TECHNOLOGY VS. GOVERNMENT

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STUDIES IN MEDIA AND
COMMUNICATIONS VOLUME 25

TECHNOLOGY VS. GOVERNMENT: THE IRRESISTIBLE FORCE MEETS THE IMMOVABLE OBJECT

EDITED BY

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This book is dedicated to the following people.

(1) This book is dedicated to Generation T. I hope that you find a government that changes its approach to technology usage and integration. I hope you will take your passion for public service and be a part of that change.

(2) To all the hard-working elected officials and public servants working in various legislatures, boards of supervisors, city councils, school boards, agencies, departments, divisions, commissions, offices, boards, and any other level of government. Thank you for your dedication to public service.

(3) To my children, Alise and Carlie, members of Generation T. They each had iPads and laptops before they reached the age of 10. I hope this book helps your future governments embrace the technologies and technological ethos to match their clients and solve the complex problems of the day.

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CONTENTS

LIST OF FIGURES AND TABLES

Figures

Table

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PREFACE

Lloyd Levine

The genesis of the concepts explored throughout these pages – the collision of technology and government - came when I connected two independent, unrelated events that occurred 11 years apart. It was connecting those two "dots" that led to the creation of this book.

The first event occurred in 2003, when I was an Assembly member serving in the California State Legislature. That day, the Assembly's Committee on Utilities and Commerce, of which I was a member (and would later go on to serve as Committee Chair), heard legislation – Assembly Bill 909 – which provided a very early preview of the kinds of issues addressed throughout this volume.

The legislation seemed innocuous enough, the stated purpose was to provide information to consumers by way of rate disclosures. Specifically, the bill wanted cell phone providers to provide rate information to consumers in the same way landline providers had. While this concept may be foreign to many who are reading this, prior to the advent of cell phones and advanced technologies, telecommunications (telephones) was a regulated industry. Providers made money based on usage. Calls were charged by time of day, length of call, and distance called. Night time calls and weekend calls were less expensive than daytime calls. Rates were applied per minute of connection, often with the first minute more expensive. Local calls – calls within the same area code or predefined territory – were the least expensive or free, long distance calls were more expensive, and international calls were the most expensive of all.

However, as competition came to telephony with the breakup of AT&T's monopoly in 1982, this began to change. Companies now had to compete for customers. The advent of cell phones and new technologies drove competition further. This background sets the stage for the AB 909 hearing. The bill sought to statutorily force cell phone communications providers to disclose their long distance and local calling rates so consumers could conduct price comparisons when shopping for service. However, there was one problem.

What is normal today was cutting edge and innovative in 2003. Cellular phone companies were just starting to roll out their "one rate" plans. These plans gave customers an unlimited number of calls for a flat fee. You could call your next-door neighbor once, or across the country 100 times and your bill was the same. There was no "rate" to disclose. The advance of technology, and the innovation it enabled, ran headlong into legislation that was rooted in an old model of regulation. This point was raised by me and one other member of the committee, and eventually, after several minutes of explanations, the legislation was amended to take into account the technological reality.

For many years, that stood as an interesting anecdote or cautionary tale, but had no greater context in my mind. It wasn't until years later the second event came about and allowed me to connect the dots of commonality between the two. The epiphanic moment was prompted by and occurred during an interview with the San Diego Union Tribune on a topic seemingly completely unrelated to technology.

In 2014, a reporter called to ask me about the effectiveness of a certain niche interest group. Specifically, he wanted to know if I had an explanation as to why the animal rights/animal welfare movement seemed to be increasing their effectiveness over the past number of years. Traditionally, the animal movement had been perceived as a bit outside the mainstream, and not particularly effective at achieving their legislative objectives. Recently that had begun to change.

I will admit, the question caught me a bit off guard and required me to think about it. In the end, I attributed it to two significant developments, one unique to the California State Legislature and non-replicable. The second factor, the advances in technology, are what I believe were the dominant factor in increasing the effectiveness of those trying to enact policy changes related to animal issues.

