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INFORMATION AND KNOWLEDGE MANAGEMENT AT SOUTH AFRICAN LAW FIRMS

T du Plessis*

1 Introduction

Recent developments in information and communication technologies (ICTs), in the context of the needs of groups of knowledge workers such as lawyers who use ICTs to form knowledge networks, have created new management dilemmas.¹ Not only have many law firms embraced the use of ICTs in their legal practices, but many clients of law firms, especially large corporate clients, now increasingly demand sophisticated online legal service delivery platforms.² In this changing and challenging business environment information and knowledge management (IKM) is becoming critical to law firm success.³ At its core the practice of law is about the provision of specialised services which are based on legal knowledge. This knowledge is grounded in authentic primary and secondary legal information sources. The accessibility and researchability of many of these sources as well as other information sources have multiplied exponentially through the use of ICTs, a fact which stresses the need for managing law firm information and knowledge.

This article reviews the importance of managing the information and knowledge assets of law firms and presents the findings of a survey⁴ of IKM practices at South African law firms. Firstly, an overview of the findings of a literature study is

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¹ Susskind *End of Lawyers*; Vorakupipat and Rezgui 2008 *Knowledge Engineering Review* 291; Jarvenpaa and Tanriverdi 2003 *Organizational Dynamics* 403.

² Winterton and Danner (eds) 2011 *Legal Information Management*.

³ Rusanow 2007 *Information Outlook* 31-34; Van Rensburg and Prideaux 2006 *Journal of Management Development* 561.

⁴ The survey was conducted in 2010.

presented. These findings will demonstrate the role of IKM in the changing legal information environment and shed some light on international and national law firms' information management-related challenges and benefits. Secondly, an analysis of the empirical findings on South African law firms' use of ICTs for knowledge management purposes is presented. The aim of this article is to provide insights into law firm knowledge management and its effect on providing legal services to clients, bearing in mind the burden of the billable hour.

2 The billable hour associated with legal service delivery

The life of a typical lawyer in a standard law firm has been described by Maister⁵ as "enslaved to the billable hour" and "not innovative". Because of the billable hour, it seems, lawyers often refrain from being innovative or consider innovation as unnecessary. Innovation entails the creation of new knowledge, but knowledge creation is not always innovative. Moreover, innovation entails improved service delivery and it is in this regard that Rusanow⁶ and Susskind⁷ emphasise the need for innovation in law firms specifically aimed at greater efficiency in service delivery. In essence, law firms succeed by creating value from the knowledge they possess and by promoting the expansion of knowledge through experience. This expansion of knowledge proves to hold significant guarantee of future business from satisfied clients.⁸

In business, as in the case of legal service delivery, the focus nowadays is more on intangible assets such as intellectual capital, knowledge-enriched client relationships, and the competence of lawyers. Lawyers can be described as "knowledge workers", that is, legal experts who perform knowledge-based legal

⁵ Maister 2006 davidmaister.com. Cf Rusanow 2006 www.llrx.com; Du Plessis 2004 *Information and knowledge management* 77-78, and Martin 2002 *Leveraging intellectual capital*.

⁶ Rusanow 2007 *Information Outlook* 34.

⁷ Susskind *End of Lawyers*.

⁸ Sieh "Law 2.0"; Susskind *End of Lawyers*; Winterton and Danner (eds) 2011 *Legal Information Management*.

services in the knowledge economy (KE). Brinkley⁹ lists various KE definitions, summarised here as an economic state where success is based mainly on the effective use of intangible assets, for example, tacit knowledge, experience, skills, and the innovative potential embedded in humans as the carriers of expertise, which is then used as the key resource for competitiveness. Within the context of this emerging¹⁰ economic structure and given the legal practice culture of the billable hour, the rationale for this study is to determine how and why law firms, specifically South African law firms, apply IKM technologies to assist and support lawyers in delivering legal services, billed by the hour, to their clients' satisfaction.

3 Law firm information and knowledge management

Information and knowledge management (IKM) in law firms is directed at providing the firm's lawyers and staff with cost-effective tools to support the daily processes through which an understanding of “the law”, “the world” and “the client” is created and shared.¹¹ It is important to note that not all IKM practices are technology-based. For example, informal conversation during a coffee break at work may develop into a practice-related, problem-solving, knowledge-sharing event. However, modern law firm IKM initiatives generally involve some form of ICT application to facilitate knowledge sharing, especially in global legal practice. In this study the focus is only on technology-based IKM, excluding knowledge-sharing practices that do not involve ICTs. Within this delimitation of the study, IKM tools and technologies will typically include corporate intranets, portals, law firm web sites, electronic document and web content management systems, electronic mail indexing, data mining and federated searching of digital information sources. Law firms also apply financial management

⁹ Brinkley *Defining the Knowledge Economy*.

