Intelligent agents for lawyers

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1. Introduction

The aim of this paper is to indicate and explore some of the possibilities of using agents in today's and tomorrow's law offices. The main function of agents is, in general, to support the user. In this case, a lawyer. To be able to support a practicing lawyer, however, not only is insight in daily practice required, but also understanding of practicing lawyers needs and desires. This position paper is meant to serve this purpose. It aims at getting response from practicing lawyers indicating what kind of support they are most interested in .

Why use intelligent agents to support law practice? The need for searching and handling information in law practice is obvious. Part of this information handling is routine, while part is specific to a certain topic or a case. Searching for information is for an important part supported by Information Technology (IT) tools, like legal databases and the internet. Handling of information is also partly supported by IT tools. Examples are (internal) databases, word processing and systems for document drafting. Some Artificial Intelligence is introduced in law practice by operational knowledge based systems [Weusten 2001]. Making document drafting systems more intelligent by introducing discourse and domain knowledge is also a research topic [Branting 1999]. Intelligent agent techniques can provide tools that are more customized and more personalized than tools that are now available. Intelligent agents can provide support as a personal assistant, either to one particular lawyer or a group of lawyers.

In this paper section 2 explains exactly what intelligent agents are. Section 3 discusses various possible tasks for intelligent agents, mainly as personal assistants. Each subsection includes a list of questions with respect to relevance, feasibility, utility, et cetera, hopefully providing topics for discussion. Section 4 summarizes these questions placing them in a broader context

2. Intelligent agents

The agent paradigm provides a means to characterize autonomous distributed processes. Systems (either human or automated) are characterized in terms of their function, environment and interaction with other systems.

As agents can communicate with other agents and interact with the "material" world, they can act independently of other systems. Software agents may interact directly with human users, others interact with automated agents only. In general, software agents are described in terms of:
Autonomy, social ability, reactiveness, and pro-activeness.

Software agents may represent their users, acting on their specific behalf, either by being explicitly "asked" to perform a task by the user, or by "deciding" on their own that a task should be performed.

Agents can:

1. be mobile (moving about the internet), they can learn from experience (e.g. building profiles of the user, of subject matter, of other users and organisations),
2. interconnect existing automated systems (e.g. expert systems and decision support systems),
3. negotiate (e.g. contracts) with other agents,
4. co-operate with other agents (e.g. dividing up a complex task into smaller tasks and then combining results),
5. integrate information from different sources,
6. discover shared interests between agents (matchmaking),
7. manage resources (planning),
8. perform legal transactions …

There are few human activities that can not be supported or performed by automated agents. Currently agents perform tasks that are relatively simple, (such as scheduling, information retrieval, load balancing, navigation) in the near future more complex tasks will be delegated to such agents.

To use automated agents to support human tasks asks for an automated environment. Information, for instance, should be available electronically. In present day law offices this is more and more the case. This enhances the possibilities for introducing intelligent agents. Cooperation with human agents in this environment will be a condition, since not all information will be available in electronic format and not all decisions can be made by software agents. Feedback is necessary. Software-agents will thus have to be able to co-operate with human agents.

3. Some possibilities for using Intelligent agents (personal assistants) in law offices

Knowing what kind of tasks agents can perform makes it possible to define some specific tasks for agents to support lawyers. In general we can say that the tasks mentioned in section 2 are tasks that in some way can be used to support lawyers. Support can be provided by one single task or in combination of tasks. The tasks we describe in the following subsections can be combined. This will enhance the usability of the agents. The following tasks can be distinguished:

3.1 BUILDING PROFILES

Agents can build profiles of human users, on the basis of information provided directly by another agent (possibly human) but also on the basis of their knowledge of specific types of users or subject matter. This knowledge can be extended in a number of different ways, e.g. on the basis of default knowledge (assumptions), on the basis of acquisition of new knowledge (e.g. by searching the internet) from different sources (with varying degrees of trustworthiness) either targeted or not, or combining information known to the agent (deriving new information).

This task combines the tasks from section 2 sub 1 to 6.

Possible applications

Lawyers could use agents to build profiles of their clients, lawyers, witnesses, or opponents: providing additional information (together with the source). This information can be used in combination with knowledge of daily practice. This information can result in more effective but also more efficient practice.

Questions
- How important is profile building?
- Is profile building always valuable?
- What are important factors for profile building?
- Would it matter if opponents were aware of the information gathered?

3.2 LOOKING FOR CASES AND SUPPORTING LEGAL INFORMATION

Agents can be used to keep a lawyer informed, but also to search for information that may be of interest to a lawyer given his/her specific profile and a specific case. In most cases an agent is given/has an initial profile of the user's interests. In most cases this profile can be refined on the basis of the interaction between the user and his/her agent. An agent can:
- discover which areas are of interest to the user: discover which documents are not "on target" (the most effective way of discovering this is to be told directly by a user) and discover why this is the case.
- detect patterns in the types of documents a user requests
- detect patterns in the sources a user "consults"
- to do this information from different sources can be combined.

As a result of this the agent can be used
- to categorize retrieved documents/ information
- distinguish between various categories
- prioritize information

Agents can be profiled to represent an individual, but also to represent groups of professionals. It is also possible that individual agents, each representing a specific professional cooperate and together make the profile of a group of professionals, for instance a division within a law firm. This could enhance knowledge and information sharing.