Advocates for animals today have access to media production and distribution tools that weren't available in years past. Digital recording technology has progressed to the point that virtually all of society has access to affordable, easily concealable, and high definition video and audio recording equipment in the form of smartphones. Further, the availability of distribution channels provided by social media (Twitter, YouTube, Facebook, etc.) now allows for instant and direct publishing. Passionate animal advocates can easily and surreptitiously document instances of abuse or maltreatment. They can then broadcast them quickly and directly to policymakers and their staff, traditional media, and the public at large. Individuals had the metaphorical equivalent of the printing press and television studio in their pockets. The technology eliminated the need for the press to be an intermediary. The descriptions and assertions of abuse that seemed so unbelievable years earlier were now accompanied by visual proof. The industry no longer controlled the narrative and that forced people to confront disturbing images and issues that previously remained hidden. Technology transformed how an advocacy group engaged with policymakers, and more importantly, the technology dramatically increased their effectiveness.

I relate this story because it was the moment these issues crystallized in my mind in the way that would eventually lead to this book. And, since then this concept has played itself out in multiple ways at multiple levels of government, usually due to some sort of embarrassing public issue that resulted from public officials not understanding the power and impact of technology. Issues and occurrences that would have gone unreported or at worst denied and forgotten were now verified, documented, and amplified through the use of technology.

It took 11 years to connect the first two "dots," but since that time, I have seen these issues manifest themselves in myriad ways, some innocuous others more serious. Generally, these manifestations are split into two categories:

(1) Political
(2) Policy and operational/administrative.

The political are usually more humorous and while more public, actually less impactful to the day-to-day operations of Government. Some examples of public but innocuous examples culled from my memory include, the late Senator Ted Stevens of Alaska drawing much ridicule for his attempt – on camera on the senate floor – to explain the internet to his colleagues. Or the belief by any politician that comments in any kind of public or semi-private gathering won't be recorded and spread across the internet. From thought-to-be clandestine sexual matters to Mitt Romney's 47% comment to an audience at a "private" event, politicians found their images and remarks scattered across the country for all to see.

Instances of technology and politics colliding also have some important repercussions. The widespread profusion of recording and distribution methods is forcing politicians and others to reconcile the difference between their preferred narrative and the reality presented by the visual and audio evidence. Think of President Trump's first Press Secretary, Sean Spicer holding a press conference after the inauguration and trying to convince a room full of reporters that President Trump's inauguration had more people in attendance than President Obama's when they could plainly and unambiguously see for themselves that it wasn't true. Or, more consequentially, in the lead up to the 2012 United States presidential election where candidate Mitt Romney was on videotape stating he was, "a severely conservative Republican Governor" when he was trying to win the his party's nomination. But he was also recorded, in a different time and location, saying he was a very moderate governor of Massachusetts. While many things contributed to his loss to President Obama, the incongruity of his words, on video, prevented him from controlling the narrative and cause voters to see him as pandering.

Over and over again in public statements in response to multitudes of circumstances, it is blatantly apparent that many politicians do not yet grasp how pervasive technology is, how it truly works, and what its potential is - positive and negative. The collision of technology and government in this way will continue to cause severe cognitive dissonance and/or force people to confront facts that counter their preferred narratives.

There exists an alternative and potentially dangerous way in which technology will impact politics. With each passing year, audio and video editing technologies improve by quantum leaps. Without their consent or knowledge, people can be added to or removed from videos with such precision that only trained experts can spot the fakes. And now Artificial Intelligence technologies exist that can make it appear that someone said something or gave a speech they never did. These videos are extremely convincing, and the technology is only in its infancy. The potential impact these technologies can have on democracy, government, and society is profound and troubling.

However, the impact of technology on politics isn't the topic of this volume. This volume is looking at the intersection of technology and government; government separate and distinct from politics. People run for office and by dint of that, they become politicians and engage in politics. But they are running to govern, to lead, to enact policies, and, ideally, to solve problems. This is the aspect of government on which this volume focuses, the intersection of technology and the policies and administration of government as a whole. This intersection can and does manifest itself in myriad ways, both positively and negatively.