¹⁰ It may be argued that KE is non-existent or barely in its infancy in South Africa. This article expresses the opinion, based on empirical research findings, that in fact the KE is emerging as seen in South African law firms' application of KM technologies, tools and techniques to support lawyers as knowledge workers in day-to-day legal practice. For instance, the findings of the current research are that South African law firms may be comparable with global law firms in terms of competitiveness, *cf* Segal-Horn 2007 *IJSIM* 206-217.

¹¹ Du Plessis 2005 *SAJIM*; Winterton and Danner (eds) 2011 *Legal Information Management*.

systems for the purpose of time billing and accounting, and information on clients and matters are kept in case management systems. These systems are often integrated with other management information systems and business intelligence systems all of which form part of the larger IKM environment aimed at managing the business of legal practice and sharing the knowledge of lawyers and law firm staff to their business's advantage.

To gain advantage over other legal service providers competing in the changing business environment requires a well strategised IKM approach. Hemming¹² summarises the key skills of knowledge workers who are competing in the KE as follows: 1) knowing who to connect with; 2) knowing how to search; 3) knowing who to collaborate with; and 4) knowing how to collaborate optimally in real and virtual teams. Thus, lawyers as knowledge workers individually, and the law firm as a corporate, need to adopt, learn and continually improve these skills to maintain business agility. In order not only to maintain agility but also to excel in business, the need to manage the law firm's knowledge assets is emphasised by Vorakupipat and Rezgui,¹³ who state that –

KM has major implications in the learning capability of an organisation and its ability to adapt to an ever changing and competitive business environment.

The above also holds true in the South African context, as the Chairperson of the Phatshoane-Henney group of law firms in South Africa states in the 2008/2009 Annual Report:¹⁴

A further goal is improved integration between member firms, the group service directory, and group knowledge management. Effective knowledge management remains an important part of managing the wealth of experience and resources available within the group to the benefit of all. Continuing group projects to enhance training, research and information management is underway and scheduled for finalisation in 2010.

¹² Hemming 2008 *LIM* 43-46.

¹³ Vorakupipat and Rezgui 2008 *Knowledge Engineering Review* 291.

¹⁴ Phatshoane 2009 www.phfirms.co.za.

IKM tools and techniques provide the opportunity for law firms to increase sustainable performance in the changing business environment. But IKM is a solution only if it is applied bearing in mind the specific law firm's context, its clients, its lawyers, and its competitive business environment. In this regard, Holbeche¹⁵ argues:

[C]hange-ability is the basis of sustainable high performance which involves: Getting the right people focused on the right things and engaged in the collective effort; the right kinds of management and leadership; the right business model, processes and systems; and the right collective (cultural) capabilities – e.g. strategic anticipation, speed, customer-focus, flexibility, team working, cross-boundary working, generating new learning and innovation, etc.

From the literature review it appears that the performance of law firms is closely associated with their ability to function effectively in a business environment that relies on IKM processes, systems and methods to share their know-how internally as well as with their clients, and also to keep this knowledge safe from their competitors. To understand the relationship between IKM and the business of a law firm requires insight into the work product of lawyers, and also an appreciation of lawyers as skilled legal researchers.

4 Law firm work product and legal research

This section briefly describes the work product of lawyers and serves as background information to understand the role of knowledge management in law firms. Note that this section is not intended to give a detailed analysis of the work lawyers perform in practice. The work product created by lawyers includes, for example, legal documents, pleadings, depositions, trial and appellate briefs, memoranda, letters, emails and spreadsheets, *et cetera*. Each “work product” has the potential to be an important knowledge asset and ought to be properly managed. If managed well, knowledge is leveraged to alleviate further work production and knowledge creation.

¹⁵ Holbeche 2009 *LIM* 253.

This is not a new concept to lawyers. However, with the continuous developments in ICTs, IKM plays a significant role in the future success of law firms.

