ABSTRACT

Agreements and contracts are not just pieces of paper to be signed before money changes hands; they are vitally important documents. If an organization hopes to properly fulfill the terms of its contracts, to say nothing of negotiating future contracts, it must have a system for organizing and managing its contracts. Such a system must make data accessible as well as keep it secure. Resources and tools should be incorporated wherever possible to design and implement a system within the available budget. After it is implemented, the effectiveness of the contract management system should be continuously monitored and evaluated.

1. INTRODUCTION

Social and cultural differences can cause people, even good friends, to misunderstand each other. Written agreements and contracts are therefore critical in that they formalize the details of a deal and ensure that all parties concerned understand their rights and obligations. For these reasons, a contract is not just a piece of paper that must be signed before money changes hands, but a vital document throughout the life span of the relationship between the parties to a deal.

It is important for a company or institution to be able to organize and manage contracts to know what its existing contractual obligations are. After all, there is no use negotiating a wonderful deal for a piece of technology if your organization does not have the rights to the technology (or has already licensed rights to certain parts of the technology). Even worse, you will not be able to sign a deal at all if you cannot find out whether you have the rights to use a technology. Both of these situations require that your organization can quickly determine where you stand with existing contractual obligations related to the technology that is being developed.

This chapter will consider the life span of a contract from the point of view of what is required to manage the rights and obligations under that contract. Life span is defined as the entire process (or the stages) from the initial idea of a deal to the expiration of the contract or of its obligations (Figure 1).

2. REQUIREMENTS OF A CONTRACT-MANAGEMENT SYSTEM

Agreements and contracts have a life span and the needs for contract management will change over time: during negotiations, for active contracts, and after a contract has expired or been terminated.

2.1 Requirements during negotiations

Contracts begin as a potential relationship between two or more parties. Ideally, the parties negotiate an agreement that ends in a signed contract, but the agreement may be put on hold, or...
even dropped completely, if the parties cannot agree or if the agreement process is somehow derailed. The level to which pre-signing activity needs to be captured in a contract-management system depends on the parties involved and the way the deal was initiated and brought to a close. The following questions need to be considered: Would it be valuable (for the parties involved or for future negotiators) to have the history of the negotiation on record? Did communications during the negotiations have any bearing on the final deal? Will the negotiations (especially if they do not lead to an agreement) affect potential future deals? The staff that were a part of the negotiations will likely be able to answer these questions. Generally speaking, in a small organization, it may not be critical to formally record such information. However, in larger organizations a high staff turnover and a larger number of contracts often translates into a shorter “institutional memory” and a greater need for formally recording the information.

2.2 Requirements for active contracts
It is important to store a signed contract securely; however, it is also critical that the staff responsible for implementing the terms of the contract have access to the documents, so that they can ensure that all rights are enforced and obligations honored. For example, licenses fees must be paid and reporting dates must be met. In addition, a contract may oblige one of the parties to disperse funds, to follow up diligently on product development, to grant rights to derived materials to third parties, or to obtain such rights from third parties. The methods of storing and accessing contracts will largely depend on the size and resources of the organization, and is discussed in detail in a later section.

2.3 Requirements after contract expiration
When a contract expires or is terminated before its due date, the parties involved often still have various legally binding obligations toward each other. For example, all parties are typically bound by confidentiality clauses that last longer than the contract period. There may be other obligations, as well, such as the obligation for one party to give up the rights to original or derived materials. The extent to which each party fulfills its obligations may directly affect the success of future deals, so both administrative and management staff must be familiar with the obligations of all parties. To facilitate this information sharing, the requirements of a contract-management system are as much about enabling access as they are about secure storage.

3. DESIGNING A CONTRACT-MANAGEMENT SYSTEM
A contract-management system can be based on many components such as institutional memory, hard-copy filing, electronic filing, or a computerized database. However, a system composed of a combination of these components is more robust. Moreover, since it is not entirely dependent on any one technology, the reassignment of staff, a flood in the archive room, a fire in the computer

---

**Figure 1: The “Life Span” of a Typical Deal**

- Negotiation
- Activity
- Under obligation (for example confidentiality)
- Proposed
- Active (fully executed, signed)
- Expired
- Final Obligation
- Pending
- “Dead”
- Terminated (prior to expiration)
room, or a failure of the database tool will not cause a catastrophic loss of information.

Determining the right blend of components requires input from all levels of the organization. The staff knows how the current system works, or why it does not work, and can offer suggestions for improving the management system. All users of the management system should be involved during system design to ensure successful implementation: when users are involved in the design and take ownership of the system, it becomes a useful tool rather than a resource-costly burden.

Designing a contract-management system is more than picking a software tool and its starts by finding the balance between accessibility and data security that meets your organization’s requirements. The desired design is subsequently guided by available resources such as existing tools, personnel, and information technology infrastructure. In the end the desired design is adapted to meet the available budget.

3.1 Requirements: Accessibility versus data security

When designing a contract-management system it is important to find the balance between making the system accessible and maintaining data security.

3.1.1 Accessibility

One of the main purposes of implementing a contract-management system is to minimize reliance on one or a few persons to manage the organization’s contracts and associated obligations. This requires a certain level of accessibility to contract documents as well as any other related information.

Hard-copy filing systems. Maintaining and using hard-copy systems do not require users to have specialized technology skills, but hard-copy systems may be difficult to organize and update. If several people are involved in the management of contracts and storage of documents, there may be no central point allowing timely access to required information including original documents. No matter what other storage techniques are used, hard-copy originals must always be stored in a secure manner and kept on hand.

Electronic filing systems. With electronic filing systems documents can be made easily accessible, especially if they are stored on network-accessible media. Documents are transferred to electronic media such as scanned computer files and can be copied and updated much more easily than for hard-copy files. An electronic filing system can be stored centrally and accessed directly from a storage location or viewed remotely over a computer network.

