

Public Administration and Information Technology

Opening Case Study

President Obama's Vision for IT and the Federal Government

Some have argued that President Barack Obama's technology agenda is game changing (McClure and Dorris, 2010). The agenda brings together collaboration, participation, and transparency to government through information technology (IT). Collaboration can be seen through free tools and technologies that provide fast, cheap, and effective support to increase citizen interaction with the federal government. In addition, social media networks such as Twitter, Facebook, MySpace, and YouTube are now used by many federal agencies. Finally, through increased participation there has been a deluge of data provided to the public, which provides more opportunities for citizens to interact with their governments. However, with this increase in collaboration, participation, and transparency there are some opportunities and challenges.

Disclosure Management

Federal government databases have publicly available data intertwined with personally indefinable information and other protected data. The time period for releasing this information is shortened, and this information can be mashed-up with other information. As a result there is a risk of not having the proper safeguards in place before posting information.

Data Sharing

Data sharing is increasing in the Government 2.0 environment through websites such as www.data.gov. There also is a need for government to package the data, which creates challenges between information ownership and control.

Data Quality

The accuracy, integrity, timeliness, and reliability of federal government data and information are a recurring problem, and this becomes an increasingly challenging problem as more data are placed on the Web. These data may have errors and also could be dated and irrelevant.

Multichannel Information

Government must increasingly be able to interact with the public in different delivery channels such as Internet, phone, face-to-face, and printed materials. Governments must find ways to connect with the public in these different contact channels.

Data Analysis

Because of the large volume of data and the movement for greater performance and accountability in government, there will be an emergence of knowledge management technology, or technology that is able to analyze data to produce usable results for decision making. This will include search queries, which will enable citizens to get the right information faster with their government.

Disruption

These innovative technologies can disrupt the status quo, thereby requiring organizations to be more agile and flexible in this changing environment.

As part of introducing his agenda, President Obama also gathered leading chief executives from many high profile companies to get lessons from them on what they should do to harness the full power of technology to increase efficiency and to improve customer service (Holleyman, 2010). Those executives listed the following as important for Obama's IT agenda:

1. To try not to resolve everything at once and to focus on smaller projects that can have an impact
2. To maintain interoperability, which is also critical for the advancement of Obama's agenda, in which systems are able to communicate and work together
3. To look at the advantages of existing technology rather than creating new systems from scratch
4. To ensure that any system implemented focuses on privacy and security of federal government data

Chapter Objectives

There are five primary objectives to this introductory chapter showing the importance of information technology (IT) and public administration:

1. To introduce the importance of IT to modern public administration
2. To introduce the external environment of IT and public administration
3. To introduce the internal environmental influence of IT on public administration
4. To examine the differences between the public and private sectors
5. To introduce the major issues that public organizations face in IT and public administration

Introduction

This book deals with the important subject of IT and its influence on public administration. IT influences every aspect of our daily lives from simply checking bus schedules online to banking over the Internet. IT influences our work lives as well through checking e-mail or preparing an important presentation. Much of our lives have become easier as a result of IT and its impact on society, but we also face numerous challenges, such as the disparity in access to IT between different socio-economic groups, the different skill levels of individuals that use IT, and issues of privacy of our personal information.

This book examines IT and its influence on public sector organizations. The U.S. government is composed of 50 state governments, numerous local governments, and the federal government with its multitude of departments and agencies. All these governments have incorporated IT into their operations. Some of them use simple systems such as spreadsheets, word processors, and e-mail, whereas other public organizations use complicated database systems and advanced information systems. The diversity in the needs of all these governments and their use of IT is enormous. As an example, the U.S. federal government is introducing a tremendous amount of change through the use of IT to create more efficient and transparent government, as seen in the opening case study.

There is a great need to study IT and public administration, given that most of the textbooks on the market examine IT and its influence on private sector organizations. As this book argues, the public sector is much different from private sector entities; therefore, it deserves to have a book that focuses exclusively on this sector. As discussed, the goals of private sector organizations are usually well known, to sell a good or generate a profit, whereas in the public sector, given the diverse interests it must serve, generating a profit is not feasible or even desirable. In addition, the outside environment influences public sector agencies more so than private sector entities, and this provides a unique constraint on what can be accomplished.

