to review it and return it with a request for additional suspect statements. After corrections were made, the report was transmitted to the District Attorney for filing. This was one more example of the rewards of the creation of CRUD and the use of emerging crime analysis from the regional crime analysis database. This information is immediately analyzed and the sergeant uses it to determine where in the city they will deploy to

combat crime, a relief from the old days when they had to stay in their beat unless cleared by the dispatcher.

Scenario 3: A Normative Scenario.

Another shift has begun for the officers of the Colton Police Department. It is 2009, and little has changed. There was discussion at one time about improving technology, but funding was never readily available to undertake such a large project (E3, E7, & T5). The fear of computer viruses or information getting into the wrong hands (E5 & E6) has stifled any attempts at integrating a paperless reporting system (T3). Most of the older employees have never really accepted technology as being helpful to their objectives (T7), and many of the decision makers in allied organizations were against sharing their databases (T8) for fear that they would lose control, or worse, find themselves replaced or integrated into a regional law enforcement agency. A major earthquake hit California three years ago (E4), and like always, public safety responded, took care of business, and quickly assisted in getting things back to normal. While most private-sector agencies have capitalized on the high-speed wireless Internet (T4), law enforcement is still light-years behind. As the years go by, Colton will probably be required to upgrade their technology because parts will no longer be available for their current equipment. Until then the department remains at status quo.

NGT Summary. The Nominal Group Technique process provided the opportunity to evaluate trends and events and their impact on the how emerging crime analysis will affect patrol deployment in a mid-size urban law enforcement agency by 2009. By

utilizing a diverse panel, insight and knowledge is gained from outside an organization's field of expertise, stimulating thinking beyond what is known. The next step is to utilize this information to develop the organization's strategic plan to achieve this goal.

CHAPTER III

STRATEGIC PLAN

A strategic plan is the map that outlines how an organization will achieve its objectives in attaining a desired goal. According to Mosley, Pietri, and Megginson, “the concept of strategic planning has become exceptionally important in management circles today, due in large part to the increasing complexities of both external and internal environments...as well as to growing management sophistication” (1996, p.212). In order to ensure success in the implementation of any plan, an organization’s leaders must develop strategies to allow it to operate within its environment.

The Colton Police Department desires to ensure an optimistic future for the organization by utilizing crime analysis data to improve its ability to more efficiently and effectively deploy its patrol personnel. Currently, police officers with the Colton Police Department are assigned to one of five patrol beat areas within the city. Between calls, the officers are expected to drive around their assigned area identifying community-policing needs, enforce traffic laws, make contacts with citizens and suspicious persons, make arrests as warranted, and finally, prevent crime from actually occurring. It is this last requirement that is currently failing to adequately meet minimum standards based on the number of crimes being reported. The objective of this proposed change is to reduce reported crimes by at least 15% within one year of the implementation of this proposal.

In 1991, the Colton Police Department, like many mid-size urban law enforcement agencies created a crime analysis bureau. The goal of this unit was to

utilize information collected by patrol officers in the field to chart crime trends and ultimately prevent crime from occurring. This was supposed to be achieved by forecasting where and when the next incident would occur. Unfortunately, due to the delay in reporting, and the inability of the analyst to obtain real-time data, all the analysts were able to provide to the patrol officers were maps showing areas that continued to be vulnerable to crime.

In order to achieve the actual goal of deploying personnel based on crime analysis data, the data must be analyzed real-time, and provided to a field supervisor to deploy on-duty personnel to those areas that have been identified as vulnerable to criminal activity. This would result in officers being in position to not only prevent crimes from occurring, but also to locate and arrest the criminals associated with the crimes. While it is foolish to believe that crime will ever be eradicated, it is definitely possible to achieve a goal of significant reduction in the number of reported crimes.

Model Agency. For the purposes of this research project, the Colton Police Department will be the model agency. The City of Colton is located in the Inland Empire Region of Southern California. Encompassing approximately twenty-two square miles, the city boasts a population of 50,000 citizens. Approximately five years ago, the City of Colton adopted a Community-Oriented Government philosophy in which they committed to utilizing a team approach to addressing the community's problems. One of the successes of this philosophy was the police department's Neighborhood Enrichment Team (NET). NET has successfully combined the resources of several of the city's departments, as well as the resources of numerous agencies outside the city, to

address quality of life issues throughout the community. What has been discovered in this approach is the vast amount of resources available, as well as information that is collected and retained by many agencies outside of law enforcement that has value to the policing efforts of the Colton Police Department.

While the department enjoys a vast amount of experience in its veteran officers, over the past several years, the average age of its patrol force has decreased due to the recruitment of many younger officers. Although this created concerns in reference to adequate supervision, the opportunities presented has outweighed most of those initial concerns. It is with this in mind that the department embarks on its challenge to change the way officers will patrol the streets of Colton in the next five years.

