



CRIME REDUCTION SYSTEM THROUGH BRYNE CRIMINAL JUSTICE INNOVATION

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Abstract: Human history has been marked by an increase in population growth and a process of accelerated urbanization. Society will continue to address crime as a social problem since it has become a serious social problem. This has prompted the government and other agencies to look for ways to overcome this phenomenon. Studies have shown that management and prevention of crime can improve the quality of life which is an essential factor in producing more sustainable developments.

Crime prevention is the first step in any investment in developing countries. Crime prevention is a long-term investment whose effects are not immediately apparent. In countries and individuals globally, crime harms the economy. Managing crime is an important social responsibility of law enforcement agencies. A law enforcement agency's capacity to successfully manage crime lies in its ability to make information readily available and easily accessible.

The biggest problem with present procedures is the absence of expertise or data dissemination between law enforcement organizations. The said defect is exploited by criminals who commit crimes in various parts of the country by relocating and changing states. This project's objective is to develop a model that may be utilized to develop a platform for crime reduction.

This study utilized an established system development methodology and implementation of the Innovations in Community Based Crime Reduction program. Although object-oriented and evolutionary approaches to system development are also effective, it is important to acknowledge them.

The study revealed that there is a deficiency of investigations on an effective method of carrying out a crime prevention campaign involving multiple agencies and the community as a whole. Crime prevention program evaluations show that implementation issues and failures are common, and the examination of Community Based Crime Reduction program (CBCR) sites is no exemption.

This work recommends that Community Based Crime Reduction program should be employed to reduce criminal activities and also, and system development will also be effective for crime reduction.

Index Terms: Crime, crime prevention, crime management, crime reduction, system development, community.

1.0 Introduction

Crime is a universal human experience that dates back to the dawn of time[10]. Criminality considers specified reason, location, and time for its occurrence in which everybody can be affected at any time. For example; in a situation where a crime takes place in a workplace, the entrance together with the exit to the office must be secured. Anybody can be affected at any time. If a crime occurs at an office, for example, the entrance and exit to the office need to be secured. Everyone, including those who have no intention of breaking the law, is affected by this. According to [10], Criminal activity has a cascading effect. The stolen item or the victims of crime are replaced or restored to their original state, and security is tightened so that there is no repeat of the crime, rather than social welfare. Crime prevention is the first step in any investment in developing countries. Crime prevention is a long-term investment whose effects are not immediately apparent. In countries and individuals globally, crime harms the economy. Managing crime is an important social responsibility. A law enforcement agency's capacity to successfully manage crime relies on its ability to make information readily available and easily accessible. It is essential to know where and when crimes are committed, as well as who is involved, to effectively manage crime in the community[10]. An information system is responsible for managing the information, and it is responsible for defining the roles of individual offices as well as the sorts of data those offices require to do their separate jobs. To utilize a crime information system, it is important to simplify the process of managing criminal activity. The study of criminal activity, the management of available resources, and the simulation of potential events are some of the functions that a crime information system is capable of doing.

1.1 Problem statement

Crime is a fundamental aspect of the human condition that dates back to the origin of existence. Criminality has a purpose. It occurs for a particular purpose and at a certain area and time. Everyone is susceptible to harm at any time. Although there are several law enforcement

agencies, there is a significant gap between the number of police and the number of citizens, which makes the system difficult at various levels of the system. In recent years, Nigeria has contemplated the formation of a State Police in response to a lack of personnel to manage national security. In contrast, computers can operate in the background and make independent decisions.

