



**A STUDY OF TECHNOLOGY USE IN GHANAIAN LAW
FIRMS**

AMDA WIREDUA KWAPONG

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FIRMS

By

AMDA WIREDUA KWAPONG



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DECLARATION

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature:.....

Candidate's Name:.....

Date:.....

I hereby declare that the preparation and presentation of the thesis was supervised in accordance with the guidelines on supervision of thesis laid down by Ashesi University College.

Supervisor's Signature:.....

Supervisor's Name:.....

Date:.....

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ABSTRACT

The Ghanaian legal system is gradually developing and incorporating technology in its operations and the delivery of legal services. Technology in the form of hardware and software is transforming the legal system in efficiency and structural changes. This thesis presents a study on the impact of technology uptake in Ghanaian law firms. It also presents recommendations on the use of technology in Ghanaian law firms and in the legal system in general.

Keywords: Computer assisted legal research, digital, technology, information intensive, internet, retrieval, research, legal research, search, "storage"

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CHAPTER 1

1.1 Introduction

Technology is used in industries all over the world and its emergence has enabled firms and industries to become resourceful and technologically equipped in their delivery of services and operations. Technology has contributed immensely to the growth of both large scale and small scale firms. It has gradually made the day-to-day operations in industries such as manufacturing, banking, and telecommunication industries much easier. The increasing role and impact of technology in these industries have contributed to strategy formulation, data storage, research & development and above all innovation (Powell & Dent - Micallef, 1997). There are several devices that contribute to the advancement of technology and these include laptops, phones, mobile phones, desktops computers, tablets and servers. These technological devices work with applications such as cloud computing, emailing systems, filing systems and database storage systems.

1.1.2 Background to Legal System in Ghana

The Ghanaian society is gradually advancing in technology and the legal system law is progressively developing with it. The legal processes include activities of lawyers such as meeting clients and performing transactions and arbitrations. There are changes in these activities and these changes can be attributed to the developments in technology, banking, oil & gas, real estate, telecommunication, agriculture and aviation industries. Due to

their increasingly demanding activities, a new crop of lawyers, who specialize in narrow sectors of the legal system in Ghana such as oil and gas law, family law and intellectual property, has been spawned. The legal system in Ghana is embracing technology and this is very encouraging. The importance of technology uptake and the use of hardware and cannot be undermined.

The introduction of both new hardware and accompanying software in law offices in Ghana and around the world is contributing to the transformation of office structures and daily operations of law firms. Technology's transformation is of great benefit and these benefits include reduced research time, improved accuracy of research, time tracking and billing, saving and storing of electronic files, communication with clients, finding and retrieving precedents, preparing invoices, keeping track of work/projects and keeping track of incoming, outgoing and outstanding payments.

1.2 Significance

As part of my dream to pursue a legal profession combined with my Management Information Systems background, I deem this research a very significant contribution to my career. This thesis will help me research and explore the legal system in Ghana and find out the forms of technology that will be applicable in this research.

As part of the research, recommendations will be made on the importance and usage of technology in the legal system in Ghana. These recommendations, I believe can be adopted by the Ghanaian Legal

System and gradually by other African states. This will significantly contribute to the development of the legal system in Ghana and Africa at large.

The paramount significance is that, it will give me an opportunity to contribute to the legal system in Ghana. This thesis will go a long way to augment information for anyone who will research on a similar topic, and I believe that it will spring up a lot of research on technology and law in Ghana and Africa as a whole.

1.3 Motivation

My internship experience at Oxford & Beaumont Solicitors, a private law firm in Accra during the summer of 2012 gave me insight into the practice of law in Ghana. This law firm is one of the leading corporate law firms in both Ghana and London (Solicitors, 2011). This experience, coupled with my dream to become a lawyer motivated me to undertake this research. The significant drive of this thesis is the exposure that I will get pertaining to the Ghanaian legal system and also the networks and relationships I will build in the course of my data collection for this thesis.

My internship at this law firm, gave me an opportunity to study how this law firm operates and how law is practiced in Ghana. By observation, I realized that research for cases is done through law books, law reports, journals and on the internet. Etornam Adoboe, a lawyer at Oxford & Beaumont Solicitors, says that "*law is a continuous research and learning process and that is the tradition of the profession.*"

In my computer science studies, specifically learning about Databases and Web Technology I realized many of the things I was learning about could be applied to the operations of a law firm. Hence, I decided to pursue this research topic to investigate the current state of technology use in Ghanaian law firms.

1.4 Objectives of the Study

The main question this research is addressing is: **“What is the impact of technology uptake in the Ghanaian law firms?”** In the process of answering this question, I aim to explore the state of the use of technology in law firms in Ghana, as well as potential future trajectories.

The specific objectives of this study are as follows:

- ❖ How hardware, desktops, tablets and mobile phones impact the delivery of legal service in law firms.
- ❖ How software impact the delivery of legal services in Ghanaian law firms.
- ❖ To explore the significance of technology in Ghanaian law firms.
- ❖ To provide a set of recommendations for the introduction and use of technology in Ghanaian law firms.

1.5 Research Problem

Research has examined how technology has transformed law offices such as *Clifford Chance* in the United Kingdom, *Linklaters* in Canada as well as

other law firms¹. The law sector in Ghana is diversifying therefore technological innovation in the legal system is very much needed. The traditional method of legal research is characterized by; looking through big old dusty books, flipping through pages of law reports and sitting up late to retrieve information from old files. This method is still used by lawyers in Ghana, and this slows down preparation for court cases and drafting of agreements.

The use of technology in the delivery of legal services varies from country to country and firm to firm. From observation, personal experience working in a law firm and preliminary discussions with a group of lawyers, this thesis seeks to answer the question: **“What is impact of technology uptake in Ghanaian laws?”** and determine whether this is the case for Ghana.

1.6 Scope and Limitations

In a bid to answer this research question, this thesis focuses on the legal profession, specifically law firms in Ghana. I acknowledge the role of the courts and police in the legal processes and legal system in the country, but, I decided to focus on medium, small and large law firms in Ghana. These law firms were chosen because they form an aspect of the Ghanaian legal system and also they reflect the totality of the legal system. This is because the firms work with the courts and the police as well. The accessibility of these firms also contributed to them being

¹ <http://www.linklaters.com/pages/index.aspx>
<http://www.cliffordchance.com/home.html>

chosen for this thesis. Law firms do research using their law libraries, sort out legal procedures, and carry out legal transactions and other legal practices. Additionally, the focus on law firms was because the operations of law firms may have direct influence on lawyers. As part of the scope, lawyers from these law firms will be interviewed as well. Generally, I had easy access to the law firms. Moreover, law firms are of particular interest to me since I plan on going to law school. Law firms might have come further with the introduction of technology since they are private as opposed to larger and slower moving institutions such as the courts and the police

1.7 Outline of Thesis

❖ Chapter 2: Literature Review

The literature review for this thesis identifies how the legal sectors in other countries have applied technology in their legal systems and how it has affected legal services. This chapter also outlines the benefits as well as limitations of technology-based legal practice.

❖ Chapter 3: Methodology

This chapter describes the kind of study this research is, and how data was collected and analyzed. It also focuses on the research design and the methods that will be used for data analysis.

❖ Chapter 4: Research Findings and Analysis

This chapter presents the findings and results of the research project.

❖ Chapter 5: Recommendations and Conclusions

This chapter summarizes the thesis and provides recommendations as well.