While people generally think of technology as the internet, apps, smartphones, and computers, this book takes an expansive definition of technology's impact on and intersection with government extending far beyond that limited perspective. Hundreds if not thousands of viable, different, and new digital and physical technologies are available to government decision-makers and administrators. The choice to adopt or reject each of those technologies has implications for the administrative functions of government.

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While this is a book about technology and government, at its heart it is really about people. Before we delve into the nitty gritty of various government technology failures and the future of technology and government, I want to take just a few hundred words to center this book on the people served by both government and technology. Technology in the public sector takes many forms. There are technologies that allow employees to perform the core functions of their jobs more efficiently. There are technologies that allow governments to reallocate resources to other priorities. There are technologies the public at large never sees or touches. And then there are those consumer facing technologies, websites, apps, kiosks, and any number of other technologies that need to be accessed by individuals from all parts of society. It is the individuals who utilize these services who I want to singularly call out in this section, lest they be overlooked in the focus on the technology. These technologies exist for the benefit of the people and that is where the focus must be.

Abraham Lincoln, in extolling the uniqueness of the American Democracy in the midst of the Civil War declared, "… that government of the people, by the people, and for the people shall not perish from the earth." The phrase, "…, of the people, by the people, and for the people …" is the concept to keep in mind as you read this book. While it is easy to decry the monolith that many perceive government to be, it is important to remember that government in America is nuanced. Government is the federal government and state legislatures, but it is also counties and cities large and small, town councils, school districts, and special districts. Those bureaucratic institutions that combine to form the network of American government are made up of the people of the country - ordinary citizens, friends and neighbors, and people we pass on the street - and operate for the benefit of us and our friends and neighbors.

In most democratically governed, developed countries that concept is part of the social compact, that when governments provide goods or services, they MUST be provided to all who need them. However, despite being part of that social compact, that notion isn't always something that appears commonly understood. More than a few argue that government must operate more like a business. This is where the tension lies between the object and purpose of government as opposed to the private sector. While both the public and private sectors strive to eliminate unnecessary inefficiencies, for governments there may be inefficiencies inherent in making sure everyone is served. When thinking about government services and responsibilities, it is essential to understand that eliminating inherent inefficiencies could deprive individuals of certain necessary government provided goods and services.

This is easier to see with social service benefits to vulnerable populations but is also ingrained in other aspects of government functions.

For our purposes, the transportation network is an excellent analog to the issue of technology and government. The transportation system comprised of inanimate constituent parts – concrete, asphalt, road signs, traffic lights, streetlights, curbs, paint, crosswalks, etc. – that all come together for the purpose of conveying people and goods. Trillions of dollars have been spent to build and maintain a vast highway and road network across the country. But what of the thousands of small towns and unincorporated areas at the end of long, rural roads miles from the nearest two-lane highway, and even further from the major highways and cities? Each of those roads cost tens of millions to build, and millions more to maintain. But, at the risk of being overly didactic, those roads connect rural houses and farms and other isolated pockets of industries to the bigger cities. The cost per user ratio is significantly lower in urban and suburban areas, but the economic and societal benefits of connecting rural communities to larger areas is recognized, resulting in governments funding the construction even at the significantly greater per capita. And what about low-income households who cannot afford a reliable car? For them, there is a public transit system to ensure they are not disenfranchised from the benefits of mobility. At its heart, the transportation system is built by the people and for the people. Without people, the roads lack a purpose.

Technology is conceptually similar in that ensuring equal access to benefits and services may come at the cost of maximized efficiency. People may intuitively understand things like transportation – and to an even greater degree health care – are for the benefit of the people who will be the users/consumers. In contrast, it seems easy to become so enamored with the capabilities of technology that we lose sight of the ultimate purpose of the technology. In the public sphere, excellent, innovative new technology that excludes a large percentage of the population is not appropriately beneficial. Technological solutions that can ascribe benefits to all who need them and ensure that all who need them can access them should be the goal. In that paradigm, it is the people who are primary.