Vision. It is the vision of the Colton Police Department to ensure an optimistic future for the organization by routing real-time crime trend information that has been analyzed through a regional database to supervisors in the field who will deploy personnel to more effectively address crime within the community. To achieve this goal, strategies must be developed that will assure that every member of the organization knows the goal, the means, and the methods to attain it. These strategies must be developed specifically to the organization, because each organization, like each individual, has characteristics that are particular to it, its culture and employees.

Specifically, the Colton Police Department desires to partner with other law enforcement and non-law enforcement agencies to create an information-sharing database that would analyze information to assist in the identification and reduction of crime. Furthermore, the department wishes to acquire the necessary hardware that

would allow the personnel of the department to send and receive information from this database within moments of the information being obtained or requested by the department's personnel. Finally, the department expects to utilize this information to determine patrol deployment strategies to more effectively and efficiently address crime trends within the community.

Mission Statement. With the vision of the organization defined, the next component of a strategic plan that must be identified is the organization's mission statement. "An organizational mission defines the fundamental, unique purpose that the organization attempts to serve and identifies its products or services and customers" (Mosely, et al, 1996, p. 215). While most police departments have a fundamental duty to serve and protect, if an organization desires to achieve more, they must ensure that each of their employees understands the organization's unique mission that takes it beyond its fundamental duties of serving and protecting the community. The unique mission of the Colton Police Department is to provide "Excellence in Service" (CPD, 2004). "Excellence in Service" will be defined as actions carried out beyond what is expected as a minimum response.

Environmental Scanning. "Environmental scanning is the monitoring, evaluating, and disseminating of information from the external and internal environments to key people within the corporation. Its purpose is to identify strategic factors—those external and internal elements that will determine the future of the corporation" (Hunger & Wheelen,

2000). While there are different methods that can be used to conduct environmental scanning, the method that will be used for this project is a SWOT analysis.

This SWOT analysis evaluates the strengths, weaknesses, opportunities, and threats to the Colton Police Department as it develops plans to implement the proposal to utilize real-time crime analysis information to determine the patrol deployment strategies of its patrol forces. The strengths and weaknesses outlined will generally refer to variables that are within the police department's internal environment, while opportunities and threats generally refer to variables that are outside, or external, this organization's control.

Internal Environment: Strengths and Weaknesses. The internal environment refers to the structure, culture, and resources of an organization. Each variable will be classified as either a strength or a weakness. One method used to determine if the variable is a strength or weakness is through the use of J. B. Barney's VRIO framework. According to Barney, the questions to be considered in a VRIO analysis are: does the variable have **V**alue that provides a competitive value; is there **R**areness to the variable, or do others possess it as well; can other easily **I**mitate it; and is the agency **O**rganized to capitalize or exploit the resource (as cited in Hunger & Wheelen, 2000, p.82).

Weaknesses. Unfortunately, the current organizational structure of the Colton Police Department is not prepared to undertake a project of this magnitude. Although a new Chief of Police was recently appointed, the organization's only captain's position has gone unfilled since the incumbent retired. This has overtaxed the management staff with

additional workload and responsibilities, thus reducing the time available to explore new opportunities such as the proposal to utilize real-time crime analysis to determine patrol deployment strategies. In fact, in a recent survey of police agencies similar in size to Colton, it was found that Colton is operating at only sixty-percent of the industry standard for management personnel. Until this issue is addressed any attempt to address implementing this proposal would probably fail due to an inability to designate resources to the implementation and planning teams.

Strengths. In contrast, the culture of the Colton Police Department is eager to accept such a proposed change. Although the management staff is taxed, the culture of the entire organization is one of optimism. The employees of the organization are hardworking, dependable, adaptable, and embracing of new challenges. In the past year, the number of arrests and citations has increased nearly seventy-percent, while complaints against employees are almost unheard of. Continuing education has become the goal of many of the officers looking to improve themselves and the organization. Although recently stalled negotiations have created a concern that there could be a mass exodus of qualified personnel, if the current recruitment and hiring policies are followed, the culture of the organization should be able to withstand the impact of the loss of several quality employees. Additionally, responsible spending and the receipt of several state and federal grants have placed the department in a position where equipment acquisition can begin in preparation for the implementation of using real-time crime analysis information to determine their patrol deployment strategies within the next five years.

In order for the Colton Police Department to prepare itself for the implementation of the proposed change, it must reevaluate its internal structure and make the necessary adjustments to ensure that the personnel resources are available to undertake the task of leading a transition team. Fortunately, the culture is such that it will sustain the challenges of change, thus somewhat ensuring the acceptance of the change. Finally, with dedicated grant funding sources currently available for the purchase of much the necessary hardware, the department is in a position to begin acquiring the computer hardware with minimal impact to the city's general fund.

External Environment: Opportunities and Threats. According to Hunger and Wheelen, “the external environment consists of variables that are outside the organization and not typically within the short-run control of top management. These variables are the context within which the corporation exists. They may be...trends within the overall societal environment or specific factors that operate within an organization's specific task environment—often called its industry” (2000, p.9). One method to monitor the societal environment is the use of the STEEP analysis. STEEP refers to the variables of **S**ocial, **T**echnological, **E**conomic, **E**nvironmental, and **P**olitical forces that have an effect on an organization. To monitor the organization's task environment, an industry analysis should be conducted to see how those elements or groups that affect the industry are affecting other similar organizations. It is incumbent to the success of an organization to recognize which of these can serve as opportunities and those that may be threats.