CHAPTER 2

2.1 Introduction

This review seeks to explore studies by lawyers and other people who have knowledge about technology, legal system and the import of technology in the legal system. "Technology" as used in this chapter refers to software applications and hardware such as laptops, phones and tablets. Technological innovations are becoming prevalent in law firms, legal departments and the legal profession is gradually exploring how technology uptake will affect their work hence this analysis.

2.1.1 Introduction of technology in the legal system

By 1960 lawyers in the United States of America were burdened with the amount of information that they were working with in accomplishing their work. Books, journals archives were searched and stuff was stored sub optimally, finding stuff was hard and time consuming. Professor John Harty, a professor at University of Pittsburgh and a group of students, recorded all the Supreme Court cases on a tape. With this, Harty was able to search for requests made within a day. This made legal research, and subsequently the delivery of legal services faster and easier. Harty used this as a platform to show that the computer was a great tool for legal research (Harrington, 1985).

Via the Ohio Legal Center Institute, *computer assisted legal research* was introduced to lawyers in Ohio. The solution developed here gradually became a desktop and online application called *Lexis and Westlaw*,

respectively. Lexis was formally introduced in 1973 as a commercial, full text, electronic database for attorneys in Ohio and New York (Hellyer, 2005). Westlaw, also legal software was introduced around the same time as Lexis, but it turned out to be unreliable. Westlaw progressively improved and by 1982 both Lexis and Westlaw had a database of legal authorities for the courts in the United States of America (Hellyer, 2005).

2.1.2 General impact of the internet on the market.

The internet has transformed markets and this has had an effect on the global economy. In the banking industry for instance, the internet allows various online services for clients all over the world. Howe, a senior partner of Davies Howe Partners, a Toronto based law firm discusses that the uniqueness of the internet is attributed to the fact that data is available and can be accessed by anyone, anywhere (Howe, 2003). It is a fact that the internet has enhanced communication and it reduces communication cost over different mediums (Howe, 2003). This can be attributed to the uniqueness of the internet which makes it possible for all forms of media such as the television, radio, telephone and online content to be available everywhere. It is noteworthy that the internet has the ability to connect people all over the world and Howe uses "*Cyber Reach*" as a term to describe this connectivity which allows constant global communication (Howe, 2003).

The Internet has also impacted the practice of law because legal practice is being altered by technology uptake. Stephanie Kimbro, the author of *Virtual Law Practice: How to Deliver Legal Services Online* and a lawyer by

profession confirms this with her stance that the professional lives of lawyers are influenced by the internet. This influence can for example be seen in the use of the online medium for the delivery of legal services. Lawyers are also able to stay in touch with their colleagues and clients online. She reiterates this point by saying that the internet is growing and its influence will continue to impact lawyers, clients, and the business of law (Kimbrow, 2010). Practicing law at the rate of technology developments has interesting and stimulating effects, and this review therefore seeks to delve into the impact of technology on the practice of law.

2.2 Legal Research

The introduction of technology is gradually influencing legal research. Traditionally, legal research was generally characterized by paper and big law books. The fundamental activities in the legal profession include gathering, managing and presenting information. Schnell, an associate at Wilson Sosini Goodrich & Rosati in Palo Alto made this comment about the changes that technology has introduced into the legal system and its practice.

"When the first personal computer appeared in a law office, the practice of law underwent a profound change." (Schnell, 2004)

Schnell's view of change is attributed to when the computer was introduced into the law firms. The computer was used for research and keeping files. This was profound according to Schnell because of the things the computer was used for.

In the book "*Educating the Digital Lawyer*", Donnelly, the director of educational technology and lecturer in law at the Columbia Law School, discusses the impact of technology in the legal profession. He used the concept *digital lawyer*, as a lawyer who will focus on the *informational component* of the delivery of legal services which includes gathering, managing and presenting data. A digital lawyer is not only concerned with technologies; he or she also considers the manner in which that form of technology affects their work. He described the *conventional lawyer* as one who focuses on the informational component, but not on the technological component the delivery of legal services involving the use of computers and technology. Donnelly maintains that the fundamental activities mentioned above need technology to function effectively (Donnelly, 2012).

To buttress Donnelly's point, Kimbro, director of the North Carolina branch of Burton Law, LLC talks about virtual law and the delivery of online legal services. Kimbro elaborates on the impact of technology in communication. She says that virtual law practice in general exists online through a secure portal and there is accessibility between the client and the attorney (Kimbro, 2010). Virtual law practice is also characterized by cloud services, communication between a lawyer and client and access to internet. She describes the use of a client portal where clients and attorneys have a platform to communicate and discuss matters online. This allows documents to be uploaded for review, creation of legal documents, and handling of business transactions related to the delivery of legal services in a technological environment (Kimbro, 2010). These

studies show that technology has influenced the legal profession. Technology is not taking over the work of lawyers, but is assisting lawyers in different ways.

2.2.1 Computer Assisted Legal Research

On the argument of legal research, Harrington, an attorney in Connecticut made a distinction between *computer-assisted legal research* on one hand and *computerized research* on the other. In his opinion, computerized research is the situation when the computer takes over the whole legal research process without the help of a lawyer. Whereas *computer-assisted legal research*, the computer will be a tool for the lawyer (Harrington, 1985). Between computer-assisted legal research and computerized research, you can do better than just managing information.

2.3 Conventional Legal Research vs. Computer Assisted Legal Research

Conventional legal services, involving manual and paper-based research is gradually moving from paper based to digital. Law is information intensive and research is the fundamental building block of the legal profession. Sproull & Keisler describes computer-assisted legal research as first level effects which have resulted in a change in the structure of delivery of legal services. An example is a Truarig a law firm in Greenberg is reconfiguring their office to use less square footage and reducing size of law libraries. The Managing Partner of Truarig says that "*Reducing physical space is one major way of configuring our physical space. Since information is available*

electronically instantaneously, wherever our attorneys are we don't need to denote two floors to printed volumes" (Robert Half Legal, 2013).

Haigh, a senior partner at Haigh Lyon in New Zealand also makes a similar point. He is saying that the computer searching is not just a tool for efficiency, but computers have changed the structure of the system and has helped build the skills of lawyers (Haigh, 1997). Throwing more light on the issues discussed above, Trosow an Associate Professor at University of Western Ontario, Faculty of Law does an analysis of the effects of technology on legal delivery. Below are the levels of technology in the legal system according to Trosow (Trosow, 2004).

- ❖ First level effect: Technology brings about efficiency. The delivery of legal services has been improved because of the introduction of technology in the legal system.
- ❖ Second level effect: Methodological problems in legal research are being solved hence interactions between information technologies and lawyers have been improved. A typical example is the use of emails which enhance communication. The processes involved in legal research have been stratified hence making research easier. Examples include software that is used to search for cases and law reports.
- ❖ Third level effect: This level is characterized with structural changes which has affected the whole legal profession. Law firms especially have structured their office operations such that technology has a great influence on all the office operations. An example is employing technologies and internet connection with servers and other networking gadgets.

The legal profession is characterized by law reports, cases, precedents and constant research. Trosow supports by saying that law is *information-intensive*. His argument is based on the premise that data is very prevalent in legal practice. A lawyer may have to deal with a lot a lot of information concerning a particular case. With due diligence, a lawyer will have to look for information to get enough facts to support a case. The legal profession will be non-existent if all data was lost.