The work product of law firms relies greatly on the ability of lawyers to do legal research. Even though certain areas of law do not require the same amount of research as other areas, competency in legal research remains essential regardless of the area of law or the type of practice. Legal research generally entails information seeking, though finding information is only one component of legal research. Finding information may be limited to primary sources in the form of statutes and cases, and further supplemented by the use of secondary sources, for example, legal reference works, digests, indexes, law reviews, legal periodicals and academic works, but increasingly the method to finding information is less controlled in the connected, online information environment. Traditionally the legal profession is associated with and given control over a particular body of knowledge and when lawyers use technologies it is not simply for the sake of convenience but rather to maintain control over information and to improve service provision.¹⁶ This control in the legal information service market sets the legal profession apart in the sense that it is a profession identified with a theoretical body of specialised knowledge (ontology) which assumes academic training as a requirement in order to master this information.¹⁷ This body of specialised knowledge has grown over decades and nowadays ontologies are increasingly used in knowledge management as a means of knowledge representation.¹⁸ In the virtual workplace, legal research is now evolving to include the application of Ontology-based Web Mark-up Languages (OWLs),¹⁹ although in the South African context, law firms are slow on the uptake.²⁰

¹⁶ Muir and Douglas 2001 *Managing Service Quality* 177-178. Katsh 1994 *University of Pittsburgh Law Review*.

¹⁷ Katsh 1994 *University of Pittsburgh Law Review* 1141-1175.

¹⁸ Cross and Bathija 2010 *Artificial Intelligence for Engineering Design, Analysis and Manufacturing* 127.

¹⁹ OWLs form part of current semantic technologies and include ontology, taxonomies, folksonomies and clustering intended to provide context to content by formally describing concepts, terms, and relationships within a given knowledge domain. Cf Du Plessis 2004 *Information and knowledge management* 109-110 and Du Plessis "Global legal practice".

²⁰ Cf Du Plessis 2011 *SAJIM*.

A brief comparison of the information management-related challenges and benefits experienced by international law firms follows, to shed some light on the importance of information and knowledge management in law firms.

5 Information and knowledge management challenges and benefits

In law firms it is often beneficial to an individual to *not* share information or knowledge.²¹ This makes the implementation of information and knowledge management strategies difficult. However, the findings of an international LexisNexis workplace productivity survey in 2010 show the increasing demand by legal professionals for information and knowledge management tools to help them manage the increasing volumes of information in the workplace.²² This is especially the case with South African legal professionals who, according to the survey, spend more hours at their job in a typical workday (9.5 hours) than legal professionals in the United States of America (8.8 hours), in the United Kingdom (7.8 hours), in China (8.0 hours) and in Australia (7.9 hours).²³ Not only in South Africa but in the world as a whole legal professionals are finding it extremely challenging to filter through emails, to conduct background research for cases and to manage large volumes of information. With the increase in information, it is not surprising that in the LexisNexis survey (2010) 84% of South African legal professionals indicated that they need to find ways to spend less time organising information and more time effectively using the information.²⁴

Internationally, as in South Africa, law firms are experiencing an increased need for IKM,²⁵ especially in connection with electronic records management (ERM) and how to deal with the high costs of ERM not only in litigation but also in general legal practice management. For example, electronic dictation systems are used to streamline the capturing and managing of text, Blackberries and iPods are becoming

²¹ Beaumont 2010 *Business Information Review* 232.

²² LexisNexis 2010 www.lexisnexis.co.za

²³ Ambrose and Woudstra 2010 www.lexisnexis.co.za/

²⁴ Ambrose and Woudstra 2010 www.lexisnexis.co.za/

²⁵ LexisNexis 2010 www.lexisnexis.co.za

indispensable when it comes to legal practice, a variety of systems are used in the electronic transfer of information; briefs, motions, pleadings and other court filings are filed and serviced electronically. Law firms exchange case (client/matter) documents electronically and some cases are held entirely paperless, that is, Council and the Bench use their laptops to read all documents; hard copies are not an option. Electronic case documents are stored in a secure space and made available via the Internet by means of encrypted passwords allowing authorised access only.²⁶ These are only some of the challenges and benefits of information and knowledge management in law firms. Table 1 below compares the challenges and benefits experienced by six international law firms, namely, Frost Brown Todd LLC, DLA Piper, Krieg DeVault, Burges Salmon, Al Tamimi & Company, and Mannheimer Swartling.²⁷