Based on the popularity of police shows on television, the general public appears to be accepting of the use of technology in law enforcement. As more episodes explore

the use of gadgets, gizmos, and computer programs that generate a vast amount of information to solve crime within a one-hour episode, the public will become somewhat sensitized when the applications are actually introduced into true police use. Society today appears to be more willing to allow information about them to be collected and shared among organizations that have an interest in improving their lifestyles.

With computers in almost every home, school, and workplace, having a police officer carry a notepad computer into a home to collect information will be seen, not as an intrusion, but rather an improved, more efficient method of crime reporting. Using the same Internet that most people use to share e-mails with friends, to send data to a regional database to be analyzed for crime trend information, will be accepted, not as an intrusion, but as a better way to solve crimes.

Opportunities. Opportunities do exist to implement a program using crime analysis information to determine patrol deployment strategies. The San Bernardino County Sheriff's Department is currently in the process of transitioning to a new computer-aided dispatch (CAD) system with an integrated records management system (RMS) component. Because the Colton Police Department contracts with the sheriff department for its CAD/ RMS systems, this new technology will soon be available to the department. It appears that this new system will allow for better collection of crime data for analysis. With this CAD/RMS program in place, not only will data from Colton be available, information from throughout the county will now be available for analysis. Additionally, Colton is a member of the East Valley COMPASS (Community Mapping, Planning and Analysis for Safety Strategies) project. COMPASS is a program that was

implemented by the Redlands Police Department that partners several organizations, from school districts to social service providers, with police departments to share data that can be used to identify problems that may ultimately lead to criminal behavior.

Threats. The greatest threat to the implementation of this proposal is the potential that other agencies will be reluctant to share data. Because of concerns that information could fall into the wrong hands, or could be used for improper purposes, many agency directors could make an executive decision to reject any invitation to join a regional information-sharing database. Furthermore, it possible that some agencies may be afraid to release information that could discredit their organization, or give the appearance that they are ineffective in their missions. Unfortunately, the success of this proposal requires participation from many providers of data. In fact, more data from more participators should equate to greater success, while limited information will definitely lead to the demise of the proposal.

An organization's external environment is generally an area where they may have little or no control. Nevertheless the organization must be prepared in the event that something outside their influence attempts to derail their implementation plans. While it is impossible to know everyone who constitutes an organization's external environment, it is incumbent to identify as many threats as feasible to ensure that not only the organization knows about them, but more importantly that they those persons or groups that could impact the success or failure of the proposal are recognized as stakeholders.

Stakeholders. Not unlike most mid-size urban law enforcement agencies, the Colton Police Department can open up the local telephone book and identify everyone listed as a stakeholder. While it would be impossible to contact each party for their input, it is important to identify a spokesperson for represented groups. Generally good places to locate these spokespersons are trade group meetings, Chamber of Commerce meetings, city or county government meetings, Neighborhood Watch meetings, PTA meetings, or any other meetings where concerned people gather to discuss issues relating to themselves or their membership in the community.

To ensure the successful implementation of a new patrol deployment strategy, it is incumbent that the organization's stakeholders are online. Most importantly in the case of a Police Department, the Chief of Police must be in total support of the plan or it will never rise from the discussion phase. With the Chief's support, the next few groups to bring onboard are the Mayor of Colton, the Council Members, and the City Manager and other City Department heads. These groups are integral to ensure proper funding is allocated to the project. After ensuring funding, the project development team needs to obtain the support of the police association and its members. Without buy-in from the rank and file, the program will be doomed to failure. Many end users will resist a plan that they feel did not receive their input prior to implementation. Finally, the implementation team should seek support from the local businesses and at least a sample of the citizens who live, work, or visit the City of Colton to assure a smooth transition from information that was requested in the past to information that will be required to ensure success of the program.

Since data collection and dissemination is incumbent for this program to be successful, individuals or groups that could sabotage the program must be identified. These potential saboteurs will be characterized as snail darters. Snail darters are going to be defined as those people, groups, or things, which are not initially recognized as having an interest in the organization's goals and objectives, but could derail any plans based on their specific individual issues or special interests. For this particular program, a snail darter to be aware of will be the American Civil Liberties Union (ACLU). The ACLU may have a concern with the types and amount of data collected and stored of members of the community.

Alternative Strategies. Once the organization is clear in its analysis of its internal and external environments, it is now prepared to develop strategies to capitalize on its strengths and opportunities, while at the same time attempting to minimize its weaknesses and threats. By developing alternative strategies, an organization can evaluate its alternatives in order to make decisions that will hopefully ensure the success of the proposed change.