Trosow maintains his argument that technology has offered more than efficiency in the legal system. He stresses that technology has changed the structure of legal research and the enterprise as a whole. The legal profession is characterized by manual paper research, but because of the introduction of technology research can be done manually or computer assisted. In addition, Marcus, a Professor who holds the Horace Coil Chair in Litigation at University of California stresses that from the time of the introduction of computers until the twenty-first century, technological change has significantly altered how lawyers work and to a large extent what they do (Marcus, 2008).

Some of the changes that Marcus highlights are evident in the following roles of technology in the legal system. These categories Marcus developed to some extent explain how technology has influenced the legal system. This has changed the legal practice in the delivery of legal services but it has not changed to profession in totality.

- ❖ Connecting and networking through social media.

- ❖ Software services such as Law Finder and Law Guru
- ❖ Cloud-based services such as Google docs, Ever note and Dropbox.
- ❖ Case management and client management in the cloud are secured.

Aside the benefits that Trosow talks about, Palfrey, Professor of Law & Vice Dean of Library and Information Resources at Harvard Law School Library disagrees by saying that the law discipline has a constant challenge of dealing with data because data keeps coming in. He continues by saying that technology will not be able to overtake the legal data and research. He proposes a hybrid legal system where print and digital materials relating to the law are used (Palfrey, 2010). This can be attributed to the fact that certain documents and processes lend themselves being digitalized more easily than others.

2.4 Transformation of the Legal Profession

Changes and improvement in technology differentiate the present generation of legal practice from that of earlier generations. The earlier generation of legal practice was conservative in the sense that it was 100% paper based. However, the present generation of legal practice is gradually moving from paper-based to computer-based. This has been made possible partially because of the internet. Currently, legal practice is more demanding and there is constant access to legal information. There is constant access to both paper and online sources but, the problem is finding the right information for a case. Constant access of legal information is made available through the internet with law sites such as law guru, LexisNexis, Westlaw, law finder and e-court systems.

"Initially, we faced strong resistance from the legal profession. It was understandable that there will be resistance from the ground, especially since most members of the bench and the bar were brought up and worked in a setting in which paper was part of our everyday lives. It is generally acknowledged that the system has transformed the litigation landscape from one likened to a paper mountain into an electronic super-highway." (Carlson, 2002)

In the past law was practiced solely with hard copies of information. The legal profession was characterized by paper and Carlson refers to that as the *paper mountain*. The introduction of technology in recent times has rendered the use of technology very important to the legal profession and Carlson calls this an *electronic super-highway*. Currently the use of Ipads, laptops, telephones and desktop has enhanced the profession. Lawyers mostly do everything online by emails, conference calls and video conferencing.

Palfrey is of the opinion that legal practice will move totally from paper to the computer. He describes this as a *digital plus* outlook, in which print and analog formats of legal information will not disappear. He believes that paper-based formats facilitate access to legal information and it remains dismal because print will continually play a vital role in the preservation of legal materials (Palfrey, 2010). Technology may therefore be a backup in the cloud for all the print materials of legal information just in case of any mishap. His definition of *digital plus* is making legal information available on blogs, visual images, sound recordings and web sites in order to make it available to everyone. In my opinion Palfrey's

digital plus does not fit the definition because the word *plus* gives a notion that legal information will be exclusively digitalized and available to everyone.

However, data can be protected with cloud computing, however hardware such as computers and phones are more likely to go missing or even get stolen.

2.5 Legal software applications.

Numerous software applications have been developed to support the legal profession in diverse ways. This section outlines various legal applications. The applications have been organized as web-based applications, offline applications and mobile applications. These applications can be used by lawyers, clients as well as lay people. See Table 1 below for an overview of some legal applications.

Table 1: Summary of legal applications, its users and usage

Application	Usage	Users	Classification
Document Management System	This system is used to document cases, memos and reports. Keeps records of people who have worked on a file. Saves file and helps retrieval of precedents and tells who worked on a file	Lawyers, Paralegals	Offline application
Lawman	Helps the legal practitioner to register a case. The legal practitioner can modify a case The application allows the legal practitioner to store Interim details, Opponent details and Related Documents.	Lawyers, Paralegals	Web based application
Legal Aid	Calculation of billable hours of a lawyer. Keeps track of the last	Lawyers, judges and paralegals	Web based application

	project that was worked on. Finance department is able to convert billable hours into invoices.		
LexisNexis	Legal professionals, students and professors use this for legal search	Lawyers, paralegals and law students	Web based application
Practical Law	Online know-how services that are made for front-line busy lawyers E-mail updates with analysis and commentary A comprehensive bank of practice notes Standard documents, letters and drafting notes	Lawyers, judges and paralegals	Web based and desktop application
Only Law Site	Free online legal advice Free legal documents	Clients, lawyers, paralegals and law students	Web based application
JuryStar	This mobile application assists attorneys with jury selection and observation. The application may be used to store notes concerning jurors The application features a number of emoticons that can be selected to describe juror activity	Lawyers, paralegals and judges	Mobile application
JuryDuty	This application has the ability to create customized seating charts for particular courtrooms, record impressions of potential jurors.	Courts and judges	Mobile and web based application
Oral Argument	This application is intended to provide convenient access to case materials to be used in the course of oral argument in court	Courts, law students and lawyers	Mobile and web based application
My Legal Projects	This application helps associates organize task lists and set up deadline reminders for legal research assignments. The application assists the recording of key information about a project, such as jurisdiction, key terms and leading cases.	Lawyers and paralegals	Mobile, online and desktop application

Adapted from Hugh and Hazel Darling law library

The table above shows some of the legal applications that are available for lawyers, clients, layperson, paralegals and the courts. The table reflects the use of legal applications and how technology has been incorporated in the legal system in different ways through the internet, mobile phones and software applications. These forms of technology have enhanced legal practices. (Hugh & Hazel Darling law library, 2013).

2.6 Advantages and Disadvantages of Legal Research

2.6.1 Advantages of Legal Research

The tradition of establishing lawyer-client relationship was made by word of mouth; however technology has altered the legal profession (Marcus, 2008). Zorza's is of the view that internet has transformed delivery of legal services. Online services has enabled clients to represent themselves and Zorza describes them as online tools which includes artificial intelligence-assisted, decision making, and support for electronic filing. He confirms that these online tools are commendable and this makes clients less dependent on lawyers.

Zorza emphasizes that these online systems have attracted a large number of people to legal services, in the sense that lay users can have access to legal information. He highlights that it is a good thing that people can find lawyers online. (Zorza, 2001).

Harrington makes an assertion based on personal experience that working with computerized legal research allows lawyers to research more

efficiently and economically. He also says that browsing for materials online is many times faster because it is displayed on a screen and this makes it better than pulling books from shelves and having to go through pages to research. He also says that the computer is a significant tool in the practice of law and it is beneficial to the lawyer and the clients as well (Harrington, 1985).

With regards to the efficient and economical research, Dennis Kennedy, information technology lawyer and legal technology author states that

"The best approach law firms can take is to ask clients what will help them most and then base a substantial part of their technology strategy on client – focused relationships".

I completely agree with Kennedy because the main focus of a business should be satisfying the client and in the legal profession for instance, clients, I must say clients are the source of business for lawyers. Therefore it is very necessary to pay attention to them.