This shows that the majority of agencies do not use fundamental technologies namely Relational Database Management Systems, and National Emergency or Crime Reporting systems. The Nigeria Police force (NPF) is a primary institution saddled with the responsibility of combating crime and lacks effective and systematic collaboration with other Federal Law Enforcement Agencies. The biggest problem with present procedures is the absence of expertise or data dissemination between law enforcement organizations. The said defect is exploited by criminals who commit crimes in various parts of the country by relocating and changing states. This is illustrated in the following illustration:

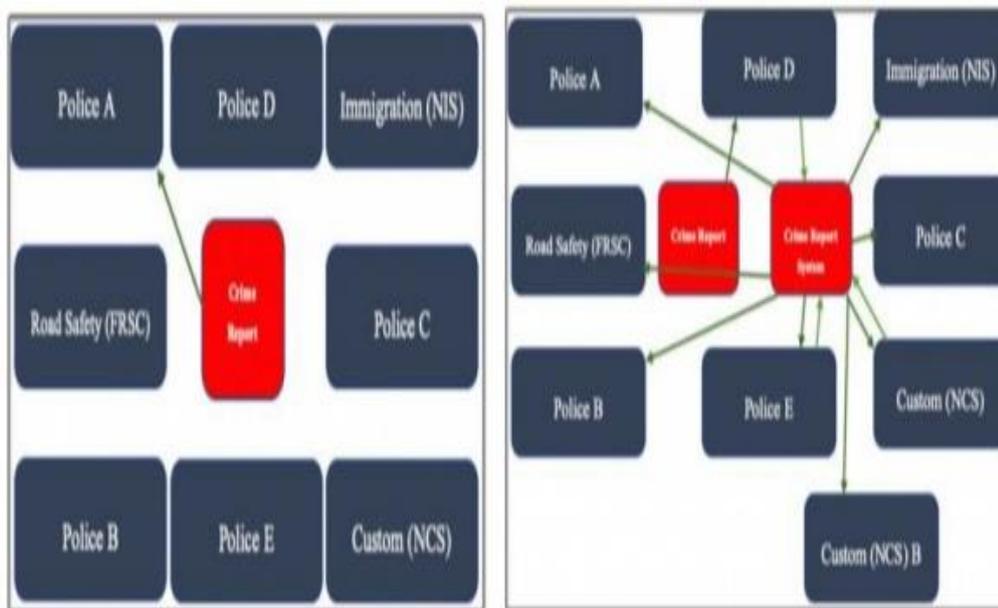


Figure 1 Comparison of Shared and Unshared Data systems (Sources: Natalie and Jessica, 2020)

1.2 Aim of the study

To establish and develop an intelligent system that illustrates crime reporting, review, investigation, and reduction process as well as a model that may be utilized to design a crime reduction platform.

Literature Review

2.1 Crime Management

Criminal conduct is not a random occurrence. While certain patterns are discovered, others remain undiscovered. It is spread spatially in patterns. Various factors, such as social standing, income, and the surrounding environment, influence the types of crimes that are committed. There is a correlation between a location's lack of resources and the frequency of criminal activity [18]. As a result of its intricacy crime must be managed. Depending on one's perspective, crime can be characterized by several discrete characteristics. A crime is "punishable by the state," as defined by this study[8]. Management encompasses organizational resources such as people, materials, and equipment. These assets are used to assist the organization in achieving its objectives. Crime management is the practice of regulating, instructing, and integrating police assets (financial and human) to avoid criminal conduct and, when it occurs, to catch the offenders, put them before a judge, and retrieve stolen property. Midway through the 19th century in Britain, Sir Robert Peel advocated for a structured system of organized crime control[14]. Since then, the strategy for combating crime has evolved. In the early 20th century, the United States created and propagated a model for crime management that has since been adopted worldwide. Professional police prioritized reactive crime control as its primary operational objective. Officers waited in their respective offices for citizen complaints so they could respond. Communication was only available in one direction, from the top to the bottom, within the police system, which was closed to the public.