Table 1: IKM challenges and benefits

Challenges experienced by law firms	Benefits of IKM systems and tools
<ul style="list-style-type: none"> • Content stored on individual desktops could not be shared easily, hampering efficiency and information re-use • Content is difficult to be retrieved • Documents stored on shared files are not secured in any manner, creating the potential for a breach of client confidentiality • Documents are at risk of accidental loss through human error • The lack of a unified, electronic “space” limited attorney productivity and mobility • Emails stored in Personal Storage Table (PST) files are difficult to manage and vulnerable to corruption • Paper-based content and calendars cannot be backed up effectively • Not only a paradigm shift, but actually 	<ul style="list-style-type: none"> • Enables a law firm's globally dispersed lawyers to quickly and easily find the right information thus improving productivity and the consistency of work products • Centralised search helps users to respond quickly to client inquiries and efficiently to re-use past work product • All content is secured and protected against unauthorised access or accidental deletion • The integration of the law firm's email programme and an email management system brings email and calendaring into a unified, electronic content file • The move to an integrated electronic content file has slowed the growth of PST files • A unified environment for all types of electronic content provides a foundation

²⁶ This input was received by one of the peer reviewers elaborating on the current importance of information and knowledge management in North American law firms.

²⁷ Six case studies of international law firms are compared. Autonomy 2010 publications.autonomy.com/; Autonomy 2011 publications.autonomy.com/

Challenges experienced by law firms	Benefits of IKM systems and tools
<p>bridging to electronic information management</p> <ul style="list-style-type: none"> • Managing, filing and sharing enterprise content effectively • Reducing off-site storage costs • Fast and efficient response times to e-discovery requests • Provide a solution to the law firm's globally dispersed lawyers to enable them to find the right information easily across all of the firm's data repositories and systems • Leverage the implicit and tacit knowledge that was residing in the law firm's repository for all case (client/matter) related documents and emails • Invest in a next generation knowledge sharing platform that would be the foundation for facilitating future growth as the firm pursues new markets and new clients 	<p>for fully integrated information management</p> <ul style="list-style-type: none"> • Professionals can access content and collaborate from any location • Ease of adoption amongst professionals and secure access to email and other content • More effective physical records management enables more consistent records management across all of the firm's offices • Increased adoption of the law firm's knowledge base is enabled by an easy-to-use user interface • Drives better utilisation and return on investment from existing investments in information technology systems and legal research providers by making these information assets accessible via a single simple interface • The universal law firm search engine and easy-to-use interface allow seamless access to the law firm's repository for case (client/matter) related work • Lower total cost of ownership in terms of hardware, training and ongoing administration costs by leveraging the same underlying platform across the information management chain

Many international law firms, such as the law firms mentioned above, have entire knowledge management teams in place and managers designated to law firm information and knowledge management, whilst having an entire KM team is rather new in the South African context.²⁸ In South Africa, if individual lawyers are not in a position to manage information and knowledge efficiently, it is recommended that law firms appoint designated professionals tasked with knowledge management at the law firm.

²⁸ This does not mean that knowledge management is not a function at South African law firms.

The above comparison and literature review on IKM highlight its importance internationally and in South Africa. The preceding discussion gives an overview of the law firm work product and the prerequisite skills in legal research to create such a product timeously and to the satisfaction of the client, who eventually is billed by the hour. In the context of knowledge management and what it sets out to achieve, this article proposes that the billable hour *burden* may be converted into a *blessing*. What this blessing involves is the focus of the empirical survey which sets out to investigate the current situation with regard to IKM in South African law firms.

6 Empirical survey

The purpose of this study is to determine how and why law firms, specifically South African law firms, apply IKM technologies to assist and support lawyers in delivering legal services.

6.1 *Research design and methodology*

The study has a qualitative research design and the approach is mainly exploratory and interpretive in nature. An online questionnaire (structured) was used as the data collection instrument. The study is inclusive in the sense that it included all sizes of South African law firms. The data set is derived from South African firms only and dependent on respondent views.

The study sample included practising legal professionals, law librarians, law firm support staff, and other legal information service providers. Every effort was taken to ensure that the sample covered a wide area of the Republic of South Africa, which entailed sending emails to all recipients listed on professional associations' member lists such as OSALL and SLIS²⁹ with the request to further distribute the questionnaire to practising lawyers and other law firm staff. In addition direct emails

²⁹ Organisation for South African Law Librarians (OSALL); Special Libraries Information Services (SLIS).

were sent to individuals at law firms which were followed-up telephonically. A total of 132 responses were received, of which some were rejected for reasons such as the respondent's submitting the form without completing the questionnaire. With the exclusion of the responses that were rejected by the online survey system, the survey response rate to the study was 69%.