As technology is changing law office operations and court operations are also changing. Marcus illustrates that word processing is important to courts, but electronic filing of cases are the major developments in court operations. Electronic filing is being used effectively in United States Federal Courts, Canadian Courts, Nigerian Courts, Indian Courts and Ghanaian Courts. Millions of cases are filed electronically over the internet (Marcus, 2008).

India for instance recently launched an e- court paying system and the main aim of the system is to allow litigants to buy stamp papers - used to file court cases-online instead of having to physically stand in queue to do so (Yap, 2012). In January 2011, the Nigerian Federal Capital Territory introduced an E-Court system which makes it possible for litigants outside Nigeria to file and monitor the progress of their cases via the internet (Nnochiri, 2011).

Sproull, Professor Emerita at the Stern School of Business and Kiesler A. Hillman, Professor of Computer Science and Human Computer Interaction at Carnegie Mellon University claims that information technology has brought about efficiency in the legal profession. They backed their claim by saying that particular legal processes are done with greater speed and less effort while achieving better results (Sproull & Kiesler, 1991).

Alvarez on the other hand is arguing that technology makes lawyers more responsive to clients.

"Technology has created the impression that lawyers will be responsive to clients always"

Caesar L. Alvarez, Executive chairman, Greeberg Trainig LLP.

2.6.2 Disadvantages of Legal Research

Trosow, references Litowitz, the author of *Destruction of Young Lawyers* who argues that the existence of technology and electronic tools ensures that the attorney is always working. He says that the line between *workplace* and *non-workplace* diminishes because of the introduction of

technology in the legal system. He also said that in this instance the lawyer cannot stop work since he can work from anywhere. Lawyers can work from home, when they are in business meetings and even when they are driving home after work (Trosow, 2004). The blurring of lines between work and leisure because of technology is not unique to the field of law. One area where this has changed is the medical field because it is a hands-on profession.

I agree with Litowitz, because a lawyer is always concerned about how to contract a case and move on to the next case, satisfy clients, draft contracts and legal processes. Even though this may increase productivity it reduces the amount of personal time a lawyer has. The lawyer's life will be fully overtaken by his work neglecting other aspects of his or her life, like marriage and social life. However, this cannot be blamed on technology entirely.

Clients can always get access to legal information online without visiting the law office. Online services are readily available, but to get quality and reliable information a client must pay. Trosow does not deny that the law profession is changing due to technological improvements. He describes it as the *erosion of the legal profession* (Trosow, 2004). He concludes that the players in the legal system are diverse and technological change is gradually introducing *do it yourself* tools. With the introduction of technology, there are still some tasks that a client may need a lawyer to perform physically. Some of these include writing of injunction, litigation and arbitration.

Trosow makes an assertion that the legal profession is eroding because of the availability of legal databases available to lawyers and non-lawyers (Trosow, 2004). Even though legal services are available online, a client may not have all the necessary information he/she needs and a lawyer cannot represent you online as well. This however, does not mean that the traditional paper-based legal profession will erode. Technology, I believe will however, improve the delivery of legal services by enhancing legal processes. Even though there are do it yourself tools, there are particular instances that need the physical presence of the lawyer as already mentioned.

Palfrey, in his research also articulates that familiarity with technology can lead to over-confidence in a lawyer's own ability to perform research (Palfrey, 2010). He looks at it in from the perspective of law libraries and advices that law libraries adapt with

- the pattern of technological change and
- stay in close communication with their users and adapt with them.

Palfrey looks at the benefits in the sense that even though it may lead to over-confidence it builds research skills of lawyers, non-lawyers, librarians and people who go online to seek legal advice.

2.7 Conclusion

From the literature reviewed in this chapter, it can be concluded that technology has a significant role to play in the delivery of legal services. However, the traditional system of paper-based research is still being used. This will not lose out with respect to computer-assisted legal

research any time soon. This is because most of the legal information has been documented manually and it will take a while to digitalize all the data. Other reasons also include clients who are not technology savvy and hence will prefer the traditional legal practice. Again, some information may continually be on paper because of the tradition of the legal profession.

Certain legal procedures, for example information needed in the setting up of a business have become easily available on the internet to the extent that a client may not necessarily consult a lawyer or visit a law firm for legal advice. The fact that both legal professionals and lay people now have access to legal information very easily, will go a long way to influence legal and social development since clients and lay people will.

However, considering the increasing use of technology in the legal system and the effects it has on the profession, there is an anticipated difficulty. Especially smaller law firms and individual lawyers are expected to struggle with the initial investment needed to use many of the technological solutions now available. This is attributed to fact that these law firms will not be able to afford technology at the onset, and will have to pick the venues for competing with large law firms online.

Practically, this means that only large law firms that can afford to invest in technology will use it extensively. On the contrary, medium and small firms can afford a laptop and internet access. These small and medium firms may not necessarily be able to invest in extensive databases. The

growing technology will experience the impacts of technology on the profession. However, this may also be an avenue for small law firms to strategize and to meet the market niche of clients that do not have access to the internet, and also using the information they find there to their advantage.

Looking at the legal profession and technology, it will be easy for lawyers in different countries to communicate. Even though legal systems differ, there may be instances where two countries are involved in a case or a transaction. Therefore there will be the need for lawyers of both countries to communicate. This form of communication will not be focused on either countries' legal system but will be focused on the progress of the case or transaction. This will gradually connect the whole profession worldwide in the place I call the *legal global village*. This *legal global village* will allow legal services to be outsourced and readily available.

In this village, I perceive that online lawyer–client relationships and online relationships will be developed. The establishment of these relationships is generally based on the fact that legal services are readily available online. Moreover, this will help build the legal profession as a whole and connect the world.

CHAPTER 3

3.1 Introduction

After a careful review of the literature in the previous chapter, chapter 3 focuses on the various methods that will be used to conduct the research. According to Kumar, research methodology is important to all research as it shows the path the researcher intends to take to conduct her/his research, data collection and analysis of data (Kumar, 2010). The diagram below shows the graphical presentation of the stages in research methodology.

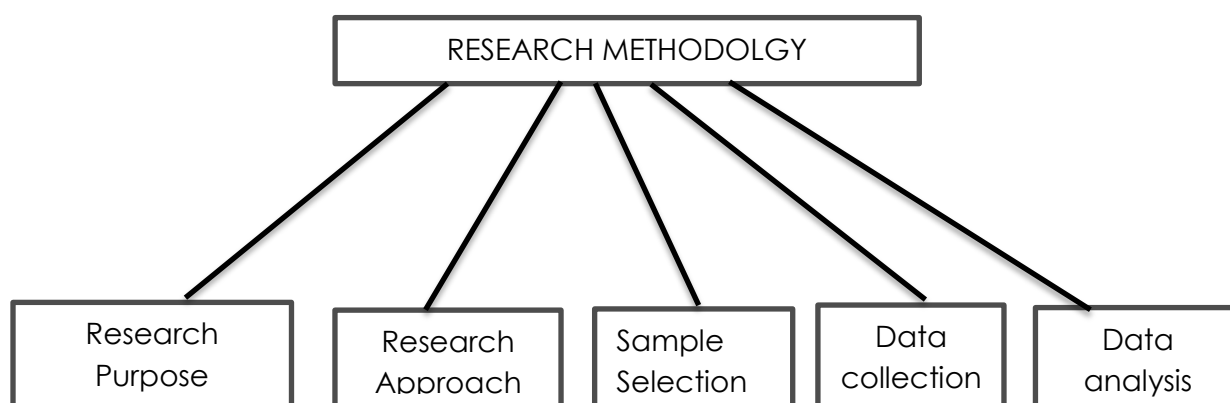


Figure 3.1: Graphical Presentation of Methodology. Adapted from Foster (1998)

The figure above shows how the research can be carried. With these steps in mind research validity and reliability can be ensured. The different stages of the research process will be described in the following sections.