In addition, there is a great need to study IT and its impact on public administration given the rise of the Internet and its use in modern public organizations. The Internet

has made it possible for organizations and people to be connected together, creating a virtual government. This was not possible until around the mid-1990s with the rapid rise of the Internet through commercialization, creating broad use by the general population. This networked organization has changed many functions of the workplace and makes it worthy to study the influence of IT on public administration in this new and important environment.

What Is Public Administration and IT?

Public administration is concerned with the goal of advancing management and policies of government. Public administration is what takes place after the election, in which the day-to-day business of governing actually occurs. Public administration also deals with management of public programs and is the study of government decision making, the analysis of the policies themselves, the various inputs that have produced them, and the inputs necessary to produce alternative policies (Henry, 2007).

IT is the study, design, development, application, implementation, support, or management of computer-based information systems, particularly software applications and computer hardware (Laudon and Laudon, 2009). IT deals with the use of computers and computer software to securely convert, store, protect, process, transmit, input, output, and retrieve information. IT can contribute toward the operational and strategic activities of the public sector organization (Boynton et al., 1994). Moreover, IT can provide cost reduction, management support, strategic planning, cost-reduction applications, management support, and, most importantly, outreach to constituencies such as citizens, policymakers, employees, and contractors.

Essentially, public administration and IT deal with the use of information systems to shape organizational change in government. Much of the literature on public administration and IT argues for the transformation of government through IT. This book focuses on how IT has influenced almost every functional area of public administration, with a specific focus on organizational change.

Theories of IT and Public Administration

Here we review the three common theories of public administration and IT. Each theory examines the impact of technology on social and organizational change.

Technological Determinism

One important driver of change in information systems is the theory of technology determinism (Volti, 1992; Smith and Marx, 1994). This implies that when a new technology appears it creates change and will be adopted by public administration.

For example, the automobile created suburbia, and the birth control pill produced a sexual revolution. Therefore, inventions sometimes are viewed as taking on a life of their own, causing dramatic social and economic change. For example, technology determinisms can be seen through the implementation of enterprise resource planning systems in government; these systems connect business functions such as human resources and purchasing. Many vendors and consultants stress the benefits of enterprise resource planning systems regardless of the organizational context (Grant et al., 2006). This is most exemplified in the statistics that vendors often quote, explaining the reduction in costs and increases in performance of the public sector organization as a result of enterprise resource planning implementation. This type of “selling” of the technology for the sake of changing the organization is known as the technology determinism theory.

Reinforcement Theory

Another theory of technology and social change is the reinforcement theory. This theory argues that administrators implement IT if it supports their view of the organization change (Sherrod, 1971). This theory comes from the political science literature that examines why voters seek out candidates with which they agree. Therefore, citizens choose candidates that have a similar position to them on the issues. The theory applies for the adoption of IT in the public sector; technology is adopted if it agrees with the view of the public manager on the future direction of the organization. For example, if the chief information officer, the highest IT executive in an organization, does not believe a new information system will work in the organization, he or she most likely will not adopt the system.

Sociotechnical Theory

The third and most important perspective from the point of this book is the sociotechnical perspective. This sociotechnical perspective argues that organizations are made up of people in the social system that use tools, techniques, and knowledge to shape the organizational change (Pasmore, 1988). The sociotechnical system states that technical change is influenced by the demands of the external environment that impacts information systems change in an organization. The sociotechnical perspective is the most commonly used theory in public administration to demonstrate the impact of technology on organizational change (Perry and Danziger, 1980; Norris and Moon, 2005). This perspective is unique and important for this book because it implies public managers need to know IT from both the technical perspective, understanding the technology that is being implemented, and the social perspective. The closing case study at the end of this chapter shows the impact of the change in baby boomer population and IT use as seen through the Social Security Administration.

Why Study IT in Public Administration?

We study public administration and IT for four important reasons: how it impacts trust in government, the sheer money spent on IT, the lack of performance of existing systems, and the increased demands on public managers.

Trust in Government

According to the Gallup Poll, we know that trust in all levels of government has fallen in recent years. This is even more pronounced as a result of the recession in the late 2000s in the United States, as Gallup has examined the trends in trust in federal and state government overtime (Jones, 2009). In 2009 trust in state government was at an all time low. The Gallup Poll asked the question, “How much trust and confidence do you have in the government of the state where you live when it comes to handling state problems.” The ratings for a great deal/fair amount of trust indicate that trust was down from 67% in 2004 to 51% in 2009. This decline in trust is due to the economic downturn during this time, which means there were budget cuts to state programs. This lack of trust influences citizens and their confidence in their government. It is important for elected officials to increase trust in government to provide confidence in governing institutions. IT is one way to make the public sector more responsive to citizens, by being able to deliver services faster and more efficiently. In addition, IT can be used to create more open and transparent government because information on governments can be made freely available and easily posted online.

