



Third Edition

Criminal Justice Technology in the 21st Century

Laura J. Moriarty

**CRIMINAL JUSTICE TECHNOLOGY
IN THE 21ST CENTURY**

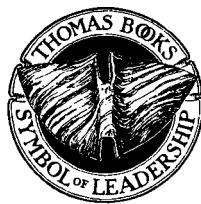
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**CRIMINAL JUSTICE TECHNOLOGY
IN THE 21ST CENTURY**

Edited by

LAURA J. MORIARTY

(With 18 Other Contributors)



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To My Godchild
Haleigh Madison Moriarty

PREFACE

This third edition of *Criminal Justice Technology in the 21st Century* is the result of many individuals inquiring about the second edition of the book being updated. Since the second edition was published more than ten years ago, it is more than overdue for an update. I am pleased to work with some of the original contributors while also having the opportunity to work with colleagues whom I do not know but who were highly recommended by their colleagues. It only seems natural that those who are teaching, developing, and researching criminal justice technologies should be included in the text.

The text consists of twelve chapters with eight new chapters and four chapters being revised and updated. Two of these revised chapters are basically total rewrites since so much of the technology has changed. For example, Sam Nunn leads off the book with an overview of the criminal justice technology infrastructure. He again outlines very clearly where we are going with criminal justice technology setting the stage for the specific type of technology that is discussed in far greater detail in the forthcoming chapters. What I like about the third edition is the appropriate mixture of “knowledge,” or information about specific types of technology with empirical studies (i.e., evaluations) of certain technology used in various subcomponents of the criminal justice system. Students, educators, and practitioners will find this edition useful as it provides practical knowledge about different technology that is useful on many levels.

The book is arranged into two parts: law enforcement technology and public safety technology. It begins with an introductory chapter, described above written by Samuel Nunn. The first chapter within the law enforcement technology section is also an overview but of specific law enforcement technology, written by AnnMarie and Gary Cordner. These two chapters provide an excellent overview of technology in criminal justice. Professor Nunn begins by defining technology, which is a very interesting discussion, and then he moves into explaining specific criminal justice technologies (as he labels it). His chapter was included in the second edition of the book, but as said above, technology has advanced so tremendously in the last 10 years that Professor Nunn totally rewrote the chapter, providing what he calls the

criminal justice technology infrastructure. His work provides the foundation for the chapters that follow. Likewise, the second chapter was also included in the second edition, but it has been revised by AnnMarie and Gary Cordner. They focus on law enforcement technologies making a skilled presentation of all the technology available to date in law enforcement. The two introductory chapters do not overlap; they complement each other. Both the neophyte and the techno “geek,” will find these chapters informative and instructive.

The first section of the book entitled “Law Enforcement Technology” contains the introductory chapter just mentioned, and four other chapters. Three of the four chapters are new to the third edition. Two chapters focus on body-worn cameras and one on law enforcement perceptions of technology-enabled crime. The final chapter in this section focuses on digital forensics.

Professors Koen and Willis write a chapter on body-worn cameras where they ponder whether such technology has become so commonplace that it is the new normal. They provide an overview of body-worn cameras describing their core technical features and costs and provide an assessment of the empirical evidence on their perceived benefits and drawbacks. They also provide a brief discussion of the potential opportunities and challenges to implementing these cameras in police agencies.

In the next chapter, Professor Makin writes a conceptual piece focusing on body-worn cameras contemplating whether such technology integration into policing is done for symbolic reasons, meaning that the technology is being used as a means to alleviate whatever problems plague the agency. Makin argues that if you examine the history of body-worn cameras (BWC) we can begin to move from a symbolic technology to a transformative one. If BWC remain an accountability device, then it is viewed as a symbolic technology. However, if we move to BWC as a technology to increase delivery of services, it moves into a transformative technology. As Makin asserts, “The BWC is capable of transforming the modern police service. However, it must come to be viewed as so much more than an accountability device.”

The next chapter focuses on law enforcement perceptions of technology-enabled crimes. Professor Holt provides an overview of the state of research on this issue, summarizing the findings of various published studies. Further, he identifies ways that researchers may address key questions related to perceptions of technology-related offending in the future to improve polices and response strategies.