2.2 The New Technology of Crime Prevention

Both activities and outcomes (e.g. crime deterrence schemes and/or tactics) have been used to describe the concept of crime prevention, which has been applied in numerous ways to the problem of criminality: for example, lower crime rates in communities and lower recidivism rates among individual criminals. To combat crime and violence, researchers have examined the impact of formal and informal social controls (such as the deterrent effects of police enforcement or the role of shame or belief systems/religion) on the development of criminal behavior and the role that these mechanisms play in influencing the development of criminal behavior (such as attachment, commitment, or involvement). There are numerous techniques for crime prevention, including primary, secondary, and tertiary prevention, as well as individual, parochial, and public actions that can be taken to prevent crime (e.g., calling the police). It is vital to examine both the causes and the effects of crime to comprehend how to avoid it. Statistics in which the number of criminal incidents or offenders is calculated without taking into account the median income should receive special attention. Additionally, the amount of damage prevented or the number of persons who are not routinely wounded or damaged must be taken into consideration [13][17][4][7]. Even more expansively, the term "crime prevention" can refer to activities that aim to reduce the likelihood of criminal behavior (such as membership in a criminal gang or the inability to graduate from high school), but this is only one aspect of the concept (e.g., gang membership or failure to complete high school). The phrase "reducing crime" has been increasingly popular as a term that may be applied to both criminal justice and noncriminal justice activities. However, we are concentrating our efforts on developing novel approaches that make use of recent advances in technology to either reduce the incidence of crime in particular geographic areas or the likelihood of certain types of criminals committing additional offenses (judgment, control, reform).

2.3 Hard Technology Crime Prevention Innovations

Recent research on crime prevention technologies by Brandon Welsh and David Farrington shows that changes in technology over the years have had a big effect on how we think about crime and how we try to stop it [21]. Hard crime prevention equipment can be used in several places, such as schools, airports, and banks, where it is used to protect teller windows from bullets. Other hard-tech applications include the use of personal protection devices (like tasers, mace, and lifeline/emergency call mechanisms) and ignition interlock systems with alcohol sensor devices to stop a drunk person from starting a car, as well as the different "social engineering strategies" from Marxism (like target insulation, target devaluation, target removal, and offender incapacity) [11]. Because of this, it is impossible to give a precise estimate of how many of these hard technology crime prevention measures are being used. For example, CCTV cameras have recently been put up in Boston, New York, Los Angeles, Chicago, and Newark, New Jersey. Nestle estimated that there were about a million CCTV cameras in the United States by the end of 2006, but more recent estimates are not available[1]. Even though costs haven't been figured out yet, it's clear that the local government will need a lot of money to move video surveillance from private to public places. Since the late 1950s, when "private retail interests and traffic movements" were tracked, this technology has changed into an open visual surveillance system that is controlled by the police or the government [5]. New soft technology is always being added to CCTV surveillance systems to make them better. With the incorporation of gunshot localization technology in many locations (e.g. Boston, Newark), emergency medical personnel and police can be rapidly dispatched to gunshot-identified regions [12]. Currently, Shenzhen, China is evaluating a CCTV system with 200,000 cameras that may alert authorities when big groups of people converge. Using face recognition software and China's national identification database, software to identify individuals captured on camera has been developed. In 2006, CCTV systems cost over \$3.4 billion to develop and deploy in China alone [9]. According to the data collected by PreciseSecurity.com, China, the United States, and Germany are the countries with the largest number of surveillance systems in the world. China is the undisputed leader with four times more surveillance cameras installed in its territory as a high-tech way to fight crime.

3.0 Methodology

This paper will adopt a multi-method study for the design and implementation of a crime reduction system. To do this, this paper will implement a structured system development approach and also, Implementation of the Innovations in Community-Based Crime Reduction (CBCR) initiative (formerly known as the Byrne Criminal Justice Innovation Program). The creation of a high-quality information system is costly, time-consuming, and requires a methodical, well-considered strategy. A corporation must therefore integrate social requirements, human and nonhuman resources, and technological capabilities to make the most of information technology and maintain a competitive position [16]. There are many ways to build information systems, such as soft, socio-technical, structured, object-oriented, and evolutionary systems development. Due to its track record of success, the Structured System development approach will be utilized in the development of this study. Although object-oriented and evolutionary approaches to systems development are equally effective, they are not the only viable options. This has the drawback of being in its infancy. The structured system development technique consists of objective planning rules, procedures, and case tools. Using this method's iterative activities, one can examine previous or subsequent steps to solve an issue in a single step. Figure 2 illustrates a structured approach by depicting the various phases of system development. It can be divided into four main stages.