The online questionnaire consisted of 34 questions. The questions were generally constructed with either fixed alternative items, for example the participant had to respond by indicating "Yes" or "No"; or applied an ordinal scale in terms of items to characterise their features and performance. Participants were requested to follow a link to the online questionnaire and they were given an eight-week period to respond electronically before the analysis was undertaken.

The data from the questionnaires was processed by using the statistical analysis features of the online survey programme. The research results were then put into spreadsheets with statistical graphics for a visual presentation of the findings.

6.2 Findings

9% of the participants were lawyers, 75% were law librarians, and 16% fell into the 'other' category, those who described their function as KM support staff, IT department staff, office managers and legal information service providers. Of those responding to the survey, 3% of the participants were from small law firms or were solo practitioners (i.e. 1-10 practising lawyers); 25% of the participants were from small to medium-sized law firms (11-50 practising lawyers); 9% were from medium to large-sized law firms (51-100 practising lawyers); 35% were from large law firms (more than 101 practising lawyers); and 28% represented the other segment of the sample.

All of the participants - that is, 100% of the participants - indicated that their law firms had intranets, whereas only 30% of the participants indicated that their firms have an extranet. Law firms with portals made up 35% of participants. The findings show a widespread application of intranet infrastructure in law firms, but the same is not true

for extranet or portal applications. Listed in order of those systems being most used to the systems being least used, the findings rank as follows:

1. Intranets (100%)
2. Email management systems (83%)
3. Billing systems (73%)
4. Forms and precedents databases (61%)
5. Records management systems (61%)
6. Case management systems (52%)
7. Research archive databases (52%)
8. In-house developed databases (35%)
9. Online legal knowledge and legal services systems based on artificial intelligence³⁰ (35%)
10. Portals (35%)
11. Systems for managing procedures such as best practice guides (35%)
12. Extranets (30%)
13. Workflow and project management systems (30%)
14. Customer relationship management systems (28%)
15. Expertise databases (26%)
16. Systems for online corporate networking (26%)
17. Contact management systems (17%)
18. Business intelligence (BI) systems (13%)
19. Competitive intelligence (CI) systems (9%)
20. Learning management systems (9%)
21. Cloud computing³¹ (4%)
22. Online dispute resolution systems (ODR) (4%)
23. Semantic technologies such as ontologies and taxonomies (0%)

From the above list it seems that systems used for managing a law firm's contacts, BI and CI, learning management systems, cloud computing and ODR systems are not in high use in South African law firms, a situation which raises some concern. Of

³⁰ Eg, systems with embedded compliance requirements.

³¹ Eg, IaaS, PaaS or SaaS – infrastructure, platform or software as a service, i.e. the ability to rent server space, software programs and IT maintenance.

definite concern is the fact that not a single law firm uses semantic technologies. This may be attributed simply to the participants not being familiar with the questionnaire terminology. Nonetheless, the result remains worrying given the previous discussion of the legal profession which identifies itself with a theoretical body of specialised knowledge, viz ontology.³² As mentioned above, ontology is of particular significance to law firm knowledge management because it is a means of knowledge representation.

The reasons for having a web presence are divided into two categories; in the first category are the parties who require the law firm to have a web presence, and in the second category are those with reasons involving business competitiveness. Participants' responses in both categories together with their response percentages are listed below in order of significance:

1. [Category 1] Clients or the community require our web presence (91%)
2. [Category 2] To compete in the legal services industry (76%)
3. [Category 2] To develop our law firm's brand (76%)
4. [Category 2] Our public web site is our firm's digital shop window (71%)
5. [Category 1] Younger lawyers consider it necessary (67%)
6. [Category 2] To attract graduate talent and experienced hires (57%)
7. [Category 1] Senior lawyers consider it necessary (52%)
8. [Category 1] Law firm marketers consider it necessary (52%)
9. [Category 2] To generate leads, influence client relationships, and drive revenue growth (52%)
10. [Category 2] The IT department considers it necessary (43%)
11. [Category 2] To introduce and maintain business relationships through validated web site profiles and social media features such as LinkedIn, webcasts, podcasts, and other web forums (38%)
12. [Category 2] To deliver a non-billable client service and build relationship and trust through authentic content delivery (33%)
13. [Category 2] Our secure web site reflects our firm's digital lawyering venture focused on online delivery of legal services and content (19%)

³² See n 19 above.