Chapter 6 is an updated chapter by Christie Bryce, Robyn Lacks and Jessica Robertson. Expanding on the original chapter, the authors again warn that law enforcement agencies and prosecutors must gain the technology, skills, and abilities to obtain electronic evidence stored in computers as a way

to combat these ever increasing new crimes. With that goal in mind, the authors present an overview of computer forensics including definitions, aspects, and activities of it. They also explore the legal aspects governing information technology in the criminal justice system, major computer crimes, and they conclude with a case study from the Virginia State Police's Computer Crime Unit.

The next section of the book focuses on Public Safety Technology. Chapter 7 is written by Nicolle Parsons-Pollard and it is a new addition to the volume. She looks specifically at technological advancements in victim services. Many services are provided to victims via websites, but Parsons-Pollard focuses primarily on victim notification regarding offender release information. As reported, every state except one has an automated alert system. Parsons-Pollard explains the technology behind the notification systems.

Likewise Chapter 8 is a new addition written by Matt McDermott and Laura Moriarty focusing on electronic monitoring. In their chapter, the authors provide the history of electronic monitoring from the first tracking system developed in the 1960s to modern-day satellite tracking. They also provide an assessment of the devices in terms of their ability to curtail crime. They conclude that the technology is promising, but more evaluation research is needed to determine the effectiveness of the tool in deterring criminal activity.

Professor Joseph, in Chapter 9, updates her previous contribution to the volume. She discusses the specific technology used in prisons, the potential for increasing that technology, and identifying new types of technology that can be used while not losing sight of the fact that some of these technologies might violate prisoners' rights. It is a fascinating chapter—especially when you consider how little knowledge the public really has about the potential to use technology in a prison setting.

Chapter 10 is a coauthored chapter by Jim Byrne and Kathryn Kimball focusing on the Darknet. In their chapter, they document how the introduction of new technology has changed the criminal opportunity structure globally over the past century. They discuss three distinct technology revolutions, as they coin it, that created new criminal opportunity. The first is the automobile and telephone; the second, the internet; and the third, the Darknet. "The Darknet allows users to communicate globally without fear of detection; and if they desire, users can search anonymously for a wide range of documents, goods, and services, both legal and illegal." As they describe, "As we move forward, we will need to design strategies to prevent and control crime on the Darknet that protect the public's right to privacy and its legitimate need for an anonymous mode of global communication and information sharing."

Chapter 11 examines cybersecurity, specifically cyberspace and how it can be secured in the 21st century. Professor Rebovich contributes a new chapter to the volume, where he answers the question, “how do we go about effectively securing cyberspace to limit successful intrusions into sensitive databases be they on personal computers or in large aggregate databases?” To do so, Rebovich discusses technological competition between offenders and law enforcers, and the methods used to limit such victimization.

The last chapter, written by Amanda McCormick, Garth Davies, and Irwin Cohen, is an overview of automated license plate recognition technology. The authors explain the technology, discuss various law enforcement applications of it, and make several recommendations to ensure that the technology is deployed in the most efficient and effective manner possible.

The third edition developed into what I think is an excellent reader/text that allows both the neophyte and the expert to learn something. As this book goes to print, we will continue to investigate current criminal justice technologies, because one thing is clear; technology development, no matter where the arena, waits for no one.

L. J. M.

ACKNOWLEDGMENTS

The third edition of this text would not have been possible without the extraordinary contributions of the many contributors to this volume. Many of the authors from the second edition readily answered my request for an updated chapter. With the majority of the chapters being new ones, I am indebted to those authors who answered my request to publish their work in this volume. Many of the authors I have not met, but I know of their work, and truly appreciate their confidence in allowing their work to be included here within.

Since the publication of the second edition, I have moved from Virginia Commonwealth University, where I spent the majority of my career in faculty and administrative posts, to Monmouth University, on the Jersey Shore, back in my home state. September (2016) starts my third year at Monmouth, and everyone in the Provost's Office has been tremendously supportive of this project. I appreciate all the good humor and support as the project evolved over the summer, into the fall semester, into a much larger endeavor than first thought. Thank you to Nicolle, Katie, Becky, and Linda—a fabulous team!