Strategy One: Take no Action

While it would appear that this scenario would be the easiest and safest approach to addressing the future, it carries with it many risks that could seriously impact the organization. Taking no action could expose the department to many unanticipated effects of its decision. By not keeping abreast to change, the agency could lose substantial standing in its competitive environment, thus impacting its ability

to retain or recruit personnel. Furthermore, if surrounding agencies implemented the program, it would not take long for the criminal element to realize that it would be safer to commit crime in the City of Colton, where there would be a less likely chance of getting caught. Finally, although outside funding may not be affected, the city council would be hard pressed to continuing funding a police department that appeared to be ineffective and inefficient.

Strategy Two: Create a pilot program using limited data to determine effectiveness.

In this strategy, a pilot program can be implemented that would allow the real-time sharing of information of one particular crime. As an example, the Colton Police Department would set up a pilot program where only burglary reports generated within the City of Colton are analyzed real-time. Using this data, the patrol sergeant will obtain information that he can use to deploy the officers assigned to the shift to areas where the analysis identifies potential future targets to reduce crime. After a ninety-day period, the number of reported crimes will be evaluated and compared to the previous ninety-day period as well as the same period the previous year to determine if there was any change or impact with the real-time data availability. If it is determined that there is value, the department can begin expanding to other crimes while sharing its successes with other agencies and organizations in order to get them to become data providers to expand the program's effectiveness.

Strategy Three: Implement a system wherein real-time crime analysis data is used to determine patrol deployment strategies.

As opposed to the above strategy, this approach would implement the proposed change immediately for all reported crimes within the city. Patrol sergeants would continuously evaluate data as it is generated to make deployment strategies based on that data as opposed to maintaining the current system of beat assignments. Patrol officers would be required to collect all necessary data and complete all reports immediately to ensure the information is available to provide for timely analysis. As the program progressed the department would begin recruiting partners for the information-sharing database. These partners would be identified based on the types of crimes that are occurring and the information that is determined would be valuable in the prevention of future crimes or the apprehension of the suspects. Again an evaluation would be completed after ninety days to determine the effectiveness of the program.

Implementation Plan.

To begin successfully using crime analysis information to determine patrol deployment strategies in the Colton Police Department will require a detailed implementation plan. It will not suffice to rely on the concepts that are agreed upon in theory, but rather those concrete plans that have been written out as objectives to be accomplished throughout the transition process. It is the transition management plan that will assign responsibility to each member of the team, and will determine the

commitment level of the key stakeholders whose commitment and support is vital to implementation.

Making sure that the strategic plan addresses the goals of the department over the next several years will ensure that change is easier to sell and implement. Support will be gained quickly if the direction of organization is shared among the community's policy makers, as well as their gadflies. By including key members in the transition plan, as well as on the transition team, should only ensure success.

While the strategic plan created the map as to how the organization would achieve its objectives in attaining its desired goal, a plan must still be defined as to how the organization will transition from its current state to its desired state. The next chapter will cover the development of a transition management plan that will assist the organization in determining how it will successfully introduce change to allow it to realize its goals.

CHAPTER IV

TRANSITION MANAGEMENT

In the text Organizational Management and Behavior, John Kotter discusses what is required in order to successfully introduce change and transform an organization. According to Kotter, “change, by definition, requires creating a new system, which in turn demands leadership” He adds:

Most successful change efforts begin when some individuals or groups start to look hard at a company’s competitive situation, market position, technological trends, or financial performance.... They then find ways to communicate this information broadly and dramatically, especially with respect to crises, potential crises, or great opportunities that are very timely. This first step is essential because just getting a transformation program started requires the aggressive cooperation of many individuals. Without motivation, people won’t help and the effort goes nowhere (Ivancevich & Matteson, 1999, p. 632).

The Colton Police Department believes to ensure an optimistic future for the organization the agency’s supervisors need to utilize real-time crime analysis information, collected by patrol officers in the field, to make immediate deployment decisions to combat crime activity with the community. There are many objectives that must be achieved for the successful implementation of this proposal, but for the purpose of this transition management plan, the specific objective will be to enable field supervisors of the Colton Police Department to utilize real-time crime analysis information to make strategic deployment decisions of field personnel. In order to ensure success in achieving this objective, the organization must identify the key stakeholders who must be supportive of this goal.

These key stakeholders differ from other stakeholders in that without their support the transition will most likely be doomed to failure. Specifically, these stakeholders are in positions to either block the change, let the change happen, help the change happen, or make the change happen. In order to differentiate them from the others, these key stakeholders are identified as the Critical Mass.

Critical mass individuals and groups that have been identified for this objective are the chief of police, the city manager, and the police officers of the Colton Police Department. By identifying the impact that these individuals and groups may have on the change efforts, the group that is proposing the change will be able to work with them to strengthen the commitment level of the critical mass to ensure their support. A transition team must be selected and empowered to move the proposal forward.

It will be the responsibility of the transition team to lead the organization through the steps of the transformation process. According to Kotter, there are several steps in the process. These steps, including the forming of a coalition with the power to lead the change effort, creating a vision that directs the change effort, and communicating the vision to the critical mass, will become the responsibility of the transition team leaders to ensure success. Kotter adds that with support from management, remaining steps including the empowering of others to act on the vision, planning for and creating short-term wins, consolidating improvements and producing still more change while institutionalizing new approaches will be borne by the team as well (Ivancevich & Matteson, 1999, pp. 632-637).

The Colton Police Department's transition team will be selected under the watchful eye of the Chief of Police. Because the next ranking official in the organization

is a lieutenant, most likely one of the department’s three lieutenants will be assigned as a member of the transition team representing the office of the Chief. Additional members of the transition team should include at least one sergeant assigned as the project manager, two police officers, one dispatcher, and at least one employee from the Record’s Division.

Each step of the transition process brings the organization closer to success, but at the same time additional hurdles may be uncovered. If the transition process is not taken as an opportunity, or if an error is made in not selecting the right team, the transition is doomed to failure. Emphasis must be placed on the process so that the transition team does not rush in an attempt to beat an unrealistic timeline. Success takes patience, and patience will bring success.

Critical Mass Commitment. In order to truly understand the commitment level of the key stakeholders identified as the critical mass, a commitment chart can be completed. Chart 4.1 below shows the current level of commitment represented by an “X” for each individual or group, and the desired level of commitment or participation represented by an “O”. The arrow represents the direction that is desired for each commitment level to proceed.

Table 4.1 Critical Mass Commitment Chart

Critical Mass Individuals/ Groups	Block Change	Let Change Happen	Help Change Happen	Make Change Happen
Police Chief			X →	O
City Manager	X →		O	
Police Officers		X →		O
X= Current Position O= Desired Position				

Critical Mass Analysis. An analysis of the commitment table provides the transition team with information that they will use throughout the process of transforming the organization to embrace the desired change. By locating each key individual or group on the chart, the team can determine what level of commitment should be encouraged to ensure success. In his text, Managing Change: Cases and Concepts, Todd Jick refers to a 1991 note he had written in a Harvard Business School Case in which he divides an organization into three broad action roles:

- Change Strategists: defined as those who identify the need for change, are the integral part of the vision, and set the boundaries, and empower the implementers;
- Change Implementers: defined as those who are charged with making the change happen, developing the rules, and creating the procedures for the recipients to follow;
- Change Recipients: defined as those who either accept the change or fight it (p.192, 1991/1993).

The Chief of Police. When change affects the entire law enforcement organization, the chief executive must be supportive. While the chief should not necessarily be part of the transition management team as a member, he must show his continued support throughout the process to ensure that the organization knows that there is top-down value to the change. By maintaining clear communication channels with the lieutenant assigned as a liaison, and the sergeant assigned as the project manager, the chief can assure that his/ her visions are maintained and not skewed during interpretation.

According to Kotter, “transformations often begin, and begin well, when an organization

has a new head who is a good leader and who sees the need for a major change” (Ivancevich & Matteson, 1999, p.632). In 2003, Colton’s city manager conducted an extensive recruitment for a new police chief. The city manager saw a need for a change for the police department, and sought a candidate with visions for taking the department to a new level. With the appointment of the new chief in June 2003, the department was now prepared for a major change. With the encouragement of the new chief, implementing a change that utilizes crime analysis information to determine patrol deployment strategies should be an easy sell to the department’s employees as well as other stakeholders.

The chief executive will generally be classified as a change strategist. Change cannot be considered if the CEO does not endorse the idea or vision. The CEO was recruited to be the visionary, and it is politically correct to ensure that all visions for change come through his office. It is the CEO who confirms the appointment of the leader of the transition team, thus making the CEO also a change implementer. While his initial commitment level could be categorized as helping change to happen, his desired commitment level should be making change happen. Ensuring that the transition management team keeps the chief informed of their activities can influence the chief’s commitment level. Additionally, the chief should be encouraged to address the team on a regular basis, to not only motivate the team, but to ensure that as the organization moves onto other projects, this one is not relegated to a lesser status in the chief’s mind. Finally, to actually get the chief from merely helping change happen to actually making change happen will require assurance from the transition team that they have adequately researched the proposed change and are prepared to stake not only

their reputations but his as well on the value of the proposal and their confidence in its success.

The City Manager. In the city of Colton, the city manager is empowered by the city council to be a change strategist, a change implementer, as well as a change recipient. As a change implementer, the chief of police will encourage the city manager to be a change strategist. The chief must share his vision of police officers reducing crime through smarter policing with the city manager in order to move him into his position as a change implementer. Initially, the city manager's commitment level will most likely be classified as blocking change. If the city manager does not share the chief's vision, he will be resistant to allowing expenditures of either time or money unless it appears to create a source of revenue or a reduction in expenditures. It is the city manager that has the authority to encumber funds to implement the transition plan, thus his desired commitment will be one of helping change happen. Since the police department desires that the city manager commit the necessary resources to ensure success, they must provide him with information that supports the value of the proposal. The City Manager will use this data reflecting how smarter policing will result in fewer reports of crime to support his decision to allocate funding. Additionally, this proposal should also reduce the number of negative complaints to the city council, while potentially raising property values, as more people desire to relocate into crime-free communities.