Money Spent on IT and Public Administration

Another reason we study IT and public administration is the sheer amount of money spent on IT projects. President Barack Obama’s budget for fiscal year 2011 requested \$79.4 billion in spending on IT projects, which is a 1.2% increase from what was proposed in the fiscal 2010 budget (Bain et al., 2010). The Obama Administration proposed an increase in the number of IT projects in this budget. For example, for fiscal year 2010, 781 IT projects worth \$40.3 billion were proposed. For fiscal year 2011 the Obama Administration proposed 809 major IT projects worth \$40.4 billion. With this modest increase, Obama plans on increasing money to IT efforts that promote more open government and technology modernization for fiscal year 2011. For example, one budget request calls for launching a new tracking tool with daily updates that would allow the public to see aggregate spending by agency and geographical area. The hope of this is to allow the public greater understanding of how government works and make more responsible spending decisions. In addition, the Obama Administration proposed a new outcome-focused metric for information security performance for agencies to be in compliance with the Federal Information Security Management Act.

Historically, a number of IT projects and their associated budgets appear on the Office of Management and Budget's Management Watch List (U.S. Government Accountability Office, 2010). The number of projects on the Management Watch List increased by 239 projects and was \$13 billion for fiscal year 2009; this represents a significant portion of the budget. To improve transparency into the oversight of IT investment in June 2009, the Office of Management and Budget deployed a website known as the IT Dashboard (<http://it.usaspending.gov>), which replaced the Management Watch List. The data displayed in the IT Dashboard are intended to provide a real-time perspective on the performance of these investments, as well as a historical perspective. Therefore, given the magnitude of spending on IT projects and the scope of its impact on government, it is essential to study public administration and IT.

Lack of Performance of Systems

There has been tremendous growth in spending on IT investments in public sector organizations, but what is the impact of this growth in spending on the relative performance of public sector organizations (Lee and Perry, 2002)? Investing in IT can help the public sector improve the efficiency of internal operations through automation. IT can also improve the quality of existing public services, creating new types of services that were not previously available. The improvement in government performance overall is one of the perceived net benefits of IT spending. Empirical results indicate a connection, at the state government level, between IT investment of the state and an increase in its economic performance. With American society increasingly focused on performance of its government, IT is one method of enhancing overall public sector performance.

Increased Demands by Public Sector Managers for IT

The final reason to study public administration and IT is the increased demands placed on public sector workers for results. To meet these demands, government needs to use IT to translate goals into outcomes. Therefore, public managers must be cognizant of the impact of IT on their organization. For example, the National Association of Schools of Public Affairs and Administration recognizes the need of public affairs programs to provide knowledge of IT to master's students. There is no doubt that knowledge of IT is important to be an effective manager, and this book discusses its importance for public sector organizations.

Differences Between Public and Private Sectors

There are unique differences between the public and private sectors, as noted in the literature, and this explains why it is important to study public administration and IT (Rainey and Bozeman, 2000). First, public sector agencies typically have

more concerns and issues than their private sector counterparts. Therefore, their goals are usually more complex and ambiguous than business firms. Public sector agencies typically have vague, hard-to-measure, multiple, and even conflicting goals with which they must contend. This is usually a product of the lack of profit indicators and incentives for the public sector due to political oversight and multiple interests that need to authorize programs. Second, public sector agencies typically have more formalization, such as excessive rules and procedures that need to be enforced, which is called “red tape.” Public agencies, therefore, are usually associated with an excessive amount of rules or red tape that may impede its performance. A third difference between the public and private sectors is that public agencies have more formalized personnel procedures, purchases processes, and other administrative tasks that are regulated by central administrative agencies. There is typically more external oversight of public agencies for personnel and purchasing decisions. Fourth, most studies of work-related satisfaction indicate a lower rating in the public sector than in the private sector, especially at the management levels. This poses a challenge for recruiting and retaining of top workers for the public sector agencies.