I would also like to thank Charles C Thomas Publisher, especially my editor, Michael Thomas. Michael has always been very responsive and supportive of this project.

Lastly, I have to thank my family. They have always supported me no matter what I decided to do. Moving back to New Jersey was an opportunity for me to be more involved with them. After almost 30 years in academia, I am just now starting to understand and employ the work/life balance. It truly is the result of having such a great family and working at such a supportive university. I believe I have found “my place in the sun.”

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**CRIMINAL JUSTICE TECHNOLOGY
IN THE 21ST CENTURY**

Chapter 1

THE CRIMINAL JUSTICE TECHNOLOGY INFRASTRUCTURE: WHAT IT IS AND HOW IT IS CHANGING

SAMUEL NUNN

In an earlier edition of this book, the introductory chapter “examined the technology infrastructure of criminal justice, offering an overview of the kinds of technologies underpinning criminal justice systems as well as how these technologies are used by the various actors within criminal justice—including criminals—to accomplish ends” (Moriarty, 2005: 4). That chapter offered a broad categorization of seven different and highly related types of technological systems in use among the actors and agencies inside the criminal justice (CJ) system (transportation is added here as an obvious omission from the earlier table) (see Table 1.1). That categorization is still a fair description of the broad types of technology systems at work within the CJ system (each containing various software-hardware tools used under different human and organizational configurations across the four traditional CJ system sectors—criminals, cops, courts, corrections). But even so, gross classification perhaps misses the larger picture of the richness and variety of technologies in use across different CJ sectors. The technologies-in-use within these categories are increasingly intertwined and interactive, one dependent on the other in order to maintain effective operations across time and space. Also, simple categorization does not say much about how technology systems change over time or how CJ technologies might be viewed in the larger scheme of analyzing the roles of technology and infrastructure in society.

The objective of this new introductory chapter is to take a broader view of technologies used in CJ, by considering the emerging evolu-

Table 1.1: Types of Technology Systems Within Criminal Justice

<i>Primary types of technological systems</i>	<i>Primary users in criminal justice</i>	<i>Examples of systems</i>	<i>Other synergistic requirements</i>
1. Communications	Criminal offenders, police, courts, corrections	Analog radio, digital wireless, mobile digital terminals, cell phones, cellular digital packet data (CDPD)	Wired and wireless LANs and WANs s, (ideally) interoperability among agencies, satellite systems fiber optics
2. Database and record-keeping	Criminals, police, courts, corrections	Criminal histories, warrants, NCIC, state systems, MAGLOCLEN, IAFIS, CODIS, property room and evidence inventories	Relational and inquiry capabilities, interconnected networks and files, wireless capabilities
3. Decision-support	Police, courts	VICAP, Link analysis software, data mining software, MATRIX, case management software, CAPPs II	Human experts to evaluate output and suggestions from systems, wireless capabilities
4. Biometrics	Police, courts, corrections	Biometric access control systems, pattern recognition systems	Large databases with metrics inventory (e.g., prints, irises, DNA, etc.), wireless capabilities
5. Monitoring	Police, corrections	Video cameras, passive scanning thermography, in-car videotaping, ECHELON, Carnivore, UAVs	GPS systems, wiretapping equipment, local cable or wireless networks to connect sites
6. Imaging	Police, courts, corrections	Facial recognition software, aerial photography (low-high-outer space), GIS, thermographics, passive scanning devices	Large databases with searchable images, visual software, digital editing capacity
7. Weaponry and personal defense	Criminals, police, corrections	Stun guns, rubber bullets, beanbag guns, sticky shocker, pepper spray, laser 'heating' weapons, body armor	Training, standard operating procedures, 'rules of engagement'
8. Transportation	Criminal offenders, police, courts, corrections	Motor vehicles (cars, buses, small and large trucks, motorcycles, vans, etc.) aircraft, marine vessels	Scheduling systems, logistics, inventory-management systems, training, standard operating procedures