This is a concept that is best exemplified in the persistent digital divide. According to reliable data from the Pew Center, approximately 25% of Americans lack "meaningful internet access" (Levine, 2018). Governments continue to migrate an increasing number of services online, and correspondingly reduce in-person or telephone transactions, in order to obtain and provide the efficiency benefits technology confers. However, those without the means to access the technology may be left in a worse condition than before. The technologically fluent and connected may extoll the virtues of being able to engage digitally at the time of their choosing. But those without means of connecting or with poor digital literacy skills – usually lower income households, rural households, and seniors – may find themselves with fewer government service offices and fewer staff at those offices as offices are eliminated and staff positions reassigned to correspond with reduced demand for in-person services drops due to the behavior shift - to digital engagement - of the connected.

The creators of the constituent facing technological solutions, and the government that procures them must understand that while the benefits to some will increase, those who lack connectivity, digital literacy skills, and government fluency

will not be able to obtain the same benefits. This isn't to say that operating parallel systems is the answer. Rather, this speaks to the need to expand the technological capabilities and access of the end users. Would society accept a transportation system that provides benefits to 75% of the population while stranding and isolating the other 25%? Then why should it be acceptable with the phase in of technology by governments? Nowhere is this better illustrated than the COVID-19 pandemic and the resulting shift to distance learning which starkly revealed the gaps and inequities of technology in education. Across the country, those previously unaware of the digital divide quickly that while some households have multiple devices and gigabit internet service, others have only a smartphone or no service at all. Upon recognizing the situation, to the greatest extent possible, schools didn't neglect the disconnected or create an inferior system for them. At the outset of the pandemic, schools and school districts across the United States provided students with millions of laptops and worked with internet providers to ensure those students had access. This same principle should be applied in general when it comes to government employed technologies. As governments increasingly integrate technology, and shift to eGovernment, it is incumbent upon them to ensure everyone has means to access the information and services. It does no good to create a suite of benefits for lower income households and vulnerable individuals and then force them to access the benefits through website or app for which they have neither the physical connectivity nor the digital literacy necessary. Further, ensuring technological access and fluency to those who cannot afford the necessary devices doesn't just accrue benefits to the recipients of the devices, it makes government more efficient as it can allocate resources to truly engage in a digital transformation. Society at large is also improved as the level of technology fluency and access of the entire population is lifted. This will have economic and other benefits far beyond accessing government services and institutions.

While some of the research in this volume paints a clear picture of the real-world impacts of the failures of government to adequately purchase, implement, or employ technology, in other chapters those failures are abstracted from their purposes and really devoid of the consequences of the failures. And still other chapters look to the future and examine the possibilities and implications of the collision between a government that is slow to understand, adapt, and implement and a technology industry that is barreling ahead with each new technology announced seemingly before the last one has been deployed. Likewise, some of those works place people at the forefront – the use of collaboration technology to increase the quality and quantity of true community engagement makes clear the impact on people. Other research – the regulatory circumstances of cryptocurrency – makes scant direct linkage to the end users.

While reading these chapters, whether explicit or not, the underlying principle of the works is the impact on people. The people who work for and interact with government now and in the future are the unseen characters and main protagonists of a play unfolding in real time. They will succeed or struggle based on how well the producers and procurers of technologies understand the technology and keep a focus on the users.

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The authors of the research presented in this book were tasked with examining various aspects of the intersection of government and technology, including why government fails at technology purchases and why government lags behind the private sector on innovation and implementation. They were tasked with exploring the challenges of providing digital government services when large percentages of the population lack digital connectivity and digital literacy skills, and how the digitally disconnected are impacted by their lack of access. As more and more services are pushed online, how does government serve those on the wrong side of the digital divide who cannot fully take advantage of eGovernment services? Authors were tasked with examining how technology has changed the way government, particularly local or state governments, provide services.

The authors were presented the objective of making their papers universally applicable, concluding the research by distilling and elucidating big lessons and principles. The chapters in this book focus on specific issues and cases and while having pertinence to entities and on issues far beyond those discussed in this volume.

Finally, this book is intended to be a starting point for the academic and scholarly examination of the intersection of technology and government. The goal of this book is to break new ground in public policy and administration research. The current academic landscape surrounding intersection of technology and government, specifically public policy and administration, is mostly lacking. Issues around social media, data, and privacy have spurred some policy programs to include technology related subject matter, but the examination of technology policy in that realm is different from the issues explored in this volume. For example, current procurement policies can be antiquated and antithetical to the way technology is adopted, but procurement policies are not generally studied in policy or administration programs. Another, more concrete example occurred in April 2023 when Elon Musk changed the Twitter logo to the Dogecoin logo driving the price of Dogecoin up by 30%. This and other similar incidents show clearly that social media can impact stock prices, and by extension the regulatory process of the Securities and Exchange Commission. Policy schools - as well as policy makers and regulators - may want to consider the way social media changes the nature of information distribution and its concordant impact on policy goals and outcomes. This is a topic discussed directly and indirectly in Chapters 4, 6, and 8 of this book. These are just two of many areas technology impacts or is impacted by policy and administration. Yet, as of the writing of this book, most public policy programs focus on course work related to policy analysis and creation with no examination of the interplay and tension between technology and public policy, particularly policy implementation or the myriad ways in which technology may assist in achieving policy goals. Similarly, public administration courses and programs focus on understating the structure and operation of bureaucratic entities. These courses also generally neglect to examine the impacts of technology on the administration of policies and programs, or the bureaucracy itself. As such, it is my hope that this book starts a conversation and creates change in both policy and administration programs beyond social media, data, privacy, and ethics, and ultimately how governmental entities approach and understand technology.

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INTRODUCTION

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GOVERNMENT AND TECHNOLOGY

In the parlance of social media, "It's Complicated" is the best way to describe the current relationship between government and technology.

While perhaps trite, it is also true to say that technology is advancing at an unprecedented and accelerating pace. But if past is a prelude, history teaches us that the technology revolution is still in its infancy. As evidence, consider this, the first commercial website didn't launch until 1991. Widespread dial-up internet service wasn't available until 1994/1995. Amazon didn't make its first sale until 1995. Residential broadband wasn't available until 2000. The iPhone didn't come out until 2007, and it wasn't available from all providers until 2011. Going back a little bit further, personal computers weren't meaningfully available until the late 1970s, and really didn't begin entering homes and offices in the early to mid-1980s. And even then, their functionality was severely limited when compared to the laptops, iPads, Surfaces, and Chromebooks of 2023.

Given those dates and the different technologies, it is hard to pinpoint a specific starting point for the technology revolution. It wouldn't be an unreasonable position to argue the era started in 1977 with releases from Apple, RadioShack (TRS 80), and Commodore. It could also be argued that the modern era of computing technology and functionality probably started in 1995 when dial-up internet access became widespread and commercial websites more abundant. However, I think a more cogent case can be made that it was/is the cumulative effect of the various technologies that gave rise to the era of modern computing technology. Certainly, the internet wouldn't be what it is today without laptops, tablets, smartphones, and high-speed broadband. The functionality and potential of the devices was not possible with dial-up. As such, I will take the position that the technology era truly started around 2007 when, according to research from the Pew Center, residential broadband adoption rates climbed above 50% and

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the first iPhone arrived in the market. It is the deployment of broadband and the advances in microprocessors that facilitated the diversity of function and widespread integration into so many aspects of modern life, seen and unseen.

The irresistible force discussed in this book is the cumulative power of increasing broadband speeds combined with advances in microprocessors, sensors, nanotechnology, artificial intelligence, etc. that have enabled technologies to run headlong over many industries. These technologies have forced dramatic changes in those industries and in some cases rendered them obsolete. In the last two decades, the music, video/movie, travel, retail, and news industries have all been profoundly and irreversibly altered by some combination of new technologies. Many of these changes have lifted new entrants to dominant market positions while eliminating others completely.

For this book, this historical context is only relevant in understanding where government is in relation to the advancement of technology. Governments are the immovable objects, with cultures, processes, and procedures that make them staid and slow to change. So far, governments seem to have escaped the same fate as other industries, mostly due to the central nature of government in a society based on the rule of law. Additionally, the impact of technology on government will look different than in other industries. Technology is advancing with blinding speed, yet it is still in its infancy. And that is a scary and sobering thought for governments everywhere who are already falling behind. Procurement rules and regulations combined with the risk averse nature of governments writ large result in an inability to purchase and integrate technology in a manner that keeps pace with modern technology's continual evolutions.

But how long can government hold off the technological tsunami? Every day that goes by technology becomes more prevalent and more deeply ingrained in our personal and business lives. Mainframes became desktops, desktops became laptops, and laptops became iPads. Car phones became mobile phones, mobile phones became flip phones, flip phones became Blackberries, and Blackberries became smartphones. "Smart Home" technology is a burgeoning industry and cars are being developed that can drive themselves. Shortly, governments will be tasked with providing services to and recruiting a workforce from a generation that has grown up completely enveloped in technology.

The Technology Generation – something we are calling Generation T – is the generation born beginning in about 2000–2002. They are the first generation of children who have and will continue to grow up surrounded by an increasing amount of technology in all aspects of life. And as a key, distinguishing feature, the generation (GenT) will have no memory of a world prior to the complete immersion in a ubiquitous bubble of technologies and technology iconography. Using the timeline above, the generation that was born beginning in the early 2000s will have no memory of a world before and without smartphones, broadband at home, iPads, Facebook, Amazon, or technology-mediated transactions for nearly every aspect of life. Further, in addition to the technology itself, they will also be surrounded by media messages and iconography containing technology. They will see imagery of technology, from phones and computers themselves to hashtags, thumbs up symbols, and Instagram, Facebook, and Twitter logos on everything.

The circumstances and contextual placement of Generation T give rise to the two key questions underlying the research in this book.

(1) How will government attract Generation T into the government workforce (and retain them when they get there), when governments generally employ a level of technology that significantly trails the technology available in their private lives or in private sector employment opportunities? In addition to the technologies themselves, will a "technology first" mindset embodied by so many in Generation T, fit with a government culture that doesn't necessarily look to technology first?
(2) How will Generation T engage with government and utilize government services? Generation T will have grown up almost completely navigating the world digitally. From education to entertainment, Generation T mediates the world predominantly through technology. But how will they engage with government if technological interface isn't available?

In short, can government withstand the onslaught of technology the way few other industries have, or will it bend and yield to technologies that can run around or over it?

This book looks at those issues and others in three ways. Section one of the book examines different aspects of the challenges facing governments regarding the purchase, implementation, or use of technology. Section two shifts the focus to the people who interact with government and are the recipients of government services. This section explores the implications on government services and government communications as governments transition to eGovernment. In this way, the chapters serve as a bridge between chapters three and six, with an overlap in some of the subject matter. This section focuses primarily, but not exclusively on the impacts on digitally excluded populations as governments implement eGovernment. However, the chapter does posit on the impacts to government and society at large when it is required to serve two distinct populations, the digitally literate and the digitally disenfranchised. Section three looks to the future where interactions between government and technology increase. It looks at areas where understanding and adjusting to new technologies will create opportunities for governments, and challenges for governments that fail to do so. The aim of the volume is to explore the reasons why government so often gets it wrong, understand the underlying causes, and look for lessons that can be learned and applied by other governmental entities. This will be imperative for governments as they attempt up with the pace of technological evolution in order to meet the demands of a generation of "consumers" and employees who will expect to be fully able to engage with government the same way they digitally engage with all other aspects of life.

Section 1: The Past – How and Why Governments Struggle with Purchasing and Integrating Technology

Section 1 of this volume begins with John Thomas Flynn, the first Chief Information Officer of both Massachusetts and California, and me examining

the challenges both states have with purchasing and implementing technology projects on time and on budget. A quick search of the headlines of major newspapers reveals a treasure trove of technology procurement gone wrong. While the private sector seems to adopt and implement new technology seamlessly and quickly to deliver for customers, government seems to lag behind. In this chapter, the technology primarily collides with the administrative branch as we observe that most failures are due to poor organizational structure in the bureaucracy and the lack of an empowered Chief Information/Technology Officer. Using examples from Massachusetts and California, this chapter presents three key "best practices" principles of public policy and administration that can be implemented by almost any governmental entity to improve their acquisition and implementation of technology.