3.2 Research Purpose

The main purpose of this study was to investigate the level of use of technology in Ghanaian law firms and how this affects the delivery of legal

services. To reach this aim, exploratory and descriptive research methods will be used. Exploratory research seeks to investigate a situation and provide insight to the researcher (Sarantakos, 2005) and descriptive research describes a situation or a phenomenon that is being studied. Considering the research question “**What is the impact of technology use in Ghanaian law firms?**” this research seeks to investigate and explore the level of technology usage in the legal system with a focus on Ghanaian law firms, and further describe the findings to the Ghanaian legal community and other interested stakeholders.

3.3 Research Approach

A qualitative approach was used in this thesis to achieve a deep understanding of the topic. Trochim defines qualitative methodology as the collection of non-numerical data (Trochim, 2005). As part of this approach, qualitative measures used for this thesis included data from structured and unstructured interviews, documents and participant observation. Responses were collected in the form of brief written responses on surveys, face-to-face interviews, and observation. In addition, this approach helped to find the general and in-depth information for this study. This information will enable the description of the impact of technology uptake in Ghanaian law firms.

Quantitative methods such as the use of graphs were also used to find out the number of lawyers that used technology. It was also used to find out the type of technology law firms have invested in. An advantage of using both qualitative and quantitative was that it allowed mixed methods

research where qualitative and quantitative research was conducted to find out how law firms use technology. This enabled me to get a broader perspective on the research objectives of the thesis (Trochim, 2005).

3.4 Sample Selection

A total of fifty-five lawyers from nine law firms, all based in Accra, Ghana, were involved in this research. The initial law firms were identified through my supervisor's network. From there *snowballing* was used to identify more participants. Trochim defines snowball sampling as a sampling method which sample participants based on referral from prior participants (Trochim, 2005).

In each firm the managers were interviewed about the uptake of technology using the survey questions (provided in full in Appendix C). Paralegals, clerks and lawyers were given short surveys to fill. Lawyers within a firm were identified through purposive sampling because of the stated focus of the study. Purposive sampling was used because of the hard-to-reach population of lawyers and the fact that there was no specified sampling frame. Purposive sampling enabled me identify those who met the criteria of my study.

3.5 Data Collection

Both primary and secondary data collection methods were used in this research. Primary data collection methods include

- ❖ Participant observation and direct observation

- ❖ In-depth interviews
- ❖ Telephone interviews
- ❖ Questionnaires

Secondary data collection

- ❖ Written documents

For this research, participant observation was used because the author has worked with lawyers and in joining them to do their work, the researcher observed their day-to-day activities. For the interviews, in-depth and face-to-face interviews were used in order to get the answers to address the research question. In each firm the managers were interviewed about the use of technology using the survey questions (provided in full in Appendix B). Paralegals, clerks and lawyers were given short surveys to fill (provided in Appendix B).

3.6 Data Analysis

This research is a qualitative research; data was through thematic analysis. In thematic analysis, a theme which is a cluster of linked categories of linked issues conveying similar meanings was gleaned from the data collection. The exploratory nature of this study allowed this technique to be used irrespective of the field of study. This analysis also helped identify the themes and major ideas which came out of the interviews and surveys (Trochim, 2005).

3.7 Limitations

In conducting this study, a few challenges I encountered include the difficulty in getting lawyers to give information this is because of the tight schedule of lawyers. Some were generally not ready to give detailed information about their work. Other lawyers were just not ready to help out. There is also limited data on how the role of technology in the legal system in Ghana so it made it difficult to get the required information. Hence this study is designed to add to the existing information on the Ghanaian legal system.

Again, considering the nature of the study and the sample, my conclusion should only be applied to small, medium and large law firms in Ghana, not to the other part of the legal system in Ghana, such as the police and the courts.

Regardless of these limitations, the study made the best out of the data acquired to answer the research questions and to pursue the objectives of the study that were presented in the first chapter. It will also add to the legal data repository in the legal system in Ghana and Africa at large.

3.8 Conclusion

This research is exploratory and descriptive, so qualitative data and quantitative data were used for this research. It made use of in-depth interviews, structured and unstructured face-to-face interviews and observation to gain an understanding of the structure of the Ghanaian legal system and how technology impacts its operations. Interviews were

conducted and data was collated using thematic analysis which brought to bear the issues of the study.

On the whole nine law firms were used for this research and they were chosen based on the snowballing method. In the method of snowballing, the first law firm Oxford and Beaumont Solicitors was perceived to be an appropriate respondent for this research. Oxford and Beaumont Solicitors then recommended other law firms. Through this method, nine law firms were recommended. Lawyers as well as paralegals and business support staff in the nine law firms responded to a survey via paper, email and telephone. In all, nine in- depth interviews were conducted with the four managing partners and five senior associates of the nine firms. Moreover, fifty-five surveys were recorded with lawyers, paralegal and business staff in the nine law firms.

CHAPTER 4

4.0 Introduction

In chapter three, the methodology described how the research for this thesis was conducted. This chapter presented the analysis and findings from the data that was collected through structured/unstructured in-depth interviews, questionnaires and secondary data carried out with the nine firms. This chapter responds to the specified research question and objectives that were outlined in chapter one.

The first objective was to investigate how hardware, desktops, tablets and mobile phones impact the delivery of legal service in law firms. The data collected confirmed the use of hardware and also reflected that these hardware enable communication through emails, chats, video conferencing and telephone calls

The second objective was to find out how software impacts the delivery of legal services in Ghanaian law firms. The data reflected that the only Ghanaian software used is the Ghana Law finder. However, there are others such as data management systems and time tracking software. In Ghana, on line sources such as LexisNexis is used extensively. The internet also gives legal practitioners and law firms an opportunity to search for information.

The penultimate objective was to explore the significance of technology in Ghanaian law firms. With this the impact of technology included communication, time management and online legal services.

The last objective was to provide a set of recommendations for the introduction and use of technology in Ghanaian law firms. This data analysis focused on the law firms that were used and recommendations were gleaned from the data. This is discussed extensively in chapter 5.

4.1 Data Collection

The data collection for this research was carried out from December 2012 to February 2013. Data was obtained from nine law firms and these law firms are introduced in Table 2 with their practice areas listed in Appendix A. The questions that were asked in the interviews and surveys can be found in the Appendix B and C.

Table 2: Law firms used for this project

Law Firms	Number of years in practice	Number of lawyers
AB & David	20 years	23 lawyers
Oxford & Beaumont Solicitors	7 years	16 lawyers
Darkoh & Darkoh & Associates	5years	2 lawyers
Liberty Law	3 years	3 lawyers
Nyamkum Tetteh & Co	1 year	2 lawyers
AB Lexmall Associates	1 year	1 lawyer
Minkah Premoh & Co	16 years	20 lawyers
Lesol Consult	3 years	3 lawyers
Ameyi Chambers	25 years	1 lawyer

4.2 Findings: Technology usage

This section describes the current state of technology usage in Ghanaian law firms. In this thesis, technology refers to hardware such as ownership and usage of mobile phones, tablets, laptops, desktops, and servers. Technology also refers to software applications used in the legal system

such as legal software applications LexisNexis, Westlaw and Ghana Law Finder. The online presence of a legal firm is also a factor in describing the level of technology uptake.