Financially, public organizations are funded by government, and private organizations are those owned and funded through sales or private donations (Perry and Rainey, 1988). Organizations that overlap represent mixed types of government corporations such as public utilities and government contractors. The degree of external control by major institutions, such as political authorities and economic markets, is a significant distinction between the two sectors. Ownership of sources of funding reflects a degree of control, and public agencies have a greater degree of institutional control than their private sector counterparts. Privately owned and funded organizations are more likely to be influenced by economic markets.

In addition to these general differences, there are four important distinctions in which public organizations are different from the private sector in regards to public management (Boyne, 2002). These distinctions that public managers face provide challenges for adopting and promoting IT projects in their agencies.

Public Agency and Organizational Environments

As discussed, there is greater complexity in public agencies because of the many stakeholders with which they must contend. Public agencies are also more permeable, meaning they are open systems that can be easily influenced by external events; this poses unique challenges for public managers. Public agencies also are instable, meaning they have political constraints and there is consistent pressure to achieve quick results because of election cycles. Finally, public agencies also face the absence of competitive pressures. Public agencies normally have few rivals, and when there is competition, government frequently enjoys a dominant position. As a

result, public managers face a unique and constrained operating environment that they must contend with.

Public Agency and Organizational Goals

Public managers face multiple goals imposed upon them with numerous stakeholders to satisfy. Private organizations pursue a single goal of generating a greater profit, whereas public agencies get pushed and pulled in many directions. In addition, the presence of multiple and sometimes vague goals is a challenge for public sector managers. As a result of this goal ambiguity, it is difficult to know if results are being achieved over the short and long run.

Public Agency and Organizational Structures

The internal characteristics of public agencies, such as more bureaucracy, more red tape, and low managerial autonomy, provide unique challenges for public managers. Public organizations normally have more formal procedures for decision making and less flexibility and are more risk averse than their private sector counterparts. As discussed, public agencies typically have more red tape, which can provide an unnecessary and counterproductive obsession with rules rather than achieving results. Finally, public agencies have lower managerial autonomy, which means public managers have less freedom to react and see fit the circumstances they face.

Public and Managerial Values

Staff attitudes toward work have an influence on public managers' ability to lead and manage. Public managers are believed to be less materialistic than their private sector counterparts and less likely to be motivated by financial rewards. Second, public managers have a greater desire to serve the public and promote the public interest. Finally, there is a lower organizational commitment in the public sector largely because of the inflexible personnel rules and weak link to performance and pay.

Of all the distinctions between the public and private sectors, one that has very serious implications for management is the differences in views of risk between the sectors. There is a familiar view that public sector managers are risk averse, in that they are unwilling to take a chance on something new and different for their organization, compared with their private sector counterparts. According to research, several factors lead to taking more risk in public sector organizations (Bozeman and Kingsley, 1998). First, public managers who trust their employees are likely to have employees who will take calculated risks. Second, if the goals of the public organization are known and stable, people will take risks. Third, red tape undercuts risk because this detracts from managers being entrepreneurial and endorses change. All these differences in the public and private sectors overall translate into important issues for public managers to understand.

Framework for Understanding IT and Public Administration

This book covers three dimensions of IT and public administration examining the external environment, the internal environment, and the major issues that public organizations face (**Figure 1-1**). As discussed, the overriding theory we use to explain public administration and IT is the sociotechnical perspective. Each theme is briefly introduced. All three areas are interrelated; what happens to one area has an impact on another area. These areas are one way of thinking about IT and public administration; they are examined in turn and are the focused discussion of this book.

External Environment

As mentioned, public sector organizations have many diverse interests with which to contend. The external environment can be divided into three factors that influence IT and public administration. The literature on IT and public administration has long argued for the importance of examining the external environment; because change does not merely happen internally within government, many external influences drive IT adoption (Bretschneider, 1990).

First, there is democracy and its influence on IT and public administration. The Internet and other information and communication technologies (ICTs) have influenced the way democracies function. For instance, the Internet can be used as a medium for political candidates running for office to reach a broad audience. They can also target specific individuals they might want to get donations or support from for their election campaign. In addition, the general election in the United States in 2008 was heavily influenced by ICT as seen through a record number of donations to the then presidential candidate Barack Obama. It was also used as a source for