Getting the city manager to this commitment level will require that the chief maintain continual communication with the city manager and his staff. Another option that may encourage his support would be to include a member of the city manager's

staff on the transition team. This may serve to assure the city manager that the program is on schedule and is being managed responsibly with the best interests of the city in mind.

Police Officers. The police officers are the key stakeholders generally classified as the change recipients. They are actually responsible for changing the way the organization does business. If the police officers reject the chief's vision for change, and fail to accurately record data that will be required to ensure the success of using crime analysis information to determine patrol deployment strategies, the program will fail. This would make both the chief and the city manager look as though they wasted the city's precious funds on unnecessary equipment. Including representatives of the police officers as participants in the initial strategy workshops and as members of the transition team can accomplish moving them from a commitment level of letting change happen to making change happen.

Critical Mass Summary. If success is to be eminent, it will be incumbent to have the inclusion and participation of those key stakeholders identified as the critical mass. Maintaining a relationship with these individuals and groups throughout the transition process will allow the transition team to enlist their support in encouraging others to accept change. As each individual or group member of the critical mass reaches their desired commitment level, the transition team can begin to share responsibilities with those individuals or groups to strengthen relationships and establish trust.

Responsibility Charting. In their book, Organizational Transitions: Managing Complex Change, Harris and Beckhard discuss the technique of responsibility charting that “has been developed to assess alternative behaviors for each party in a series of actions bringing about a change” (1987, p.96). In order for the transition management team to clarify the behavior required to implement important tasks towards the intended change, in this case, acquiring notepad computers, they will need to delegate responsibilities. The responsibility chart on the following page (Table 4.2) defines the specific tasks and the individuals who share responsibility in ensuring that the task is accomplished. According to Harris and Beckhard, “responsibility charting...helps reduce ambiguity, wasted energy, and adverse emotional reactions between individuals or groups whose interrelationship is affected by change” (1987, p.96).

To create a responsibility chart, each involved individual is listed on the chart’s horizontal axis. The actions, decisions, or activities affecting that individual’s relationship are placed on vertical axis. After the lists are complete, the participants chart the required behavior of each individual with regard to any action or decision, using the following classifications:

- R** = Responsibility for a particular action, but not necessarily authority
- A** = Authority to approve or reject the particular action
- S** = Support the action with necessary resources, but need not agree with action
- I** = Informed prior to any action taken, no veto authority
- = Does not apply to this particular action

The first step in filling in the responsibility chart is to determine where on the chart the “R” will be located. Because responsibility can only fall on one individual, only one “R” can exist for any one action. After the location of the “R” has been determined, the other boxes can be filled in, with the caveat that no box contains more than one letter.

Table 4.2 Responsibility Chart

Actions	Participants				
	Police Chief	Police Lieutenant	Police Sergeant (Project Manager)	Police Officers	City Manager
Setup Project Manager	A	R	S	S	I
Select Transition Team	A	A	R	S	-
Define Vision	R	S	S	S	A
Establish Goals	A	A	R	S	A
Develop Policy/ Guidelines	A	A	R	S	I
Identify Funding Sources	S	A	R	-	S
Identify/ Select Equipment	S	A	R	I	S
Train Employees	S	S	R	S	-
Implement Change	S	S	R	S	S
R= Responsibility (not necessarily authority) S= Support (resource allocation) A= Approval (right to vote) I= Informed					

Responsibility Chart Summary. In most cases, each participant has an involvement in each of the actions. While the involvement may vary, from needing only to be informed to actually having voting rights, it is incumbent that nobody is forgotten if the transition is to proceed smoothly.

Police Chief. The chief has the primary responsibility of defining the vision for any change that is to occur in the organization. If the vision is not the chief's, or the chief does not accept responsibility for it, the transition plan will most likely not succeed. Once the vision has been defined, in this case, setting up a database and acquiring the hardware required to access that database allowing supervisors to make strategic deployment decisions of field personnel, the chief will assume the role of approving and supporting the transition team in carrying out the implementation of the program.

Police Lieutenants. The police lieutenants are the senior management level within the Colton Police Department. Once the chief has defined his vision for change within the

organization, it will become the responsibility of the lieutenants to determine how the vision will be attained. A lieutenant will be responsible for identifying the sergeant who will assume the role of project manager, confirming the appointment with the chief, and then working with the project manager in setting up the initial planning meetings, selecting the personnel who will comprise the transition team, and finally developing the policy and guidelines for the team to adhere to. They will offer support for the team by ensuring that adequate resources are available and serving as the mediator when conflicts arise. It will be the lieutenant who maintains communication with the chief as to the progress of the proposed change and ensures that timelines are met.

Police Sergeants. Police sergeant is the middle manager level of the Colton Police Department. A sergeant will most likely be assigned as the transition team project manager under the guidance of a lieutenant. Sergeants will have the responsibility of working to develop the database with the outside agencies, evaluating the equipment; in this case notepad computers, and selecting the vendor to ensure the appropriate tools are in place to implement the change in how the police officers will be collecting and inputting data. The sergeants will ultimately be responsible for determining the deployment of police officers based on the data that is collected, so it will be incumbent that they train the officers appropriately to ensure that they make decisions based on accurate data.