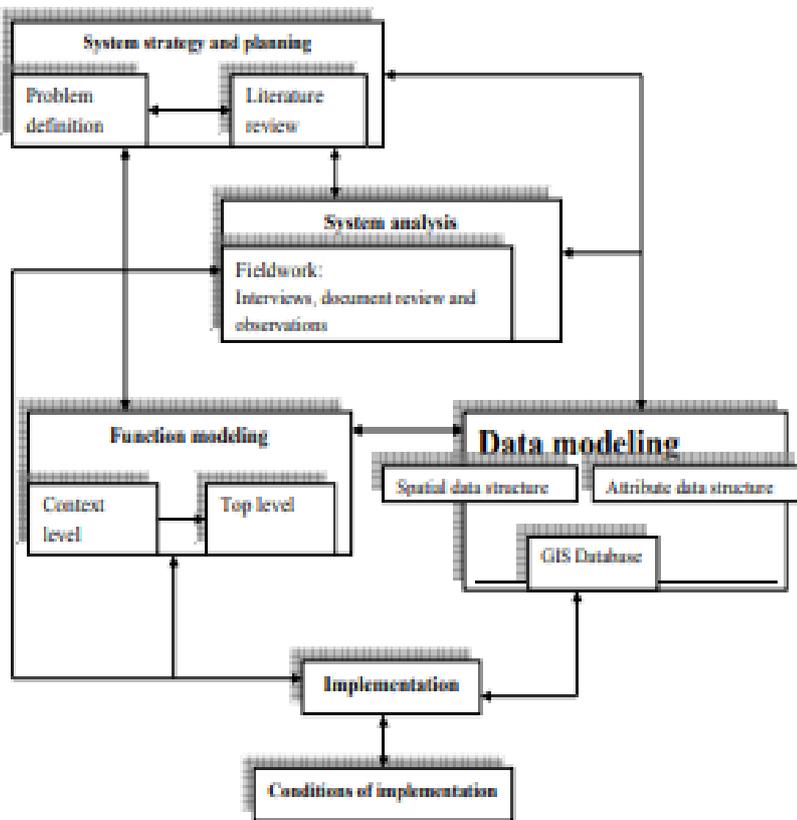


Figure 2: Structure System Development Methodologies; Phases and interactions Sources (Parsi, 2000)

As discussed earlier the methodology for this project will utilize a multi-method approach. After examining the first method which is structured system development techniques, the next design method will be the Community-Based Crime Reduction Program (CBCR). CBCR was established to provide communities with assistance in the fight against crime and enhancement of security in the neighborhood. Although other multi-agency, data-driven, collective issue solutions in the Innovation Suite apply similar principles, CBCR is founded on quadruple pillars that differentiate it from its competitors: CBCR, for example, has a robust element of community engagement that allows dwellers of the marked area to have a voice in the process (Society-Oriented), as well as a community revitalization element that enables the recipient to particularly, integrate neighborhood reinvention into their approach (this is known as (Neighborhood Regeneration). However, this interagency initiative brings together the Departments of Education, Housing and Urban Development, Health and Human Services, and the Treasury to synchronize their respective government programs. The Department of Justice oversees the CBCR program. Having a research partner makes it possible for teams to focus their efforts on high-crime areas while also customizing the scheme to the specifics of the local setting. The use of evidence-informed or evidence-based solutions, as well as data-driven problem resolution, are the defining characteristics of the action research paradigm utilized by the CBCR.

Our sample consisted of Bureau of Justice Assistance (BJA) grant awards spanning fiscal years from 2012 to 2016. In this round, 70 grantees and 60 sites were covered. The project will begin to comprehend fidelity and implementation success by asking the Bureau of Justice Assistance how to apply the CBCR program design (i.e., fidelity) and method of detecting the effectiveness of a site in doing so (i.e., implementation success) [15]. The program's fidelity will be the focus of the project's efforts on Data and Research, Community-Oriented, Spurs Revitalization, and Building Partnerships. In addition to assessing self-report data, expert opinion, and partner questionnaires, we evaluated each site's compliance with the four CBCR program pillars.