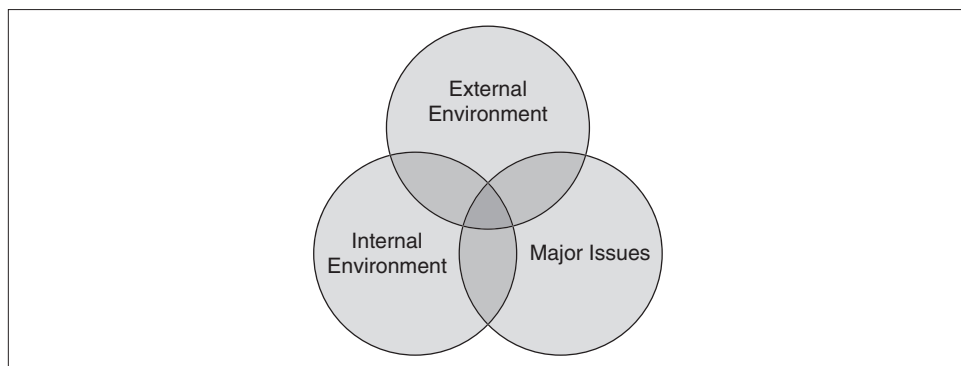


Figure 1-1 *Public Administration and IT Through the Sociotechnical Perspective*

online information on candidates through new social media such as Facebook and Twitter. Indeed, the ways elections are conducted today have been greatly influenced by ICT even in the way citizens vote in the United States at polling places. Some of the most important issues and challenges of e-democracy are discussed in this book.

Another external environmental influence is the participation of citizens in the political and policymaking process. ICT has enabled citizens to participate in their government much more easily as a result of advances in this technology. For instance, before the Internet, proposed policies would be distributed in paper form, which of course is expensive and time consuming to deliver. With ICT, governments can display and customize information for citizens, creating a more transparent government. The policymaking cycle has changed as a result of ICT, where citizens can mobilize support for or against a new government policy because of new social media such as blogs.

The final area of the external environment is e-governance. E-governance is the impact of ICTs on the delivery of services to citizens by their government. E-governance focuses more on how IT impacts change, not just within the organization but externally both politically and institutionally. With advances in ICT, public service delivery has fundamentally changed. It is possible for a government to provide information or a service to its residents through the Internet. This can range from simple things such as looking up a city council's agenda online, to more advanced functions such as renewing a vehicle registration online. E-governance is supposed to create more transparent government and is said, by some researchers, to increase trust and confidence in their governing institutions. E-governance can be driven externally by the interests of citizens and their needs. The second part of this book examines the internal environment of IT and public administration with a focus on leadership and management, e-government, and enterprise architecture.

Internal Environment

Unlike the external environment where change is driven by external stimuli, the internal environment examines change from within public sector organizations. The first area covered is leadership and management and its impact on IT and public administration. We often hear there is a lack of leaders in public sector organizations. Leaders are critical for these organizations because they can move and change them in a defined direction. This book argues that successful IT adoption in public organizations occurs when leaders support the importance of IT to organizational success. Leaders need to provide the vision of where IT fits into the mission of their organization. Management also plays a critical role, because management is responsible for making sure IT projects are properly implemented and produce results. Effective management, according to the literature, is a critical catalyst for the development of IT in public administration.

A second internal environment stimulus is that of e-government and organizational change. Unlike e-governance, e-government deals specifically with the application

of IT to public sector organizations. The focus on e-government is more on change within the organization. The e-government literature examines best practices and how this technology transforms organizations. E-government through ICT is said to change the internal structures of government by creating more efficient and effective organizations. Compared to e-governance, e-government deals more with the “nuts and bolts” of ICT application in the public sector. Examples of e-government are the implementation of an information system within a department that can communicate across different departments and share information. The literature on e-government has some scholars arguing it will transform the organization, and it has others arguing it will produce more incremental change.

The third internal environmental influence is enterprise architecture, or the use of IT to map the business processes of the organization. For IT to be integrated holistically with the organization, there needs to be a blueprint mapping out all its functions and how technology fits into these functional arrangements. The U.S. federal government, one of the largest purchasers of IT in the world, is a strong advocate for enterprise architecture because they want new information systems to work in conjunction with the mission of the department or agency. Enterprise architecture is a way to integrate information systems into the mission of the organization, and it is discussed in this book.

Major Issues

Any introductory book on IT and public administration cannot cover all the major issues public organizations face. This book has a selection of what I believe are some of the most important present and future issues to consider for this important topic. First, there is a discussion of e-procurement, e-commerce, and online financial reporting. All three areas involve the use of public resources to provide information or purchase goods to fulfill a service request. E-procurement is the use of ICTs to impact the purchasing function in public organizations. This can range from online ordering systems to the removal of paper-based procurement with electronic processing and digital signatures. E-commerce is using ICT for citizens to complete a transaction online. Unlike e-government, e-commerce involves a transaction or payment of money for a public service. An example of e-commerce is paying for a public utility bill online or registering a car over the Internet. Finally, online financial reporting is the use of the Internet to post information about the financial status of government online. This can take the form of a city’s audited financial statements or annual budget being posted on the Web.