In the first category, the main reason for having a web presence is because clients or the community require the law firm's web presence. This was indicated by 91% of participants and reflects the need of law firm clients to interact with legal service providers in an online environment. The second important reason noted was because younger lawyers consider it necessary to have a web presence, as indicated by 68% of participants. This finding signifies the entrance of the younger generation to the workplace and reflects their need to interact in an online work environment.

In the second category, the two main reasons for having a web presence are to compete in the legal services industry, and to develop the law firm's brand. However, only 19% of the participants indicated that their secure web site reflects their firm's digital lawyering venture. This finding indicates the need for focused attempts in law firms to provide a secure online legal service delivery platform.

The next question is aimed at determining the reasons why technologies such as the law firm intranet, portal or other systems are being used. All of the participants, namely 100%, use the law firm's intranet infrastructure to gain access to resources, for example, the law firm brief bank or library resources. The second most important reason for using technologies is to distribute and share information and knowledge, as indicated by 86% of participants. The other applications of law firm technologies were indicated by the participants as follows in order of significance:

1. To be provided with links to legal or factual information (67%)
2. To collect information created by colleagues (62%)
3. To be made aware of existing current knowledge within the law firm (57%)
4. To gain access to precedent information (57%)
5. To gain access to expert information (57%)
6. To reduce the dependence on an individual's knowledge (52%)
7. To be part of the development of new knowledge (52%)
8. To work independently of time and location (48%)
9. To automate administrative processes, for example, billing (43%)

10. To communicate draft work product with colleagues or clients (43%)
11. To learn new IT skills (19%)
12. To participate in discussions with communities of practice (CoP) (4%)

In the above list the least important reason given for using law firm technologies, which is indicated by only 4% of the participants, is that of participation in CoP discussions. However, in response to the question on what technologies are used to obtain sources of legal information, a significant number of the participants (77%) indicated that they consult others through online user groups, listservs or social networks (see Figure 1, next page). These technologies (online user groups, listservs and social networks), are used by CoP. The problem thus seems to be *not* a lack of interest in or no usage of the technologies associated with CoP, but a lack of awareness of the knowledge management benefits of CoP. This finding is an indication to law firm knowledge managers that a gap exists in their legal practices in terms of CoP.

The responses of participants to the question on what technologies are used or what actions are taken to obtain sources of legal information are presented in Figure 1 (below). From these results it seems that searching the internet, not surprisingly, is the primary technology used for finding information. All participants use the internet for information finding; 91% of participants search the internet daily, and 9% of participants search the internet weekly. All participants use online library databases to find legal information; 86% of the participants use these sources daily, and 14% of the participants weekly. All participants use library materials (hard copies); 77% of the participants use it on a daily basis, 14% on a weekly basis, and 9% on a monthly basis. Not all participants consult librarians as part of their information finding strategy. Of the 73% of the participants who do consult librarians for assistance, whether in person, per email or telephonically, to find legal information, 46% of the participants do this on a daily basis, 9% on a weekly basis, and 18% on a monthly basis. Other technologies and activities to obtain legal information include consulting with personal contacts and using private libraries at the office or at home. See Figure 1 (below) for a presentation of the technologies used or the actions taken to obtain legal information.

Technology used / Action taken to obtain Legal Information

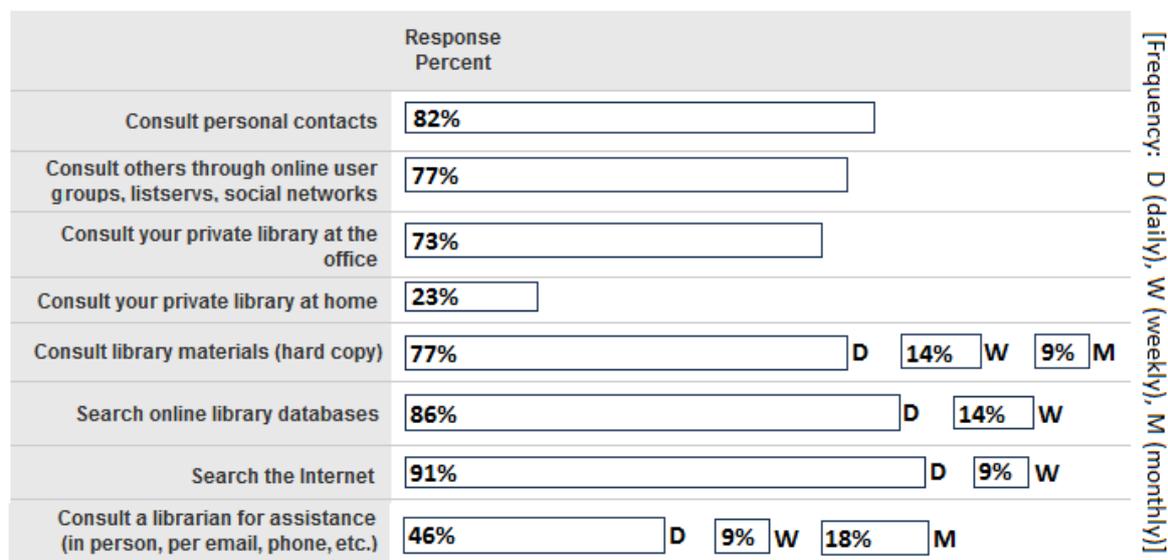


Figure 1: Technologies and methods used for obtaining legal information

In addition to determining which technologies and methods are used for obtaining legal information, a question was posed to determine what work-related reasons the internet was used for when participants were not at the office. Participants used the internet, when away from the office, mostly for the following reasons: 86% of the participants to communicate with colleagues and clients via email and to gain access to online databases, 57% to retrieve and work on office documents, and 33% of the participants use the internet to gain access to their calendars.

Special notice should be taken of participants' positive attitude towards the potential applications of IKM systems (see Table 2, below) and specific consideration and action should be taken with regard to their concerns (see Table 3, next page). In summary, the major perceived advantages of using technologies are improved access to information and increased efficiency of communication with colleagues. Only 44% of the participants consider the internet to be a very effective research tool, 47% consider the internet to be moderately effective, and 9% of the participants perceive the internet to be an effective research tool only to a small extent. The two major concerns of participants are, firstly, that they need a common electronic location where colleagues can obtain the existing work product, and secondly, that a

growing amount of their work product is contained in email and email attachments. Taking these findings into account it is suggested that law firm knowledge managers in conjunction with their IT departments determine strategies and implement systems to better manage law firm electronic communication systems and enable access to the vast source of law firm information and knowledge that exists in lawyers', law librarians' and other law firm staff's email repositories.

Table 2: Perspectives on KM-related activities

	Large extent	Moderate extent	Small extent	Not at all
1. Using information and communication technology (ICT) in the law firm improves access to information resources	93%	7%	0%	0%
2. Using ICT in the law firm increases efficiency of communication with colleagues	77%	23%	0%	0%
3. It is easy to use the Internet as an instrument for information retrieval	65%	26%	6%	3%
4. The Internet is as an effective legal research tool	44%	47%	9%	0%
5. A growing amount of your work product is contained in emails and email attachments (electronic files)	66%	22%	6%	6%
6. It is difficult to retain previous work product from electronic files and email communications	7%	43%	27%	23%
7. There is a need for a common electronic location where colleagues can obtain existing work product	67%	30%	3%	0%
8. Law firm systems and the efforts of the firm's IT or knowledge managers effectively address the need for email management	15%	54%	23%	8%
9. Law firm systems and the efforts of the firm's IT or knowledge managers effectively address the need for an easy to use virtual environment where colleagues can perform tasks online	19%	59%	11%	11%
10. Should you personally become unable to perform your duties, sufficient information exists for another person to know your responsibilities and perform your duties	13%	55%	26%	6%
11. Should your offices be destroyed, sufficient information and knowledge exist in other locations for you to continue to perform your duties	33%	27%	40%	0%

It can be seen in the above table that most participants perceive the application of technology and KM-related activities as useful. Of some concern is the seeming ineffectiveness of the existing systems to ensure continued access to information should their current locations be damaged or destroyed. This concern, together with

the findings derived from the following five questions, focuses attention on the increasing need for improved measures with regard to information security and confidentiality, computer viruses resulting in information corruption and content authenticity (Table 3, below).

Table 3: Concerns in using digital information resources

	Large extent	Moderate extent	Small extent	Not at all
1. Information security is a concern and should be carefully managed when using ICT in the law firm	61%	32%	7%	0%
2. Information confidentiality is a concern and should be carefully managed when using ICT in the law firm	66%	28%	7%	0%
3. Computer viruses can potentially threaten law firm systems	48%	42%	10%	0%
4. Information corruption can result when using ICT in your law firm	18%	43%	25%	14%
5. Content authenticity can be compromised through ICT related misuse	25%	46%	25%	3%

Next, the participants' opinions about the competencies of legal researchers were tested. An arrangement of these skills and competencies in order of significance is given in Table 4 (below). Not surprisingly, the two major skills involve knowing how to find appropriate information and where to find appropriate information. The findings can be divided into three categories, namely, essential legal research skills (90%-100%); important legal research skills (60%-89%); and less important legal research skills (0%-50%).

Table 4: Legal researchers' skills arranged according to significance

	Skill	Never	Sometimes	Always
ESSENTIAL	1. Knowing how to find appropriate information	0%	0%	100%
	2. Knowing where to find appropriate information	0%	0%	100%
	3. Keeping up with new information	0%	4%	96%
	4. Organising and managing information resources	0%	4%	96%
	5. Providing timely, accurate information to relevant people	0%	4%	96%

	Skill	Never	Some-times	Always
IMPORTANT	6. Computer competency (e.g. information searching skills)	0%	14%	86%
	7. Creative thinking skills	0%	19%	81%
	8. Problem-solving skills	0%	32%	68%
	9. Decision-making skills	5%	27%	68%
	10. Developing a personal system for finding information	5%	27%	68%
	11. Written communication skills	0%	36%	64%
	12. Networking with others and building working relationships	0%	36%	64%
MINOR	13. Oral communication skills	0%	50%	50%
	14. Presentation or public speaking skills	19%	67%	14%

Participants clearly indicated that efficient legal research relies on knowing how and where to find appropriate information. Other essential skills included keeping up to date with new information, organising and managing information resources, and providing timely, accurate information to relevant people. In addition to these skills, participants regarded computer competency and creative thinking as important legal research skills. Other skills, such as problem-solving skills, decision-making skills, developing a personal system for finding information, written communication skills, networking with others and building working relationships are generally regarded as important, although they are not always required. Skills that are not necessarily required in legal research include oral communication skills and presentation or public speaking skills. In the latter instance, some participants noted that whether or not they were required depended on the context of the required outcome.

In summary, and specifically keeping the billable hour in mind, the findings of this study may prove useful in understanding how KM can make the difference between billable and non-billable hours. For example, if a young graduate who recently joined a law firm's graduate programme has to draft a document from scratch, the hours it takes to draft the document cannot be billed. If, however, a young associate attorney has access to the law firm's knowledge repositories, spends the same number of hours learning from existing know-how and using it to its fullest extent, the attorney's

work output will increase, not only in terms of drafting a single document, but in terms of producing several work products that can actually be billed to a client.

7 Conclusion

Lawyers are rewarded for how effective they are in applying their knowledge, and their efficiency is measured in the legal accuracy of the work product that they deliver to the client. Delivering an accurate work product relies on having accurate legal information and knowledge. In order to deliver accurate legal services, law firms can apply a variety of tools and technologies to streamline the processes of legal work and reduce costs. For several years the significance of ICTs has been growing in the legal practice domain, and in the knowledge economy now emerging in South Africa, the efficiency of South African law firms depends on how they apply ICTs to their advantage. Gaining advantage in legal practice requires effective legal information and knowledge management. The objective of *information* management is to improve the accessibility, retrieval and storage of information; and the objective of *knowledge* management is to facilitate knowledge sharing between people to their own advantage and to their company's advantage.

The findings of this study show that South African law firms utilise some of the key technology infrastructures such as intranets, document management systems and electronic communication systems. However, more sophisticated systems such as automated document assembly and online dispute resolution are not yet fully implemented. Semantic technologies are not applied and cloud computing does not feature in South African law firms, a fact which suggests that further research is required into its value to law firms. The potential value of implementing KM and applying IM technologies lies not only in satisfying clients' growing need for a trusted online platform to interact with legal service providers, but for law firms to capitalise on their intellectual assets, to improve legal practice management, to empower lawyers, to increase productivity, to use time more efficiently, to facilitate the transfer of skills and knowledge from senior to junior legal professionals, to improve legal service delivery and to gain competitive advantage. In conclusion, South African law firms apply many technologies that are essential to providing a trusted online

platform for legal service delivery. The key to gaining further value from the law firm's intellectual assets is to manage the law firm's information and knowledge. If individual lawyers are not in a position to manage information and knowledge efficiently, it is recommended that law firms appoint designated professionals tasked with knowledge management at the law firm.

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List of abbreviations

IKM	information and knowledge management
KE	knowledge economy
KM	knowledge management
OSALL	Organisation for South African Law Librarians
SLIS	Special Libraries Information Services