Figure 3. CBCR sites 2012-2016 (Sources: Natalie and Jessica, 2020)[15]

The objective of the project is to implement the CBCR program to assess its viability. To begin, a high-level map of the CBCR process will be constructed, followed by a site-level map, and then an investigation of the best way to connect the two to create a road map for future evaluations will be conducted. The concept of change is then applied to the pillars. Prior research has demonstrated that these four pillars are connected with project success and crime reduction. As part of the CBCR process, the pillars have been described as "interventions," not programs. It is therefore understandable how this could result in stronger and more secure neighborhoods.

Evaluation of the community impact of CBCR is exceedingly difficult because it is operationalized and implemented in a variety of methods and circumstances. Using concepts and frameworks from different fields, we first developed a framework from which we can standardize measurements for comparing alternative intervention strategies[15]. We do not yet understand why some programs are successful while others are not, but applying this paradigm will enable us to identify the difficulties and develop solutions. We believe that this methodology should be utilized in all reviews. Understanding the transition from effectiveness studies to full-scale adoption has been highly valuable for other professions. Figures 4 and 5 will provide additional detail on the process and outcomes parts of the framework.

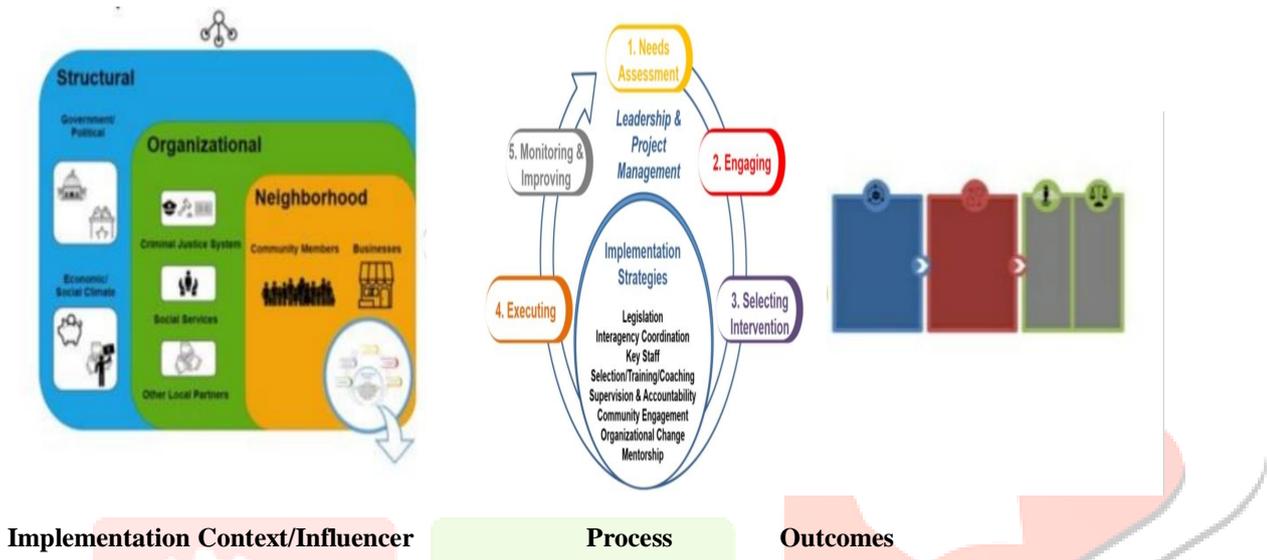


Figure 4. Implementation Science Framework for a generic crime intervention (Sources: Natalie and Jessica, 2020)[15].