The second major issue covered in this book is human resource information systems in public sector organizations. As the result of ICT, the human resources function has been greatly influenced. Some common examples are through the recruitment process, where job advertisement can now be immediately posted online. Employees can look up their benefit plans online or change their plans during the

annual enrollment period. Human resource information systems can be used to create databases on employees or to look at trends in employment that might be of value to the government. Essentially, IT in the human resources department has created a virtual department that is explored in this book.

The third and final major issue covered is perhaps the most important for public sector organizations, that of privacy and security of IT. Because we are in a networked and interconnected world, there is great value of knowing the personal information of individuals. For example, if politicians know the profile of a likely voter they can more effectively target that voter in campaign advertisements. Or if a government knows what information and services citizens want, they can better provide these services if they can collect personally identifiable information online. The issue becomes what is being done with personal information, because at the time of collecting the information the individual may not know exactly what it is being used for. Information security is another important issue related to privacy, examining what protections are in place to secure information systems of public organizations. Both privacy and information security are critical issues as governments move forward adopting IT in their public agencies.

Summary

This introductory chapter for *Public Administration and Information Technology* sets the context of the book and provides a framework for thinking about IT and public administration. This book uses the sociotechnical perspective because of its heavy influence on the field, in which readers need to understand both the social and technological aspects of IT to understand its influence on organizational change. There are three parts to the book examining the external environment, internal environment, and major issues in the field. Each part is important to know because of the unique way public organizations are influenced by environmental pressures. One needs to appreciate the unique context of IT in public sector organizations and how it is different from the private sector, and this book addresses this important issue. The purpose of the book is to provide a broad overview of the theories and major issues in this important and growing area of public administration.

Discussion Questions

1. What are the three main theories of public administration and IT? What theory is the most useful?
2. Why study public administration and IT?
3. What are the most important differences between the public and private sectors and how do they frame the study of public administration and information technology?

Closing Case Study

SSA and New Baby Boomer Claims

The Social Security Administration (SSA) has increased its use of electronic transactions, expanding by 50% from fiscal year 2008 to 2009 (Jackson, 2010). The SSA is struggling to keep up with demand, despite a record number of staff increases, and so is increasingly relying on automated services to meet this demand. Three important factors have influenced increased demand for SSA services: a retiring baby boomer population, an aging workforce, and the worst economic crisis in the late 2000s since the Great Depression. This problem is especially acute as baby boomers reach their retirement and disability-prone years in tough economic times.

For fiscal year 2010, the SSA estimated it would receive over 375,000 more retirement, auxiliary, and survivors' claims and over 730,000 more disability claims than were estimated only 2 years before. SSA estimates that over the next 10 years it will see a 14% increase in claims for Old Age and Survivors Insurance, Disability Insurance, and Supplemental Security Income, rising from a combined total of 9.4 million claims in fiscal year 2008 to 10.7 million in 2017.

Budgets and staffing have not kept pace with these increases. SSA has responded to these pressures with a number of strategies, including increased use of online, telephone, and video services; load balancing by shifting work between offices; and deferring less essential jobs. However, key among these strategies are online services. Online services make sense because the public is increasingly demanding them when they conduct business, without having to wait on the phone on hold or take leave from work to travel to an office and wait to meet in person with an agency representative. In addition to being convenient for the public, this approach also reduces the average time spent by employees processing claims. The SSA reported that in fiscal years 2008 and 2009 the total number of electronic transactions jumped from 4 million to 6.1 million. Electronic filings for retirement benefits went from about 400,000 to 833,000 during that period and now account for nearly one-third of total retirement applications being filed. Online filings now account for 83% of total retirement claims growth.

Even though the SSA did not market the option to file for disability benefits online when it launched iClaim, online disability applications have also increased from less than 10% just a few years ago to nearly 25%. SSA launched an improved version of iClaim in December 2008 and saw an immediate increase in the number of retirement applications filed online. In fiscal year 2009, more than 30% of retirement applications were filed online, nearly twice as many as in the prior year.