Generally, with respect to the companies that were interviewed, technology in the legal system allows communication, case retrieval, document management system and time tracking. The number of years of practice does not seem to determine the use of technology in the firm. However the age of lawyers seem to be an indicator: the younger the lawyer, the more technologically savvy she/he is likely to be. The levels of technology uptake in the nine law firms are summarized in the Table 3 below.

Table 3: Summary of level of technology uptake for law firms used for the research project

Law Firm	Level of Technology uptake
AB & David	High
Oxford and Beaumont Solicitors	High
Darkoh & Darkoh & Associates	Low
Liberty Law	Medium
Nyankum Tetteh & Co	Medium
AB Lexmall & Associates	Low
Minkah Premo & Co	High
Lesol Consult	Medium
Ameyi Chambers	Low

A high level of technology use means use of email for communication between clients and lawyers. For a high level of technology, the firm is characterized by use of hardware such as scanners, servers, laptops and desktops. Again, with respect to software, the firm is characterized by

Ghana law finder and other online sources such as LexisNexis, Westlaw and legal aid. Firms who are usually on the high level of technology have an online presence with the ability to send emails to enquire. Again a firm with high level technology use employs IT personnel to manage the information technology infrastructure of the firm.

With respect to the firms that have a medium level of technology use, they are characterized with an online presence, the use of hardware as explained in the paragraph above.

A firm with a low level of technology use is characterized with telephones and computers.

As we can see from Table 4 above 3 firms out of the 9 firms have high level of technology use, 3 firms have a medium level of technology use and 3 firms also have low level of technology use.

4.2.1 The technological change in the delivery of legal services in Ghana.

The world has become a global village and in order to be a part of it, industries need to be able to connect with all the countries on the globe. The data collection conducted for this research shows that the Ghanaian legal system is now connected to international law firms because of businesses and contractual agreements. Technology in one way or the other is gradually enabling Ghanaian law firms to compete between themselves and also compete with international law firms. Moreover, law

firms that have an online presence are likely to work on international transactions as compared to law firms that do not have online presence.

The use of technology has allowed Ghanaian law firms to be more competitive since they are now competing with well-established law firms around the world. Lawyer Sylvester Ablorh, who represents Liberty Law Consult, confirmed the use of technology in his law firm. He however explicitly stated that

"Although a lot more law firms are applying technology in their work for quick delivery and efficiency, the same cannot be said of the judiciary. The courts are not using technology, neither does the judicial service. This has made it difficult for expeditious justice delivery in Ghana. I therefore recommend that this exercise be replicated with the judicial service."

Law firms in Ghana who have international clients are using technology as a means of delivering legal services. Lawyer Dominic Nyankum stated that, *"There are some clients I have never met in person. We communicate through emails and video conferencing". He further said that, these cases are usually transactions that need prior work before the commencement of a project".*

The finance and projects department of Oxford & Beaumont Solicitors confirmed that there are projects that need prior work before it commences and this is usually research on registration and the processes that the project has to go through before commencement.

4.2.2 Ghanaian law firms embracing technological change.

The legal system in Ghana is experiencing a transformation due to changes in the development of certain aspects of the economy such as technology and communication. This is however not yet functioning fully but it is gradually taking root in the Ghanaian legal system. The responses reflected that law firms are designing office structures to embrace this technological change. This structural change is reflected in the offices of Minkah-Premo, AB & David and Oxford and Beaumont Solicitors.

1. Minkah- Premo & Co: Has been in existence for 16 years, high level of technology with 20 lawyers. This law firm has embraced technology to the extent that they are moving towards a paperless office. They have an intern IT system where emails are circulated amongst the office staff. Minkah-Premo & Co has international clients and the firm believes that their clients are their greatest assets so the firm invests in keeping their clients. This is done by emailing, video and conference calls. There are other administrative roles of technology which includes scanning and faxing. Contracts are usually scanned and mailed to clients, but these are gradually fading out. As part of investing in clients, Minkah-Premo has a database that keeps track of clients and transactions. The database software is shown in Figure 1 below.

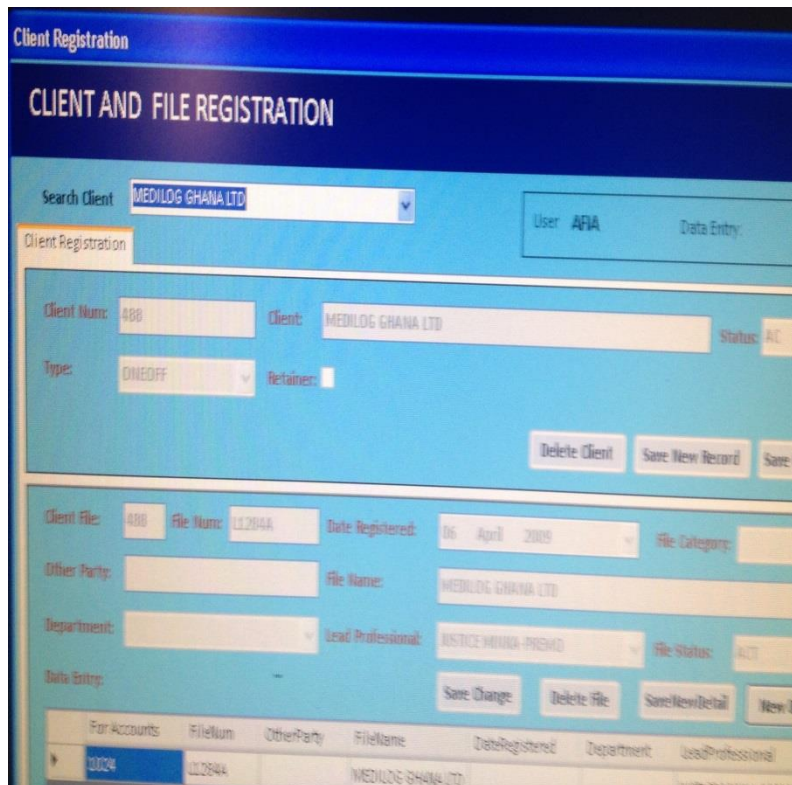


Figure 1: Image of database registration form from Minka-Premoh & Co.

2. Oxford and Beaumont Solicitors: This firm has been in existence for seven years; O&B is high on the level of technology use and has sixteen lawyers. The lawyers at this firm are much younger than Minkah-Premo & Co. This law firm has one in-house IT person who ensures that the information technology of the firm is working properly. This firm also has an in-house email system, using Outlook. This firm also has a data management system that keeps documents and records of people who have worked on a file. This system saves the files and helps one find them easily. Oxford and Beaumont also uses Legal Aid. This software tracks billable hours, pulls out time sheets and converts them into invoices after a lawyer or a paralegal has worked on a case.

3. AB & David: This firm is twenty years with twenty-three lawyers and high on technology use. At AB& David, Drop box and Google Drive are used to share documents. This firm has a very strong international reputation because of their online presence and dealing with international cases. This firm also has an email system. They use video conferencing extensively, because most of their clients are international and they need to be in constant touch with them.

The firms that have been discussed above are the top three firms that are embracing technology on a high level. These firms are doing well and are competing with some international firms as well.