The exploration of government's challenges is continued by Noah McClain's use of the failed cybernetics purchase of the New York City Metropolitan Transportation Authority (MTA) as a case study. This chapter details a different type of bureaucratic failure and again straddles the line between technology, policy, and administration. While the technology purchase was a failure, McClain shows the failure was in large part due to the MTA's lack of understanding of the problem they were trying to solve. The research makes it obvious that the structure of the agency and the decision-making process doomed the project from the outset. Again, the chapter concludes with lessons learned and best practices that can be used by other government entities. Not surprisingly, the conclusions focus on improving the bureaucratic structure and decision-making process.

In contrast to the prior chapters which looked at failed actions, Chapter 3, written by Catherine Sandoval, a former Commissioner of the California Public Utilities Commission, and Patrick Lanthier explores government's failure *to* act. Specifically, Chapter 3 looks at the consequences of technologically driven communication failures. Further, while the prior chapters looked at the breakdown of public administration, this case study looks at the breakdown of public policy. Using the recent failure of the Anderson Dam near San Jose, California as a case study, the authors explore the consequences of this policy failure. While people, including governments in general and first responders specifically, are increasingly dependent on internet-enabled technologies for emergency responses, there is a large segment in many societies that are disenfranchised and digitally disconnected. This chapter uses the dam disaster to look at the implications of policy and regulatory bodies' failures to adequately account for new technologies and implement appropriate policies to address their increased usage and widely varied levels of adoption. The authors connect the implications of these failures to other disasters, from the California wildfires to the worldwide COVID-19 pandemic.

Section 2: The People – An Examination of eGovernment and the Disconnected

This chapter, authored by Juliana Maria Trammel, Laura Robinson, and me, transitions us to the second section of the book and moves the focus from "the government" to the people. This chapter examines the relationship between

technological "have nots" – that is, those on the wrong side of the digital divide – and the transition to eGovernment services where governments are moving more and more transactions to the digital space. This research looks at the effect of that shift on marginalized populations. It also examines if and how the impact on disconnected populations further amplifies existing disparities during a time of crisis. While this work is connected to chapter three by Sandoval and Lanthier in Section 1, it is included here because governments' digital transitions and transformations are still in their infancy. This chapter does not dwell on a failure of the past but gives a caution for governments to avoid going forward as they continue the transition to eGovernment.

Chapter 5, authored by Cara A. Chiaraluce and me, builds on the concepts and topics in chapter four by examining the impact of digital exclusion on health outcomes. As the medical system in the United States and other developed countries increasingly use technology in a variety of ways to improve efficiency and health outcomes, the lack of connectivity and digital literacy skills increases the disparity in health outcomes. While most studies of technology in healthcare focus on the latest developments in telemedicine or new, expensive diagnostic and treatment technologies, this chapter looks at the other side of telemedicine, technology that is not healthcare specific to understand how lack of connectivity at the household level inhibits access to healthcare information and the healthcare system at large. As with the prior chapter, this chapter calls out the challenges facing governmental and quasi-governmental entities as they transition to technology first and technology only systems. While many have shifted to using computers to make medical appointments, order medicine, and even consult with doctors, those without broadband connectivity and/or digital literacy skills will not be able to engage and are therefore more likely to have poor medical care and health outcomes. This disparity not only impacts the individuals lacking digital access, but also the healthcare system and society at large. Implicit in this chapter is the question of what role should governments play in providing end user technology to those who cannot afford it themselves in order that those households also have access to healthcare.

Section 3: The Potential – Future Implications and Opportunities

The final three chapters in the book shift the focus again, this time examining various technologies and the opportunities and implications for governments on a go-forward basis. Again, while these chapters deal with specific issues, it should be possible to extrapolate these concepts to other issues of technology policy and administration.

Section 3 begins with Professor Deb Aikat's research on technology's effects on media and their agenda setting and watchdog function. The media traditionally played multiple roles by collecting, assessing, analyzing government decisions and then verifying the information, providing context for it, and communicating it to constituents. Print media, radio, and television have been joined by a proliferation of online sources of information. These new media outlets have none of the barriers to entry of traditional media and many can be of dubious quality

and veracity. As discussed in the Preface, individuals with no media training now have the ability to document and distribute news first-hand as well as curate their own sources of information. So too, government and government officials are no longer dependent on independent media to deliver messages, as these same tools have allowed government entities and officials to also create and deliver information. This chapter looks at the effects of these changes to both media and government in India, the world's largest democracy, and the impact on how citizens receive and process information about government. Of interest to those in the United States where many decry the decline of the media, this research concludes that, "… people consider in India's media–government tension as essential to the checks and balances of a vibrant democracy. In India, democracy reigns, newspapers thrive, history lingers, and technology challenges to create a nation of contrasts."

This section continues with research by Professors Kevin M. Esterling and Cesunica E. Ivey examining the use of collaboration technology to improve community input for local government decision making. As lives have continued to get busier and the types of decisions made by local governments more complex, the old model of engagement – letter writing and attending community meetings – has proven to be less and less effective leaving constituents feeling unheard and left out. This chapter highlights a beneficial use of technology that is dependent upon government both to recognize the capabilities of the technology and to implement it correctly. To do so, governments must observe the lessons from Section 1. Although this chapter focuses on a specific use case regarding community input for decisions involving air quality rules and regulations in the South Coast Air Quality Management District of Southern California, the concepts and technology could be employed anywhere community input is needed. Further, while this chapter is not about the disconnected, the implications of digital exclusion from Chapter 4 merit consideration here as well. If the inequities of the prior chapter are not addressed, the exclusion of a population from the ability to participate will detract from the quality of the decision process envisioned in this chapter. This chapter provides quite prescient as it was completed prior to the COVID-19 pandemic and the related response that forced governments to transact business via the internet with extensive use of video meetings. This chapter takes that practice to the next level by looking at it as a strategy for better community input through an iterative system of information delivery to the community and then community input through collaboration technologies.

While the prior chapter looks at the potential for government to improve by implementing a new technology, the closing chapter by Graham S. Steele is concerned with the ability of the Federal Government of the United States to understand and address a technology that has the ability to circumvent government altogether. This chapter examines the potential impact of cryptocurrency and blockchain – two technologies that perhaps have the ability to be more disruptive to government than all other technologies combined – on the monetary policy and central banking functions of governments. While "Cryptocurrency" and

"Blockchain" entered the mainstream lexicon, they are still very new technologies that are poorly understood. But understanding by policymakers is not a prerequisite for societal impact. By enabling secure and direct monetary transactions cryptocurrency has the potential to upend the credit card and banking industries. More relevant to this work, blockchain-enabled cryptocurrency appears to have the potential to obviate the monetary policy and central banking related functions of national governments. While this may sound like hyperbole, would anyone have predicted Amazon's meteoric rise to retail prominence and the corresponding decline of the shopping mall, or of the newspaper and magazine industry's even more precipitous decline? This chapter looks at the various government entities that set and regulate monetary policy and asses their role and ability to address cryptocurrency. This research will provide policymakers at the federal level with an understanding of the issues and implications. With cryptocurrency and blockchain being so new, this chapter will be one of the first works published in academic literature on the subject of cryptocurrency policy.

Together, these chapters look at the government, the people, and the technology along with their existing, emerging, and future interactions. The complexity and myriad of issues and technologies are vast, and this work only just scratches the surface. Further, while collectively these works are about technology, they are also about public policy and public administration. Improvements can be made in all three of those areas to reduce the tension and improve the interactions between them. It is our hope that this begins an important discussion and self-examination by both those in government and those creating the technologies so that technologies can be understood and appropriately put into use for the benefit of people and by the people, and the mistakes and missed opportunities of the past can be addressed and avoided in the future.