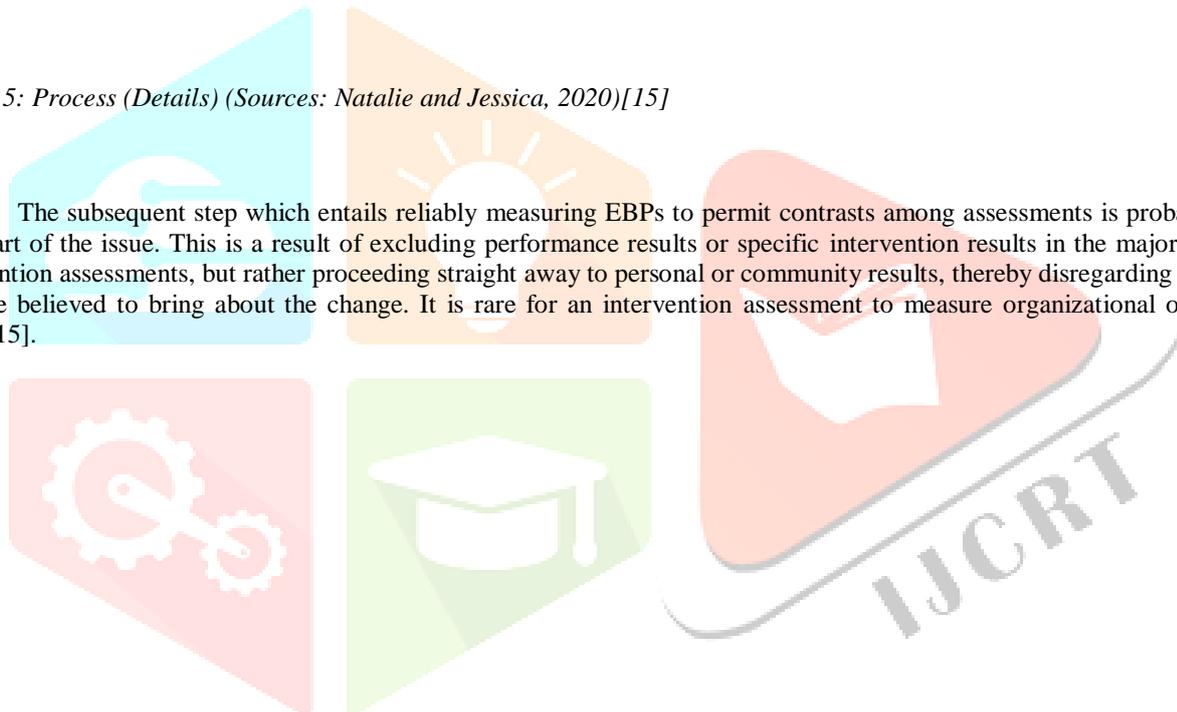
As a starting point, it is essential to consider the domestic conditions under which a project is being executed. Certain circumstances need to be met for an intervention to be successful. Context and impact are both partially determined by the neighborhoods, organizations, and systems in which people live [15]. It is necessary to collect this information for each location. For instance, there was a gathering of data concerning the various sorts of partners who were participating in the project as well as the degree to which the initiative's intended outcomes overlap with those of other important federal programs. According to the findings of the structural research, more than half of them were simultaneously undergoing several other extensive repair projects. Within the organization, the CBCR project collaborated with a varied variety of partners (for example, 0-4 education agencies, 0-10 community agencies, and 0-5 local government partners), which most likely had a significant impact on the CBCR project [15]. A wide array of community members, as well as both strengths and challenges, may be found within the communities that are the focus of this research. The procedure that is shown in Figure 5 can only be carried out with the help of CBCR. Previous research on EPBs did not examine some of the numerous techniques that can be used to implement change. These techniques include high-level legislation (such as employing risk evaluation tools to determine parole eligibility) and scheme staff training. CBCR locations put into action a wide number of methods, some of which include interagency partnership and development, information systems, oversight and accountability, community involvement, and more. While evaluation research rarely identifies or codes a large number of strategies,

we do not know which of these strategies has the greatest potential to increase fidelity implementation.



Figure 5: Process (Details) (Sources: Natalie and Jessica, 2020)[15]

The subsequent step which entails reliably measuring EBPs to permit contrasts among assessments is probably the major hard part of the issue. This is a result of excluding performance results or specific intervention results in the majority of criminal intervention assessments, but rather proceeding straight away to personal or community results, thereby disregarding the techniques that are believed to bring about the change. It is rare for an intervention assessment to measure organizational or system-wide levels[15].



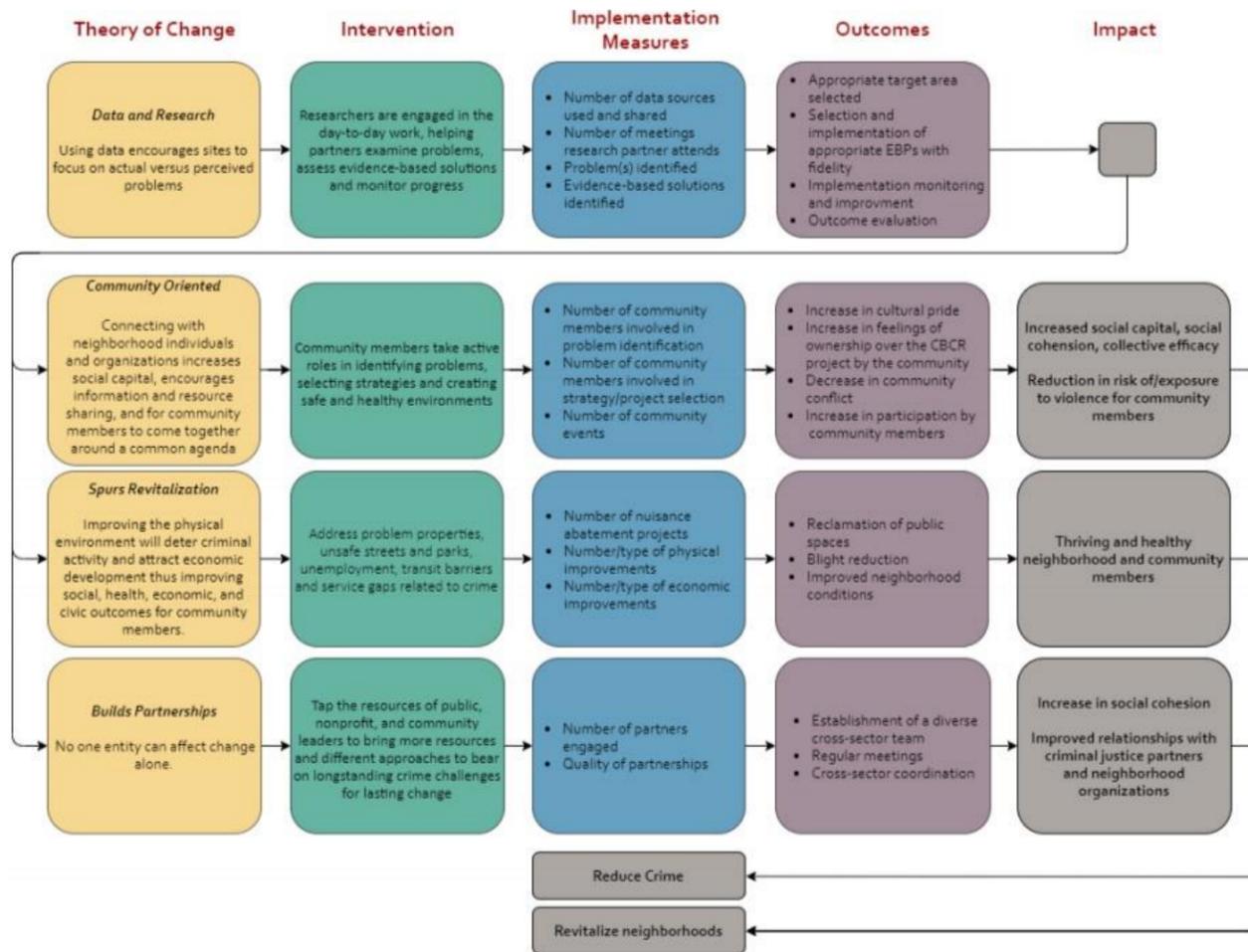
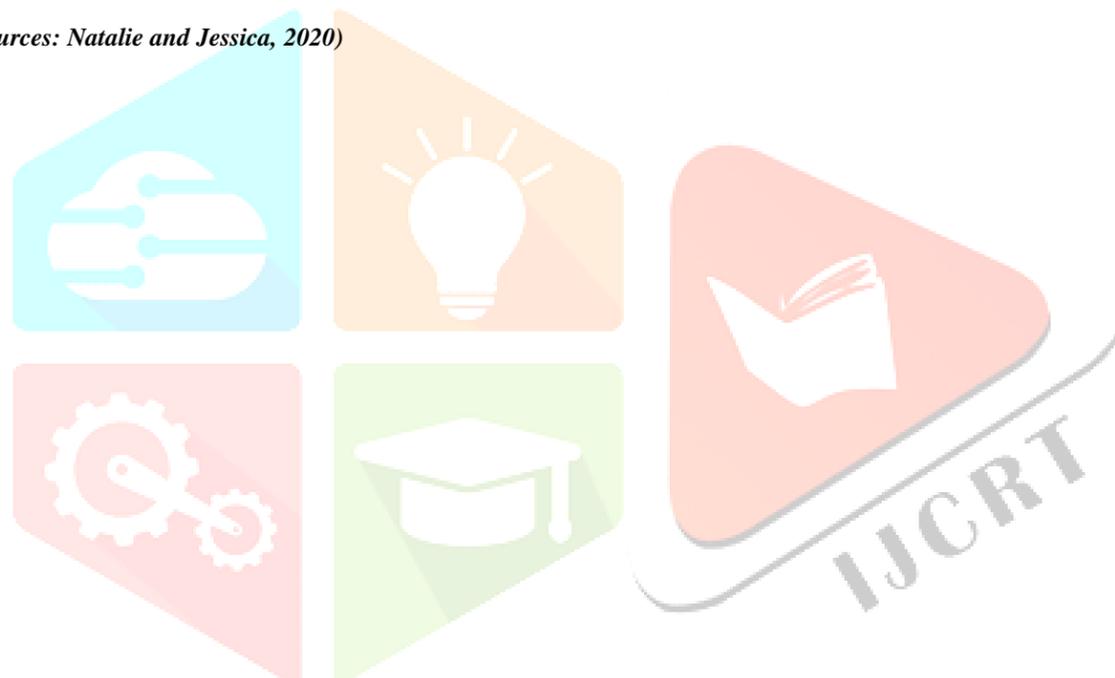


Figure 6: CBCR Model (Sources: Natalie and Jessica, 2020)



2.0 Conclusion

According to the research, a crime must be addressed since it is a human experience that occurs in a particular location. For a comprehensive study of crime, data on the kind and location of crimes, as well as demographic information about victims and offenders, are important. It is vital to use criminal, socio-demographic, and spatial data, as well as other relevant data sets, to undertake a thorough, exhaustive, and valuable analysis of crime. It has also been demonstrated that community-based crime reduction programs have a favorable impact on crime reduction. There are many different approaches to the development of information systems that can be used to create CBCRs. Some of these approaches include Data and Research, Society Focused, Juventus Restoration, and Building Partners. The Community-Based Crime Reduction (CBCR) program is one of the largest federal programs that encourage local innovation. It's goal is to reduce crime and improve community safety. It is a crucial source of financing that supports efforts to find solutions to problems within the framework of local societies to deal with important concerns in a particular region. In this study, a CBCR program and the steps necessary for its effective execution were outlined.

There is a paucity of information regarding the effective implementation of crime prevention plans in the community and multiple agencies. The assessment of the CBCR prevention scheme reveals similarities in the prevalence of implementation problems and shortfall and the assessment of CBCR sites. Some of the factors that had the potential to influence implementation across sites include variations in organizational dimension within the community services and criminal justice structures, other local allies, community differences, and a diversity of specific interventions strategies (such as those that focus on the setting of a system, organization, group/learning, supervisory, in addition to personal targets). These criteria influence adoption, acceptability, appropriateness, delicacy, practicability, penetration, and sustainability. Various elements can influence the efficacy of the program's outcome; all of them should be studied.

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