4.2.3 Ghanaian law firms have become more sophisticated

From the data collected, it can be deduced that Ghanaian law firms have also become sophisticated in the sense that technology being adapted in legal operations has made operations such as retrieval and research easier. Both hardware and software enables legal practitioners to have easy access to law reports, court cases and legal precedents. Case retrieval and research is the core of legal practice, and software such as LexisNexis allows search with respect to the names of cases and the judges that presided over the case. These firms include Lesol Consult, Liberty Law Consult and Oxford & Beaumont Solicitors.

Legal operations are gradually moving from the traditional methods and are being developed using electronic tools. This has led to sophistication where law firms are characterized by hardware such as computers,

printers, scanners and hard drives. Law firms in Ghana have also introduced applications such as online applications, desktop applications and other accounting applications that help in the delivery of client services. From the analysis, it was found that the law firms that are competitive employ in-house IT personnel who manage the information technology structure of the firm.

Technological devices such as tablets, laptops, fax machine and telephones have enhanced communication in the legal system. Messages are sent over these mediums and responses are also received. Emails, text messages and telephone calls are some of the means of communication. In as much as these devices help in communication, there are applications that are run on these devices to make communication possible such as Skype, social networking sites and messaging applications such as Google chat and Yahoo messenger. These services give lawyers an opportunity to stay in touch with clients. Lawyer David Asiedu of Oxford and Beaumont Solicitors for instance uses twitter as a means of creating awareness about the Ghanaian law. He talks about pertinent issues and relates it to the Ghanaian law.

4.2.3 Changes in law firms

From the data, it was discovered that firms have invested in hardware such as computers, routers, servers and printers. In an in-depth interview with Lawyer Nana Serwaa Godson-Amamoo, a senior associate at AB & David, she explained that the use of internet allows in-house and client communication. She mentioned that AB & David has in-house IT

personnel who ensure that the servers and routers are working effectively. She confirmed that internet has also made their work easier and faster since they can easily hold virtual meetings online with international clients and initiate contracts online as well. She however, complained that the internet is not reliable and in certain instances the company struggles to get internet access and this slows down their operations.

With respect to the Figure 1, above, tablets and smartphones are also devices that these firms invest in. Oxford & Beaumont Solicitors for instance buy tablets for the senior associates who are likely to travel outside the country based on the consideration that tablets are convenient for travelling. At Ameyi chambers for instance, the managing partner does not see the need for technology so he does not invest in it. He said that on the premise that he is been practicing law for over twenty years and so he knows where to find everything so there is no need to get a software or to even search on the internet.

Alternate views on the need for technology assisted legal research exist, the managing partner of a small law firm that has been in existence for the past twenty years said that as a Ghanaian legal practitioner he knows where to get every information pertaining to a case and this can be attributed to the fact that he has been practicing for more than 20 years. Hence, he does not necessarily see the need for technology because he knows which book to find cases and law reports. In his opinion, it takes the skills of the legal profession away from the lawyer.

Moreover, the two law firms "Minkah-Premo & Co" and "AB & David" specifically stated that, the use of technology has reduced the use of paper in their day to day legal practice. In the reduction of paper, cost has also been reduced. This is because lawyers in the firm are able to mail documents to each other and are also able share documents on Dropbox or Google Drive where a group can have access to all the information. Moreover, these cloud services are more secure because only authenticated users that have access to the documents. These cloud services, they said are also convenient because it allows work to be done anywhere apart from the office.

4.3 Technology as a time saver.

From the responses, the three companies that are high on technology usage confirmed that technology has increased turnaround time. This means that more work is done in a shorter time and productivity increases as well. This made working difficult and time consuming sometimes because one may have to go through a lot of books and this sometimes brought about delays. But with respect to technology, they confirmed that the time to get research done on a case and deliver output is shorter and therefore they can work on a number of cases at a particular time.

4.4 Payment of legal fees

In the legal system, legal fees are often charged based on the hours a lawyer spends handling cases. According to Lawyer Wallace Bruce-Cathline, the Senior Managing Partner of Minkah-Premoh & Co, technology has helped his firm in the payment of legal fees. Since most of their

clients are international, technology has helped them receive legal fees through online banking. Minkah-Premo & Co has an accounting software that makes it easier for them to check client balances and also invoices for clients. Oxford and Beaumont Solicitors have similar software that tracks billable hours and generate invoices. Technology has therefore become very useful in the legal system because it enables the payment of legal fees.

4.5 Technology as an enabler of communication

The introduction of technology in the Ghanaian system has improved communication between lawyers and clients through the use of internet on devices such as computers, smartphones and tablets.

4.5.1 Internet as a means of communication

The introduction of the internet has given rise to all forms of communication such as telephone, emails and video conferencing. Law firms that have international clients are highly interested in the internet because it allows them to communicate with their clients faster and cheaper. Through the internet, lawyers are able to hold virtual meetings with their clients be locally or internationally.

From the survey, law firms that communicate using the internet confirmed that clients are pleased when they have an idea of how their case is being handled. This therefore guarantees that clients are satisfied and it goes a long way to build lawyer – client relationships. With respect to client satisfaction, Lawyer Dominic Nyamkum said that "*Clients are like girlfriends: they have to be treated specially, they need to know what is*

going on and they always need attention. Lawyers are engaged to their clients and must therefore work to meet their needs.”

4.5.1 Email

From the responses, it was observed that emails are gradually becoming a medium for communication. Emails are exchanged between lawyers and also between the lawyers and their clients. For firms that have an online presence, they occasionally receive emails from prospective clients. Additionally, emails are exchanged in-house and lawyers check their emails on their phones, their tablets, laptops and other electronic devices. Lawyers also confirmed that because of emails they are able to work anywhere and at any time. Emails help them to be abreast with what is going on with a particular case.

From the nine law firms that were interviewed, it was evident that the size and number of years in existence do not determine the use of technology for communication. As an example, Oxford and Beaumont Solicitors has only been in existence for seven years and they use technology extensively for communication. However, Ameyi Chambers, a firm that has been in existence for the past twenty – three years does not use any form of technology to communicate. He just uses a mobile phone to receive and make calls.

However, the use of technology for communication can be categorized based on the market niche of the firm. Ameyi Chambers for instance has a focus on local individual clients rather than local corporate clients. Oxford and Beaumont Solicitors also focuses on international as well as local

corporate clients. Looking at the focus areas of these two law firms it can be said that their market niche maybe in part contributing to the level of communication.

4.6 Challenges law firms face in embracing technology.

From the data collected the challenges such as security issues and client issues were brought to bear.

4.6.1 Clients

The responses that were received from the survey indicated that in the likelihood that the legal profession increasingly embraces technology, clients who are not online or technologically disadvantaged will stand to lose out be. Lawyer Dominic Nyankum specifically stated that some of his clients are always expecting to see hard copies of transactions and some of them also do not have emails so communication is difficult sometimes. Esquire Kwaku of AB Lexmall stated that some of his clients are taxi drivers who come in for legal advice. He went on to say that some of these taxi drivers are not technologically inclined and he prefers emailing rather than printing out the transactions. He says that even though it is difficult to say no to these taxi drivers he manages not to accept them because *"it slows me down"*, he said. This is because they do not respond to emails and it is difficult to work with them as well.