Police Officers. Police officers should definitely be involved as members of the transition team. It is important that they be consulted as to what the ultimate goal is to produce. In

many cases, the vision of management directly conflicts with the reality of working in the field. Through their support and involvement the transition is more likely to succeed with the team members using their peer influence to bring any resisters on board.

The City Manager. The city manager in the city of Colton is the final authority in any action taken by the police department. While it is possible to circumvent the city manager and take a vision directly to the city council, doing so could be political suicide for the chief of police. To ensure support, the chief should discuss the vision with the city manager prior to making any plans to implement any changes. If the city manager shares the vision, the transition process can begin. It is important to keep the city manager informed as to the progress, to provide him the opportunity to approve of the objectives to ensure his support for the allocation of resources in the acquisition of the necessary equipment. Because it is the city manager's responsibility to maintain communication with the city council, the more information he has, the better informed he can keep the council.

Transition Management Summary. Through the process of developing the transition management plan the organization will have developed the relationships that are needed to ensure success during the change process. By identifying and including the stakeholders that either have the commitment to see change, or even those who might block change, the organization is poised to mitigate any concerns and move levels of commitment where the organization desires the commitment levels to be for the successful implementation of the proposal.

To ensure that the transition stays on a strict timeline, the chief of police should take a responsibility role in consistently evaluating the team's progress. By assigning a lieutenant to the team, he can receive regular updates, and can be assured that specific task timelines are met. In addition, with this level of support and involvement, it will be easier for the chief to assign additional resources when it appears that there may be delays in attaining certain benchmarks, such as participation from other agencies, additional hardware needs, or possibly training requirements.

With this process complete, conclusions and recommendations can be made to determine the viability of using emerging crime analysis technology to determine patrol deployment in a mid-size urban law enforcement agency by the year 2009.

CHAPTER V

CONCLUSION

As part of the research process, the Nominal Group Technique (NGT) was utilized to collect information from professionals outside the field of law enforcement. These NGT participants identified trends and events that might impact a police agency's ability to utilize emerging crime analysis technology to determine patrol deployment strategies by 2009. Based on an analysis of the information collected, three potential future scenarios were projected: an optimistic future in which the majority of the trends and events had a positive impact on the police department; a pessimistic scenario where the majority of the trends and events had a negative impact on the police department; and finally a normative scenario where the department weathered the trends and events, but remained at status quo.

Upon review of the three projected scenarios, an optimistic future was chosen as the scenario that should be pursued by a mid-size urban law enforcement agency, in this case, the Colton Police Department. With an optimistic future in mind, a strategic plan was developed with the goal of implementing a program that would allow field supervisors of the Colton Police Department to determine patrol deployment strategies immediately upon reviewing real-time crime analysis information.

With the strategic plan in place, a transition management plan was developed to determine who in the organization would have what responsibilities to actually attain the proposed objective. Having a plan in place, the Colton Police Department would now be prepared to begin preparing for the actual implementation of this proposal. The goal of

this program will be to show a reduction in crimes that have historically shown trends in their occurrences, such as robberies, burglaries, and vehicle thefts.

Based on the research conducted for this project, emerging crime analysis technology can be effectively utilized to determine patrol deployment strategies in a mid-size urban law enforcement agency by the year 2009. With private sector companies already effectively utilizing real-time analysis of data collected in the course of their operations, it is apparent that the technology is available, and applicable, to law enforcement use. Evaluating the programs of the New York City Police Department and the Redlands Police Department, which currently use information that in some cases is several days old to determine their police strategies, it appears that police agencies are already staging to implement this type of program when the tools are available.

Law enforcement agencies are consistently under scrutiny for their costs of operation. Every year as local governing bodies meet to discuss the costs of providing public safety for their community, they look for options that make the costs easier to sell to their constituents. When the law enforcement agency retools itself to provide more effective and efficient policing, the benefits will justify the expense.

The Redlands Police Department realized an 11% reduction in crime using focused patrols, based on information collected days earlier (Berry, 2004). Had that information been available almost instantaneously, it is likely they would have seen even greater reductions. Information is power when it is utilized properly. Taking information collected in the field, at the time it is collected, and analyzing it for specific trends that historically have been used to identify criminals, preventing crimes and arresting criminals, would not only become easier, but also more efficient and effective.

As more government and private sector agencies begin sharing the information they collect in the course of their business, a better analysis of data will be available. By analyzing data outside the law enforcement vacuum, such as pawnbroker databases, or even school district databases, law enforcement officials will find additional links to criminals and their crimes.

Greater access to information creates an additional concern that this information might end up in the wrong hands. If privacy concerns drive an organization's willingness to share their data, mechanisms must be in place to ensure that information shared is protected, and not used for purposes other than those for which it was submitted. If criminals know that any stolen item they attempt to sell through a pawnbroker is immediately checked against law enforcement records of stolen property, and, that the stolen item was immediately entered into a stolen property database upon discovery as opposed to days later by a police clerk, one source of disposing of stolen items would be eliminated, thus making these crimes unattractive for criminals.