This task combines the tasks mentioned in section 2 sub 1, 2, 4, 5 and 6.

Possible applications
- looking for specific cases related to a specific problem
- learning from other professionals in the same group by having agents cooperate in searching for information
- keeping up to date related to new case law on a specific topic and additional information (e.g. journal publications)
- having new case law and information presented in a categorized way, prioritized related to the profile of the user

Questions
- Are these useful and appropriate tasks?
- Are there pitfalls to be aware of?
- Are there conditions these agents should come up to, like security, privacy?

3.3 DOCUMENT MANAGEMENT

Agents can be trained to compose documents related to a specific situation. These should be 'standard' documents consisting of standard parts that can be adjusted to a specific case, inserting case specific information and details. In addition the agent can be trained to manage different versions of documents, keeping record of the changes, categorize them and present the changes according to priority. An agent could also be trained to learn from the results of prior negotiations as these are embodied in prior contracts and suggest adjustments.
This tasks combines the tasks 2, 3, 4, 5, 6 and 7 mentioned in section 2.

Possible applications
- Intelligent document assembly
- Management of document versions,
  - indicate changes
  - categorize changes
  - present changes according to priority
- suggest adjustments to contracts, based on knowledge from prior contracts
- support translation
- recognize inconsistencies

Questions
- Are these useful and appropriate tasks?
- Are there other tasks within this line?
- How autonomous can agents become in this task?
- Are there pitfalls to be aware of?
- Are there conditions these agents should come up to, like security, privacy?

3.4 LITIGATION SUPPORT

Agents can be trained to support litigation in specific ways. The most obvious chances lie within support of numerical litigation, as in fixing amounts of smart money. Agents can get knowledge about the opposite party, but also of the common practice in adjusting the amounts

of money involved. They can use multi criteria models and follow negotiation strategies. This is the most 'questionable' way of using agents in the law practice and need to be researched thoroughly before practical applications can be developed. Input from practice is most important to guide further research on this topic. Important for this topic is also that way in which agents from other parties can be trusted and how this can be established.

This task combines tasks 1 to 8 as described in section 2.

Questions
- Are these useful and appropriate tasks?
- Which domains cold these tasks be used for?
- Can we leave negotiation tasks in the legal field to agents?
  - If so to what extent?
  - What are the boundaries of using agents for these tasks?
- Are there pitfalls to be aware of?
- Are there conditions these agents meet, like security, privacy?

3.5 PLANNING AND MANAGEMENT

Legal tasks ask for adequate planning and keeping deadlines. Agents can play a role in that as well. They can guard deadlines and plan activities to meet those deadlines. They can check deadlines of other parties and anticipate on that. Also they can ensure that the right procedures are followed at the right times, either by performing them themselves or warning the users, including human agents. Also these agents can 'supervise' other agents while those perform their tasks and ensure the timely performance of necessary subtasks.

This task combines the tasks 3, 4, 6 , 7 and 8.

Questions:
- Are these useful and appropriate tasks?
- Are there other appropriate tasks within this line?
- In which domains could these tasks be used ?
- What authority can these agents have, i.e. how autonomous can they be?

4. Concluding remarks

This position paper has sketched the potential of a relatively new phenomenon in ICT, software agents, for daily legal practice. Agents provide users (in this case lawyers or groups of lawyers) with information which may or may not have been available in the past. This may be information which has been acquired directly, it can also be information acquired by aggregating/combining information from different sources. As agents are autonomous they perform their tasks without continual intervention by the user. They work on the basis of profiles and models. How autonomous agents will become in the future is not clear. It is also not clear to which extent agents will be able to perform legal transactions in the future. Security, anonymity, traceability and authority are all issues of concern. They should be taken into account while developing agents for specific tasks. They may also limit the potentials of agents. However, legal practice can benefit enormously from the delegation of relatively menial tasks to automated agents. Automated agents are patient: they can spend as

much time as needed (or delegated) to look for specific types of information where human agents are not necessarily so inclined.

At this moment the applicability of agents for legal practice is minimal. This can also be said for other professions. In practice agents are currently most often used to perform tasks explicitly delegated to them (e.g. explicit queries for information retrieval, scheduling according to explicit specifications). The human user is often still in "complete" control. In the future, however, agents will most likely become more pro-active, capable of autonomously determining when and how tasks are performed. The conditions for performance of legal tasks by intelligent agents need still be formulated. The above mentioned issues of concern may limit the possibilities. On the other hand, preceding knowledge of conditions and concerns may enhance possibilities and speed up development. The attitude of lawyers towards using these software agents is an important issue. If this attitude is taken into account from the start of development of these tools it will enhance their usability in practice. If known on forehand many of the concerns about the use of intelligent agents in law practice can be met. In addition research on this topic is in progress and can focus on the topics that lawyers are most interested in. This will lead to applications that can directly be used in law practice.

The purpose of this paper is to encourage both researchers and daily practitioners to think about the directions, problems and potential of the use of intelligent agents in daily legal practice. Our research groups are working on the development of intelligent agents in law offices. We hope to learn from the discussion and welcome any suggestion about this topic.

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