4.6.2 Security Issues

From the responses it was realized that most of the law firms that were interviewed are struggling with security issues with respect to technology. One law firm, name withheld, had a very influential person in Ghana as a client. Because of the nature of the case, all their laptops were stolen

from their office. The major problem that came from this theft was that they didn't have any information on an external drive or in the cloud because around that time they were incorporating technology in their firm. This was a major loss for the firm. From the responses gathered, hacking is also one major problem that some law firms are facing and this was attributed to the fact that they don't have access to reliable and qualified IT personnel. Law firms are gradually moving to cloud services which they believe is more convenient and secure.

CHAPTER 5

Conclusions and Recommendations

The focus of this thesis was to investigate the current state of the use of technology in the Ghanaian legal system with a focus on law firms. It was found that computers and other technological devices are used in the delivery of legal services in Ghana through emails, the use of cloud computing and the internet. Emails help to update clients on the progress of their cases, cloud computing allows two or more clients to work on a document, and the internet, above all, enhances communication and research. The literature reviewed spelt out the significance of technology in the legal system as a tool for reliable and constant delivery of legal services in general. From the review it was found that, technology in the legal system aids in legal research, constant communication and the delivery of legal services online.

5.1 Addressing the research questions

In response to the research question: **“What is the impact of technology use in the Ghanaian law firms?”** and the objectives of the thesis, the following can be concluded.

- ❖ Technology is being used in firms in the legal system which means that law firms are deploying technology in the delivery of legal services. Computers, laptops, mobile phones and tablets are used for communication such as emails, text messages and telephone calls. These devices also allow documents to be managed. Legal

software is also used in the delivery of legal services where database of cases and clients are recorded. Examples include the Ghana Law Finder and LexisNexis.

- ❖ Technology is used in small, medium and large firms. The size of the firm does not determine the level of technology use.
- ❖ The use of technology can be attributed to the practice areas and target market of the firm and so if firm's target market is international clients, then the firm is more likely to employ technology to enhance communication between the lawyer and the client.
- ❖ Law firms are able to reach international clients because of the use of technology. The online presence of firms exposes Ghanaian legal firms to the international legal system. This, therefore, gives firms an opportunity to work with clients from different backgrounds.
- ❖ A number of lawyers do not see the use of technology as a great advantage in delivering legal services.

5.2 Recommendations

Throughout the thesis, research has shown that lawyers in Ghana are generally embracing technology. The following recommendations are suggested for the use of hardware in law firms in Ghana. First and foremost the legal system in general needs to be educated on the use of technology in the legal system. The basic hardware that needs to be used in the legal system to drive technology includes computers, mobile phones, telephones and laptops. These devices will give lawyers an opportunity to surf the net. With these devices, communication through

emails, text messages and telephone calls can be achieved. This will facilitate communication between lawyers and clients.

Based on the survey and in-depth interviews for this thesis, the following recommendations were made for the existing software that is used in the legal system. These recommendations were made based on the problems the interviewees had with the existing software, combined with the best practices from other places in Africa and the world as identified from the literature review. The software currently used by law firms in the Ghanaian legal system is Ghana Law Finder and LexisNexis. Generally, legal software must be able to manage cases by reminding the lawyers about their schedules and also notifying them on the opposing counsel. The software must address usability issues in the interface. The software must have current legal information. It must also allow the lawyer to file and serve court processes electronically and work legal processes for the lawyer within the firm.

5.3 Further Research

This thesis has added to the information that is available about the role technology plays in law firms in the Ghanaian legal system. This research was focused on law firms and with regards to legal processes, to develop an understanding of the uptake and potential of technology use on the legal system. Further research could be carried out on

1. Technology and the court system
2. Technology and the police
3. Technology and other subsidiary legal institutions such as the assembly press.

With this in mind, the totality of legal practice in Ghana will be unveiled and the role of technology in the Ghanaian legal system better understood.

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APPENDIX

Appendix A: List of law firms involved in this research and their practice areas.

Law Firm	Practice Areas
AB & David	Corporate & Finance, Construction, Engineering & Infrastructure, Commercial Litigation & ADR, Environment & Transport, International Trade, Immigration, Intellectual Property, Labour, Oil, Gas & Energy, Projects & Government Business, Real Estate
Oxford & Beaumont Solicitors	Finance & Projects, Corporate & Commercial, Litigation & Dispute Resolution, Tax Services, Governance and Nominee Services
Darkoh& Darkoh & Associates	Land Law, Family Law, Finance & Projects
Liberty Law	Land law, Family law, Criminal law
Nyamkum Tetteh & Co	Litigation, Corporate, Family estate and succession, Property/Land law, Investment, Acquisitions, Intellectual property, Criminal law
AB Lexmall Associates	Intellectual Property, Corporate, Finance and projects, International law
Minkah – Premo & Co	Legal accounting & taxation, Litigation and ADR, Family Law, Credit & Debt Recovery, Corporate and Compliance, Lands, Intellectual Property
Lesol Consult	Family law
Ameyi Chambers	Land law, Family law, Litigation

Appendix B: Survey questions for structured interviews with lawyers and paralegals

TOPIC: A study of technology uptake in Ghanaian law firms.

1. Which of the following devices, if any, do you use the most for business purpose?(in and out of the office)
 - Smartphone
 - Laptop
 - Tablet PC/Ipad
 - None

2. Would you use your personal fund to invest in technology?
 - Yes
 - No

3. Which type of technology would you invest in?
 - Software (eg. MS Office, Summation, Concordance)
 - Hardware (eg. Servers, routers, printers)
 - Tablet
 - Smartphones
 - Other.....
 - I don't know/not my decision

4. Does your office invest in technology?
 - Yes
 - No
 - Don't know

5. Which technological devices does your firm use?
 - Desktops
 - Laptops
 - Tablets
 - None

6. Which of the following web-based technology tools if any, does your law firm use in its practice?
 - E-filing systems
 - Meeting or audio- conferencing tools
 - Document storage systems
 - Client portals and databases
 - Other

Please state

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7. For which of the following situations, if any, does your firm use social media tools, such as twitter, Facebook or LinkedIn?
- Marketing the firm
 - Generating new business ideas
 - Communicating with clients
 - Recruitment
 - None of the above
 - Other.....

8. In your opinion does the use of devices and social media enhance lawyer - client relationship?
- Yes
 - No
 - Somewhat

9. Does technology make it easier to reach your target market?
- Yes
 - No
 - Somewhat

If yes please explain

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.....
.....

10. Does technology ensure security and confidentiality issues such as client information?
- Yes
 - No

If yes please explain

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Appendix C: Interview guide questions for unstructured interviews with managing partners and senior associates

INTERVIEW QUESTIONS FOR LAWYERS

TOPIC: A study of technology uptake in Ghanaian law firms.

1. What is the name of your law firm?
2. Describe your day- to- day activities at work.
3. Where do you normally work apart from the office?
4. What resources, technology and tools do you use for work? Please include paper-based as well as electronic resources, materials and tools.
5. How do you use these electronic resources, materials and tools?
6. Has using these changed the way you work? If yes, how?
7. Do you know about any electronic tools and software application used in the legal industry? Please mention their names and how they work.
8. Do you use any of these electronic tools and applications? Please mention their names and how they work.
9. What do you like about the above? Would you change anything about them, if given the opportunity?
10. In what ways do these tools impact the way you do your job, if at all?
11. What would your ideal legal technology (real or imaginary) do for you?
12. Comments (Critique, Feedback, Questions)
13. Can you please recommend another lawyer who would be able to help with providing information for this dissertation?

Name:

E-mail:

Telephone Number:

Place of Work: