



17th BILETA Annual Conference

April 5th - 6th, 2002.
Free University, Amsterdam.

Knowledge Management for Law Practice: Do we really need it?

Martin Apistola, Anja Oskamp
Computer/Law Institute
Vrije Universiteit Amsterdam

Abstract

Knowledge Management (KM), has become popular in law practice. To deploy KM, a KM method could be useful. In general present knowledge management (KM) methods focus on knowledge. Deploying such methods could be useful in an organization where knowledge related problems and needs exist. In other situations, it is questionable whether these KM methods are sufficient to deal with problems and needs found. We therefore first need to find out whether deploying KM is useful for dealing with potential needs and problems within the organization. To identify KM issues, we need a definition of KM in that particular organization. To increase the success of KM deployment, this definition should be in line with the objectives of the organization. To define problems and needs and see whether they match our definition of KM, we use parts of the Information Systems Work and Analysis of Changes (ISAC) method (Lundeberg et al. 1989: 13). This method does not assume that the development of an information system is necessarily the solution to a problem. We believe this also to be valuable for organizations likely to deploy KM. In this paper we describe the following steps for analysis of changes: preparing analysis of changes, analysing problems and needs in the current situation, describing future objectives and thinking about steps after the analysis of changes project. As an example we use a fictitious legal organization, the law firm "Bluestone".

1. Introduction

Legal organizations may want to deploy knowledge management for several reasons. Some see KM as a new and highly competitive concept to be deployed, while others see it as an improvement of the way knowledge is currently managed.

In this paper we take the fictitious law firm Bluestone as an example. Law firm Bluestone is one of Europe's leading law firms and has offices in Amsterdam, The Hague, London and New York. The objective of Bluestone is to strive after being an excellent legal service provider to support its clients in the area of labour, tax and intellectual property law. The firm has approximately 400 lawyers. Clients of Bluestone include large companies, located all over the world. The Tax law department of Bluestone holds over sixty lawyers specialised in tax law. The Labour law departments in The Hague and London were founded in 1975. Their primary tasks are to provide advise on respectively national and international labour law and going to court. The Amsterdam and New York Tax law departments were founded in 1980. The Tax lawyer's primary tasks are giving advise on all aspects of respectively national and international taxation and also going to court. The Intellectual Property department in Amsterdam was founded in 1985 and its primary task is giving advise on all aspects of

national intellectual property law. All law departments are supported by administrative and technical staff. In figure 1 a structure of Bluestone's organisation is depicted.

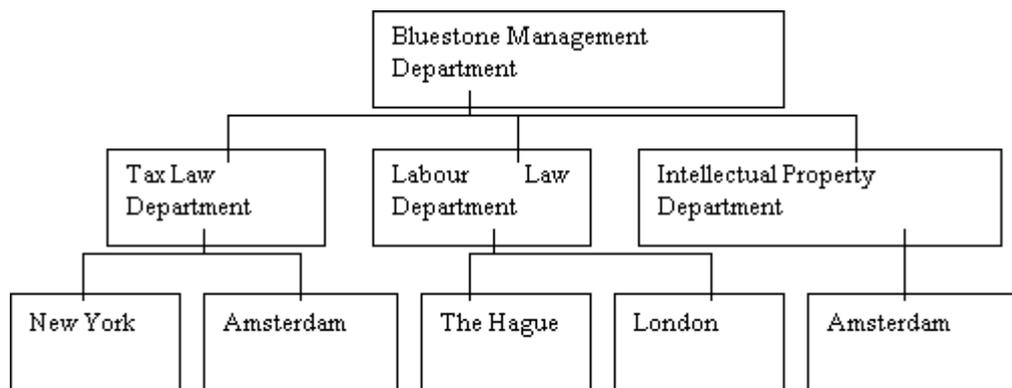


Figure 1. Bluestone, organisational structure.

In Bluestone, the management has heard about other law firms deploying knowledge management (KM) to improve their organisation and their services to clients. Bluestone gives two major reasons for deploying knowledge management. First of all, Bluestone's management has received many complaints from the department's lawyers, administrative staff, secretary and clients. Secondly, Bluestone cannot afford to stay behind its competition and therefore considers to deploy KM too. Bluestone however, does not have a clear understanding of KM yet.

The remainder of this paper is as follows. First of all we describe some important KM issues in chapter 2. We take a look at the meaning of knowledge, knowledge management and KM applied to entire organizations. In chapter 3 we describe a way to identify (knowledge related) problems and needs. We call this an analysis of changes project. This is based on ISAC. In chapter 4 we describe a way to prepare such a project. After this we start the analysis of problems and needs (see chapter 5). Based on this we describe objectives for future (KM) projects (see chapter 6). Finally we mention some points of attention when looking for a KM method in chapter 7.

2. Knowledge and Knowledge Management Issues

In general, present knowledge management definitions and methods focus on *knowledge related issues* and *entire organisations*.

2.1 Knowledge and Knowledge Management

Knowledge is the key factor in knowledge management. Knowledge related issues are needs or problems based on or dealing with knowledge. In literature (e.g. philosophical and psychological) many theoretical definitions and discussions deal with the distinction between data, information and knowledge.[1] At this stage we will not elaborate extensively on these descriptions, although we acknowledge the importance of such definitions and discussions. Based on our literature search after knowledge management and discussions with employees in the legal domain on KM, we found that the concept of knowledge management is often perceived as being vague and unclear. Management of information and data is seen as being a part of it and often KM is mainly seen as dealing data and information. To make KM more applicable for law practice, we believe that knowledge and knowledge management should be approached in a more pragmatic way. In (law) practice we do not see (daily) discussions about what exactly data, information and knowledge are.[2] Most people do not have needs for clear and distinguishing definitions. They often use an intuitive knowledge concept.[3] To make the concept of KM more manageable, we consider data and information as part of knowledge management when they lead to, or are seen as knowledge. Legal databases for example may be part of knowledge management. In most legal settings they are used as tools for acquiring knowledge.

2.2 Knowledge Management: Definitions and Methods

Definitions are necessary to understand the concept of KM and KM methods help to implement a certain understanding of KM. In KM literature, many different definitions of KM exist. Weggeman (1997) defines knowledge management as to "*organize and manage operational processes within the knowledge value chain in such a way that realisation of the organisation's collective ambition, objectives and strategy is advanced.*" [4]

Schreiber et. al. (2000: 72) define KM as "*a framework and tool set for improving the organisation's knowledge infrastructure, aimed at getting the right knowledge to the right people in the right form at the right time.*"

Besides definitions of KM, attention is being paid to methods for implementing KM. Weggeman (1997) describes a knowledge value chain consisting of the cyclic phases *developing knowledge, sharing knowledge, deploying knowledge* and *evaluating knowledge*. Florijn et. al. (2000) describes the general KM phases *developing knowledge, distributing knowledge* and *using knowledge*.

Combining general present KM definitions, KM methods and our experiences with KM, we see that, besides knowledge, issues such as knowledge sources (humans, literature and information technology), tools (methods, techniques and IT), knowledge processes (e.g. developing and sharing knowledge) and their relations play an important role. Knowledge sources are important to store and retrieve knowledge, tools are necessary to process knowledge and knowledge processes are necessary to identify how to process knowledge. Knowledge management is not only working with knowledge, it is also a way to design, implement and manage ways of working with knowledge. Our definition of KM is therefore as follows: "*Knowledge Management is the way in which knowledge, knowledge sources, tools, knowledge processes and their relations are, or should be designed, implemented and managed.*"

Deploying definitions and methods could be useful in an organization where knowledge related problems and needs exist. In other situations, it is questionable whether these KM definitions and methods are sufficient to deal with problems and needs found. We therefore first need to find out whether deploying KM is useful for dealing with potential needs and problems within the organization.

2.3 KM and entire Organizations

In our opinion, successful implementation of knowledge management asks, as said, firstly for a KM definition, secondly for the formulation of the organizations objectives and thirdly for a bottom-up approach.

2.3.1 The organizations objectives and knowledge management

The objectives of the organisation must be in line with the objectives of (KM) projects and vice versa. Employees who strive after realising the objectives of the organisation are likely to commit to a KM project that is in line with those objectives. In case of Bluestone we saw that the objective of the entire organisation is to strive after being an excellent legal service provider, supporting its clients in the area of labour, tax and intellectual property law. Although this objective seems rather general, KM activities can be applied. With the help of KM, Bluestone can, for example, support its clients by offering them the right legal information at the right time. Although every department is supposed to strive after Bluestone's objective, this is not always the case. The tax law department in New York, for example, strives after more profit rather than supporting its clients in an excellent way. This may have consequences for deploying KM. It seems that this department will be very resistant to initiatives to manage and share knowledge with other departments, such as the Tax law department in Amsterdam. KM takes time and time is money.

2.3.2 KM: a bottom-up approach

Bluestone is a legal organisation with different labour, tax and intellectual property departments located at widespread locations (Amsterdam, New York, The Hague, London). We also saw that the objective of Bluestone is not strived after by all its departments. These are already some reasons that make it hard to deploy KM for an entire organisation. It is easier to start from the organisation's bottom. This means that one starts with deploying KM to smaller parts of the organisation. In case of Bluestone, we do not look at the entire organization but we limit the project to the Tax law department in Amsterdam. To make the KM project even more manageable, we limit it to the primary tasks of this department. Primary tasks are those tasks which are necessary for the continuation of the organization. Examples are giving legal advice and going to court. In this stage we do not focus on the secondary tasks such as financial support.

Applying KM methods will make it clear what kind of knowledge and management is important for the Tax law department in Amsterdam. After this, a KM project could be deployed in another department, for example the Tax law department in New York, establishing what kind of knowledge and management is important for this department. When all departments have been researched, decisions can be made up on issues such as: the Tax law department in Amsterdam lacks knowledge on some national labour law subjects, how can the Labour law department in The Hague provide them with this knowledge?

After having a more manageable idea of KM, we may consider to start preparing the analysis of changes.

3. Finding knowledge related needs and problems

To define problems and needs and map those on our definition of KM, we can use parts of an Analysis of Changes method (Lundeberg et al. 1989: 13). This analysis of changes method is part of the Information Systems Work and Analysis of Changes (ISAC) method.[5] The method covers all aspects of information systems development. ISAC is a problem oriented method. When needs or problems are not identified, the role of the method terminates. The method does not assume that the development of an information system is necessarily the solution to a problem. People and their problems play an important role in ISAC: their knowledge, interest and motivation help to perform the analysis and to solve problems (Avison et. al., 1995: 341).

In this paper we describe the following steps for analysis of changes: preparing analysis of changes, analyse problems and needs in the current situation, describing future objectives and thinking about steps after the analysis of changes project. As an example we refer to our law firm "Bluestone".

4. Preparing Analysis of Changes

The analysis of changes analysis of the law firm Bluestone starts with preparation. To structure this preparation, we need a project plan. In general the project plan contains background information on the organization, starting points with conditions, aims of the organization and the project with results aimed at, planning with milestones, project time, capacity and costs, project members involved and their responsibilities. By knowing elements like the objective of the project, equipment to be used, planning and costs, we can reach agreement between the management of Bluestone and the KM project group on whether to deploy the project or not. The project plan can be reused in similar situations. To illustrate a project plan, we will briefly describe some points of attention.[6]

Project organization: The project organization consists of two groups: the knowledge engineers and an interest group. The knowledge engineers deploy the analysis of changes project while the interest group consists of people that provide the engineers with issues such as problems, needs and solutions. For the foundation of a project organization it seems wise to consider the following

questions:

Organization: Should the project organization consist of people from within the entire organization and / or people from its environment? This is important to know because people from the organizations environment for example are more open and objective and can see problems sooner than the employees. On the other hand, external people are often more expensive and have to be made familiar with the organization.

Members: Should the project organization consist of members such as management (e.g. director and head of administration of Bluestone), employees and knowledge engineers with a basic legal background, with legal expertise (e.g. the tax lawyers of Bluestone) or no legal background (e.g. secretary and clients of Bluestone) at all? This is important to know because different members look differently at the organization and the project. The management is for example more concerned about finances but often is not aware of (specific) problems at the work floor. And dealing with legal domains may ask for legal expertise. It is therefore questionable whether members with no legal background are able to participate in the project. However, having members who perform different tasks at different parts of the organization, it becomes possible to get a bird eye's view on the organization.

Tasks: Should the project consist of employees performing primary or secondary/supportive tasks? This is important because employees performing secondary tasks do not always know how primary tasks are performed and vice versa.

The activities of the Bluestone project are for example executed by a project organization that consists of Martin and Anja (knowledge engineers), and the interest group John (director of the law firm), Mary (tax Lawyer, has just begun, works in Amsterdam), Tom (tax lawyer, years of experience, works in New York), Bert (head of administration), James (secretary) and Pete and Gordon (clients).

Methods and Techniques: The availability of methods and techniques for the project. In case of Bluestone we use the analysis of changes method, and on a more detailed level knowledge acquisition techniques as interviews and brainstorms. For the representation of knowledge we use simple tables and diagrams. The members of the interest group appeared not to be familiar with the analysis of changes method. Therefore we have to add a plan for education in our project plan. In this plan we describe what kind of education is necessary, who will be involved and how long it will take.

Knowledge Sources and Tools: Some major elements need to be present and necessary: knowledge sources are necessary and probably IT to process data and to create milestones. Knowledge sources are those sources in which the knowledge engineer can find knowledge Pagina: 7

Dit begrijp ik niet: kennis voor de taakanalyse? Ik dacht juist voor het uitvoeren van de juridische taak. Je moet heel voorzichtig zijn met het door elkaar heen gebruiken van vergelijkbare begrippen.. The amount, diversity and availability of sources can be substantial (Oskamp, 2000). Knowledge sources can be humans (e.g. experts or end-users), writings (e.g. jurisprudence) or information technology (e.g. databases containing cases or legislation). [7]

In this phase it should be made clear which knowledge sources can be approached and in what way. In case of Bluestone Martin and Anja have knowledge about knowledge engineering in the legal domain, John has knowledge about the management of the law firm, Mary and Tom have knowledge about tax law and Bert has knowledge about the administration of the tax law department. Furthermore a lot of literature is available. Bluestone has its own library with journals, articles and monologues dealing with legislation, case law and jurisprudence. Knowledge about cases is stored in paper files. Bluestone also makes use of information technology. They have legal databases with cases and legislation, legal expert systems to advice in Tax law cases and access to internet sources

on law. For the analysis of changes the knowledge engineers are allowed to access all knowledge sources. Results can only be published after permission of the management.

Costs and means: How much time will be spend on the project by members of the project group? It should clarify if the entire project can be financed. In case of the Bluestone project we made the following plan: Martin and Anja need three months, five days a week, to perform the project. Therefore they charge 500 euros each per day. For the project they need the availability of the involved employees, each for three hours per week. After reaching agreement on the finances, the project continues.

After having reached agreement on the project plan, the analysis of problems and needs in the current situation can start.

5. Analysis of Problems and Needs in the Current Situation

The following steps are part of the global analysis of problems and needs in the current situation: a first inventory of problems and needs, a first analysis of groups of interest, a first analysis of problems and needs, describing the current situation and judging the current situation.

5.1 Inventory Problems and Needs

The global inventory of problems and needs gives a first idea of some of the problems and needs which currently exist or are expected in the future. After this we can see what need or problem is knowledge related and fits to our definition of KM.

To inventory problems and needs within the tax law department, we use knowledge acquisition techniques. Popular forms of knowledge acquisition techniques within the legal field are interviews, discussions and observations (Zelevnikow, 1994).

Within the Tax law department problems were mentioned which are actually hidden solutions (see also Zet, 1996). The statement: 'we are missing a computer' is not a problem, but meant as a solution. And: 'we lack information' is not a good formulation of a problem. What is meant is that something does not go right because a possible lack of information. We need to find out what the consequence is of the lack of information and whether that is a problem.

Because not all problems and needs can be found (at once), our analysis of changes method is iterative: new problems and needs found in a certain phase can be added to a previous phase. Furthermore, a lot of contact with all the people involved during a project is important to gain a stable idea of the problems and needs.

Let's assume that after taking interviews, discussions and observations, various problems within the Tax law department are found. In table 1 a first list of problems and the people involved in these problems are described.

Ref.	Problem description
code	
P1	LEGAL KNOWLEDGE IS NOT UP-TO-DATE
	Legal problems are solved on basis of old legal knowledge. Both Mary (tax lawyer) and Tom (tax lawyer) have experienced regularly that they received complaints from clients who lost cases because their defense was based on "old" legal knowledge. The opposite party appeared to have legal knowledge which was more up-to-date.
P2	FORMER CLIENTS STILL RECEIVE BILLS

Former clients still have to pay although their cases have been closed.

Pete and Gordon are former clients who still receive bills for their cases, which were already closed. Gordon has also heard this complaints from other former clients of Bluestone.

P3 THERE IS LITTLE AWARENESS OF LEGAL JOB DESCRIPTIONS

Not all employees know who deals with a certain legal problem within the organization.

Mary is a tax lawyer and just recently started working at the office in Amsterdam. In some complex cases she needed specific advice about tax law in the United States. Unfortunately she was not aware of the fact that John, tax lawyer in New York, could give her this advice. It has happened that she advised clients to find another law firm.

P4 EXPENSIVE LEGAL EXPERT SYSTEMS ARE NOT USED

Expert systems are not being used because they are not user friendly.

Mary, a tax lawyer and her other tax law colleagues have tried to use two new expert systems, called TAXIS and TIS, on tax law. These very expensive systems were bought by the management without asking the lawyers first. The system is not user friendly and Mary and other tax lawyers think that they lose too much time and make mistakes by using this complex system. Therefore they solve all complex legal tasks manually. This takes too much time.

P5 LEGAL KNOWLEDGE IS NOT SHARED

Solutions for legal problems are not re-used but developed over and over again.

Mary, a tax Lawyer, has experienced already a couple of times that she had to solve a tax problem, while at the office in The Hague a similar problem was already solved. Re-inventing the wheel takes a lot of time.

Table 1 List of Problems: Every problem has a reference code so it becomes easier to refer to. The problems are accompanied with explanation.

To summarize, the interest group and the problems they have to deal with can be seen in table 2.

Refcode	Name	Function	Related problems
I1	Mary	Tax Lawyers	P1, P3, P4, P5
	Tom		
I2	Bert	Administration	P2
I3	Pete	Clients	P1, P2
	Gordon		
I4	TAXIS	Expert systems	P4
	TIS		

Table 2 Groups of Interest: Every group of interest has a reference code so it becomes easier to refer to. The groups of interest are connected to the problems they are related to.

5.2 Analyse Problems

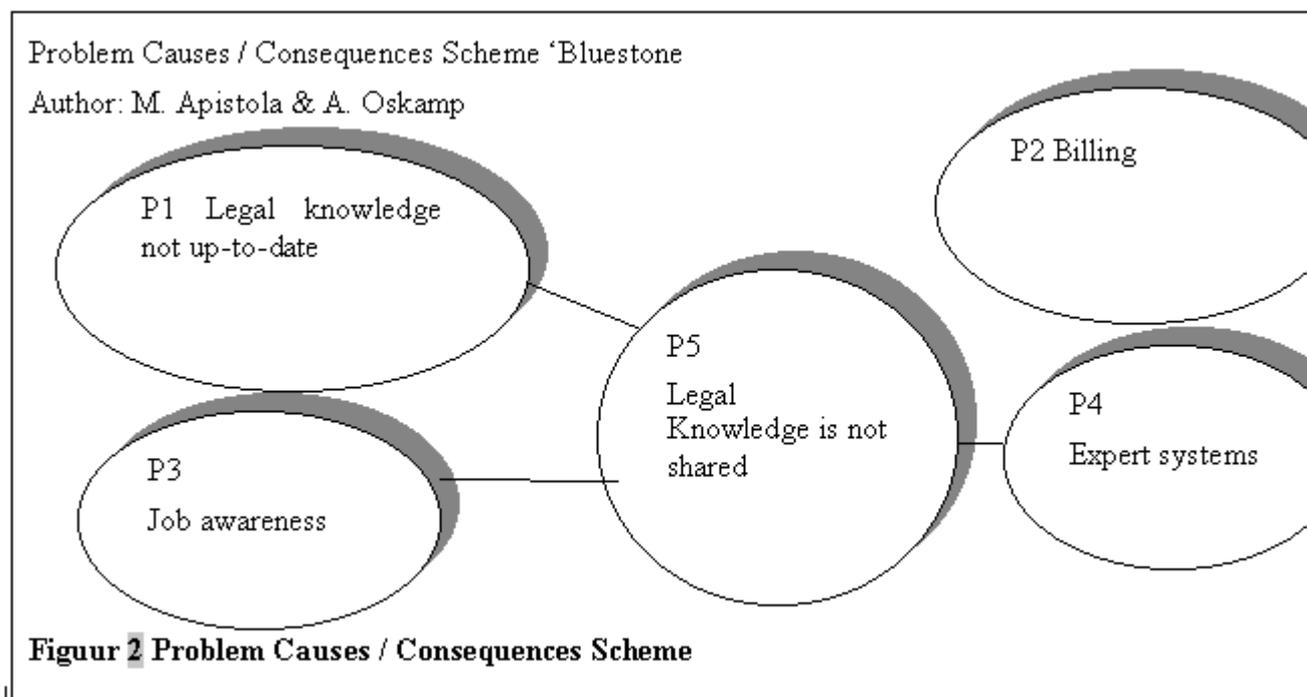
In the problem analysis problems are grouped. Problems are analyzed and causes for as well as

consequences of problems are found.

Analyze Problem Causes and Consequences: Studying the relations between problems may lead to finding certain problems that are part of other problems and not problems themselves. The problem and causes are graphically depicted (see figure 2). In the example of Bluestone we found that the problems of legal knowledge not being up-to-date, little awareness of legal functions and expert systems not being used are primarily consequences of the problem that knowledge is not being shared. These problems directly deal with the primary tasks within the Tax law department. We see the problem of billing independent from the other problems because it is not knowledge related and it is no part of the primary tasks of the Tax law department (see figure 1). Billing is a task which supports the primary tasks within the department.

Problem Causes / Consequences Scheme `Bluestone

Author: M. Apistola & A. Oskamp



Group Problems: We group the problems found for two reasons. First of all, by grouping problems we can see whether they fit into our definition of KM. Secondly, after grouping the problems we can decide what groups need higher priority for solving. As a starting point we took the elements of our KM definition and qualified them as problem groups. After having done this, we tried to fit the problems found into these groups (see table 3).

Problem group table "Bluestone"

Author: M. Apistola & A. Oskamp

Problemgroup 1: *Knowledge*

P1 LEGAL KNOWLEDGE IS NOT UP-TO-DATE

P3 THERE IS NOT MUCH AWARENESS OF LEGAL JOB DESCRIPTIONS

P5 LEGAL KNOWLEDGE IS NOT SHARED

Problemgroup 2: *Knowledge Sources*

P1 LEGAL KNOWLEDGE IS NOT UP-TO-DATE

P3 THERE IS NOT MUCH AWARENESS OF LEGAL FUNCTIONS OF EMPLOYEES

P5 LEGAL KNOWLEDGE IS NOT SHARED

P4 LEGAL EXPERT SYSTEMS ARE TOO HARD TO WORK WITH

Problemgroup 3: *Tools*

P4 LEGAL EXPERT SYSTEMS ARE TOO HARD TO WORK WITH

Problemgroup 4: *Knowledge Processes*

P1 LEGAL KNOWLEDGE IS NOT UP-TO-DATE

P5 LEGAL KNOWLEDGE IS NOT SHARED

Problemgroup 5: Not Knowledge Related

P2 FORMER CLIENTS STILL RECEIVE BILLS

Table 3 Problem groups

6. Describing future Objectives

After having an first idea of problems, we can make an inventory of the global needs for changes. These are some of the objectives the organization may want to realize. In case of Bluestone, most needs fit our definition of knowledge management (see table 4). In this definition we described the following elements as part of KM; knowledge, knowledge sources, tools and knowledge processes. In table 4 we see that the needs found can be qualified as objectives for future knowledge management. The objectives need to be discussed with the management and employees involved in order to prioritise them.

Needs of changes table "Bluestone"

Author: M. Apistola & A. Oskamp

Problem group 1: *Legal knowledge*

N1 Legal Knowledge on cases and functions must be shared.

N2 Legal knowledge must be up-to-date

Related problems: P1, P3, P5

Problem group 2: *Knowledge sources*

N3 Lawyers must share knowledge

N4 Lawyers must keep knowledge up-to-date

N5 IT must be user-friendly

N6 Clients must be informed in time.

Problem group 3: *Tools*

N3 Legal expert systems must be user-friendly

Related problems: P4

Problem group 4: *Processes*

N4 Bills must not be send after a case is closed and the client has paid all relevant bills.

Table 4 Needs of Changes

7. The Next Step

The next step after describing and prioritizing the objectives is to deploy a method to realize these objectives. In case of Bluestone we need a knowledge management method that can give us advice

in the kind of solutions necessary to realize the KM objectives. When looking for a KM method, several points of attention should be taken into account. Besides choosing for a top-down or bottom up KM approach, characteristics of each department and employees play a role. Earlier we saw that the Tax law department in New York might not be willing to co-operate with KM initiatives. But also characteristics of the legal domain influence the way KM is deployed. Legal knowledge for example is often vague and confidential and can not always be shared easily (see for example Van den Herik 1991: 16-21).

8. Conclusions and Future research

General present KM definitions and methods focus on knowledge. In this paper we explored a way to find out whether deploying KM is useful for dealing with potential needs and problems within a legal organization. We showed that these problems and needs are not always knowledge related.

To identify KM issues, we used a definition of KM in a particular organization. With the help of such a definition, relevant KM elements can be distinguished and knowledge related needs and problems can be categorised. To increase the success of KM deployment, we found that this definition should be in line with the objectives of the organization. To define problems and needs and see whether they match our definition of KM, we used parts of an Analysis of Changes method (Lundeberg et al. 1989: 13). This analysis of changes method is part of the Information Systems Work and Analysis of Changes (ISAC) method. This method does not assume that the development of an information system is necessarily the solution to a problem.

As an example for our method, we used a fictitious legal organization, the law firm "Bluestone". Our future research will look more closely at subjects like the practical use of KM related methods and techniques as described in this paper. At the moment the idea is to apply the results of the PhD. research to law practice (e.g. a law firm) and to explore whether (AI&Law) methods, techniques and IT for example, are suitable for KM. On basis of the results, a KM method for law practice could be developed.

9. Literature

Apistola, 2001	Apistola, M., Oskamp, A., <i>Preparing Knowledge Management for Law Practice</i> , Jurix, 2001 In: Proceedings Legal Knowledge and Information Systems - Jurix 2001: The Fourteenth Annual Conference, B. Verheij, A.R. Lodder, R.P. Loui, A. Muntjewerff (eds.), IOS Press, Amsterdam, 2001
Avison, 1995	Avison, D.E., Fitzgerald, G., <i>Information systems development- methodologies, techniques and tools</i> , London, McGraw-Hill, 1995
Boersma, 1995	Boersma, S.K.Th., <i>Kennismanagement: een creatieve onderneming</i> , oratie, Rijksuniversiteit Groningen, 1995
Florijn, 2000	Florijn, R., Gurchom, M. van, Meulen, M. van der, <i>Kennis leren managen - de theorie en praktijk van kennismanagement</i> , Ten Hagen & Stam, Den Haag, 2000
Lundeberg, 1989	Lundeberg, M., Goldkuhl, G., Nilsson, A., <i>Systeemontwikkeling volgens ISAC</i> , Samsom, Alphen aan den Rijn, 1989
Oskamp, 1990	Oskamp, A., <i>Het ontwikkelen van juridische expertsystemen - een theoretische beschouwing</i> , dissertatie Vrije Universiteit Amsterdam, Kluwer, Deventer, 1990
Oskamp, 2000	Oskamp, A., <i>Beheer van juridische kennis in het IT tijdperk</i> , in: <i>Onderneming en ICT</i> , Berkvens, J.M.A., Faber, N.E.D., Kortmann, S.C.J.J., Oskamp, A., (red.), W.E.J. Tjeenk Willink, Deventer, 2000
Schreiber,	Schreiber, G., Akkermans, H., <i>Anjewierden, Knowledge Engineering and</i>

2000	<i>Management</i> , MIT Press, 2000
Van den Herik, 1991	Van den Herik, H.J., <i>Kunnen Computers Rechtspreken?</i> , oratie Universiteit Leiden, Gouda Quint, Arnhem, 1991
Van Engers, 2001	Van Engers, T.M., <i>Knowledge Management- The Role of Mental Models in Business Systems Design</i> , dissertation Vrije Universiteit Amsterdam, Belastingdienst, 2001
Weggeman, 1997	Weggeman, M., <i>Kennismanagement - inrichting en besturing van kennisintensieve organisaties</i> , Scriptum Management, Schiedam, 1997
Weusten, 1999	Weusten, M.C.M., <i>De bouw van juridische kennissystemen - KRT methodologie en gereedschap</i> , dissertatie dissertation Universiteit Utrecht, Kluwer, Deventer, 1999
Zeleznikow, 1994	Zeleznikow, J., Hunter, D., <i>Building Intelligent Legal Information Systems- Representation and Reasoning in Law</i> , Kluwer, Computer/Law Series, Deventer, 1994
Zet, 1996	Zet, C. van der, <i>Veranderingsanalyse</i> , Moduleboek SO-01, Haagse Hogeschool, Sector Informatica, Den Haag, 1996

[1] Boersma, 1995: 21.

[2] Van Engers, 2001: 7.

[3] Van Engers, 2001:9.

[4] In Dutch: "Het zodanig inrichten en besturen van de operationele processen in de kenniswaardeketen dat daardoor de realisering van de collectieve ambitie, de doelen en de strategie van de organisatie wordt bevorderd".

[5] This method has been developed since 1971 by, amongst others, the University of Stockholm, Sweden (Avison et al, 1995: 340).

[6] In Apistola and Oskamp 2001, a more detailed description of a project plan is given.

[7] Many examples of (legal) knowledge sources exist. See for example Oskamp (1990) and Weusten (1999).