Although this research focused on a mid-size urban law enforcement agency, the objective of reducing crime through more effective and efficient deployment of personnel will be applicable to any size law enforcement organization. In fact, the more contributors to this method of policing, the better the database will become, thus even more effective policing will result. Because criminals do not recognize jurisdictional boundaries when committing crimes, law enforcement has to respond by eliminating protectionism of their jurisdictional responsibilities. Determining patrol deployment strategies through the use of real-time crime analysis information is a viable option for organizations to consider.

Recommendations.

This research exposes numerous options for law enforcement to improve service through technology while building partnerships with other law enforcement agencies and a multitude of non-law enforcement organizations. Additional research should be conducted to determine what types of information, and from which agencies, is needed for the regional database to be most useful. Furthermore, the need for memorandums of understanding (MOU) to be signed by all contributing agencies, as well as all user agencies, will need to be evaluated to protect not only the agencies, but also the privacy of the subject(s) listed therein.

Although there is no panacea for the problems facing society today, options do exist to mitigate their impact. Criminals will continue to victimize if they believe that there is only a slight risk of getting caught. Implementing programs such as the one discussed in the preceding chapters will definitely not stop or prevent all criminals from preying on the innocent, but, when the criminals know that law enforcement officials are continuously looking for new and innovative ways to prevent illegal activities, it forces them to change their modus operandi.

In Proverbs, Chapter 29: Verse 18, it is stated, "Where there is no vision, the people perish." The future will be what it is allowed it to be. Through forecasting today, and planning for tomorrow, law enforcement can be prepared to embrace change and plan for its future.

APPENDIX A

NGT Workshop Participant

- Katherine Walters: CEO; Walters Progressive Computing
- Lewis Nelson: Law Enforcement Products Manager; ESRI, Inc.
- Wade Harris: 2004 College Graduate; Cal Baptist University
- Kurt Smith: East Valley COMPASS Initiative Director
- Todd Fernandez: Assistant Director of Security, Stater Bros. Markets
- Jeffrey Ballinger: Deputy City Attorney; Best, Best, & Krieger
- Vicki deJong: Automated Systems Analyst; County of San Bernardino
- Rhonda Maher: Crime Analyst; County of San Bernardino
- Jason Jaurigue: Information Systems Coordinator; City of Colton

Cross-Impact Workshop Panel

- Nathan Lunt: Management Intern; City of Colton
- Dilu DeAlwis: Finance Director; City of Colton
- Candace Cassel: Redevelopment Manager, City of Colton

APPENDIX B**TRENDS:**

- Improved availability of integration software
- Decision matrix changing to available data
- Tracking in mobile devices
- Automation of specific data
- Improved knowledge of information sharing within organizations
- Availability of valid threat assessment data
- Availability of real-time crime analysis information
- Paperless reporting
- Livescan fingerprinting
- Movement of criminals
- Accessibility to aerial images
- Ability to retain quality employees
- Availability of bandwidth
- Wireless access
- Community policing
- Networking all personnel
- Centralized databases
- Improved wireless communications
- Crime analysis
- Costs of maintaining software
- Availability of funding
- Availability to proactively deploy personnel
- GIS accessibility
- CCTV/DVR
- Smaller PDA
- Speed in connectivity
- Public involvement
- Crime analysis/ GIS used as briefing tool
- Regional demand of local data
- Private persons issuing cites directly to courts
- Improved wireless access (no dead spots)
- Ability to route info to field officers
- Acceptance of technology
- Training and awareness
- Security software available
- Integration of all databases
- Availability of improved handheld devices
- Transactional analysis (Pierce County Washington)
- Availability of engine technology

APPENDIX C

EVENTS:

- Metropolitan Police Forces Proliferate Regions
- Mandatory Tax Imposed for Homeland Security
- Police Agencies Expand Technology
- Ratio of Police Officers to Citizens Decreases
- Officer Provided with Better Data to Locate Criminals
- Technology Training Mandated BY POST
- Joint Operation Centers Results in L.E. Agencies Sharing Info
- All Citizens are Issued CCW Permits
- Robots Replace Police Officers
- Military Shares Compression Technology
- FCC Improves Spectrum Licensing
- Information Sharing Accessible Through Electric Utility Lines
- Regional Task Forces Mandated
- Congress Mandates Info be Shared with First Responders
- POST Mandates creation of L.E. Analyst position
- Operations of Crime Analyst increases
- Wireless CCTV Deters Crime in Public Places
- Criminal Access L.E. Crime Analysis databases
- Dismantling of funds affect local governments
- Local agencies fight for control of incident command centers
- Public demands more community policing
- Congress taxes internet
- DOJ ties L.E. funding to regional data sharing
- Homeland Security grants awarded to local government agencies
- Orbital satellites collide
- Natural disaster hits CA
- Virus affects L.E. databases
- Police handheld computer stolen
- Terrorist attack on technology
- DHS mandates info sharing
- National crime reporting standardized
- Oil prices affect availability

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