Database. An electronic filing system makes it easier to retrieve documents when these need to be reviewed. However, it still remains time-consuming to search for specific information and to get an overview of all contracts and agreements. Computer-based databases, including simple ones kept as spreadsheets and text documents, are useful because they are more easily searchable than hard-copy files. Databases should record the following information for each contract and related documents:

- Name and address of contract parties
- Dates of execution and expiration
- Length of the confidentiality term
- Deadlines by which products or information must be delivered
- Deadlines by which funds must be transferred
- Keywords or a brief summary describing the scope of the contract
- Electronic links to the document(s)

Searchable databases have several fundamental advantages. They can:
- Reduce the time and resources needed to find physical or electronic documents
- Incorporate searches of electronic document texts provided these have been made searchable through a process of Optical Character Recognition (OCR)
- Produce automatic reminders of expiring contracts and upcoming deadlines
- Help identify potential conflicts of interest before new contracts are signed

When properly designed, searchable databases can help staff find the proverbial needle in a haystack. Not only can databases retrieve any
and all documents that contain a particular term, but they can be designed to automate searches of such information as outstanding payments, overdue reports, or upcoming deadlines.

**System access.** All employees will need a different level of access to the system, depending on their job duties. An employee who scans documents and inputs data will probably require a lower level of access than one who needs to access specific records or information. For example, a system can be designed so that it only displays the details of selected contracts to authorized users. Staff can generate statistics on overall performance (such as the number of contracts finalized, payments made, or reports overdue) without being granted access to sensitive material. In a Web-enabled application external parties can even have direct access to information related to their own obligations, thereby reducing the number of requests handled by the contracts-management office.

A contract-management system that combines electronic filing of documents with a searchable database can also be designed such that it is accessible by users at a central point or from a workstation on an internal network (Intranet) in one location or over a Virtual Private Network (VPN) linking different geographical locations. Access over a network is a benefit as long as the connections are secure and reliable with minimal downtime. This is particularly important if the whole system is stored off-site with no central access point on-site if the network is down.

### 3.1.2 Data security

Regardless of the measures put in place, a contract-management system will be labored with security problems related to both loss of data and access by unauthorized users.

**Data loss.** Regardless of how you store your data, it can be lost due to fire, flood, theft, or a number of other catastrophes, so it is important to take steps to guard against data loss. Preventative measures include safes, fire alarms, sprinkler systems, burglar systems, and fire- and waterproof filing cabinets. The chances of data loss are minimized further if hard-copy and electronic systems are maintained in separate locations. It is also a good idea to keep a backup electronic copy in an off-site location. Off-site storage and backup services can be purchased and/or managed commercially or by other departments in your organization. These service providers should guarantee that they have appropriate measures in place to prevent unauthorized access and accidental data loss.

**Unauthorized access.** Lockable storage facilities, filing cabinets, and safes generally prevent unauthorized access to hard-copy material. Electronic material and databases may be at greater risk of unauthorized access than hard-copy materials, especially if they are stored off-site. Network traffic should be encrypted and usernames and passwords should be used to make sure only authorized persons can input, view, or alter data.

**Information technology support.** In-house computer support is essential because of increased reliance on information technology. If an organization lacks the resources to employ full-time computer support personnel, it must train some staff members to deal with common computer problems. More complex technical problems will need to be addressed by a reliable and responsive external party.

### 3.2 Available resources

The next step after having determined your organization’s requirements for accessibility and data security is to determine how available resources will affect the system design and implementation. When taking available resources into account the original plan often needs revising to include issues such as: newly discovered needs, change in staff expertise, new technologies, and declining available funds.

#### 3.2.1 Identify existing tools and procedures

The first step is to identify all—if any—tools that already exist and are used currently for contract management within the organization. Such tools could be filing systems, procedures, spreadsheets, or more-advanced databases and reminder systems. These tools can be used as models for designing components of the new system. As noted before, current contract managers can shed useful
light on tools and procedures that work, but also those that do not work, as this information is often more useful.

3.2.2 Select new tool

Low-technology solutions. A contract-management system is more than a software tool such as a database, and, with some limitations on accessibility and security, low-technology solutions can still be viable solutions if resources are particularly limiting. Some organizations use hard-copy filing systems with continuously updated hard-copy summary sheets for each contract. The summary sheet is good for quick-reference but may lack accessibility. As noted before, a backup system is important to avoid data loss.

Simple databases. Other organizations design and maintain computer-based databases in their simplest forms, for example in spreadsheets or text documents. This improves accessibility, enables a quicker overview, and can be supplemented with some form of reminder system for upcoming deadlines and obligations.

Database software packages. Some organizations decide to use internal or external expertise to design a more complex database tool in software packages such as Microsoft® Access or FileMaker® Pro. These software packages provide a user-friendly front-end for designing and maintaining databases. More advanced approaches could involve other software such as Oracle®, MySQL™, Microsoft® SQL Server, and DB2®. Using these packages allows for tools to be designed more to order and is a good option if an organization has some level of internal expertise with the software of choice.

Off-the-shelf tools. There are software packages designed for contract management that are more or less ready for use off-the-shelf. It is important to make sure that the software has the necessary features. Although off-the-shelf tools can usually be customized to some extent, it may make more sense for an organization to redesign its procedures than to try to make an off-the-shelf tool perform tasks that the system was not designed to handle.

Custom built tools. Another option is to have tools custom built. A provider tailors an application to the client's needs. The more complex the tool, the more time and resources will be required for its design and implementation—and the higher the cost. The implementation of customized software should be expected to cost roughly twice as much as the software tool itself. It is important to remember that more advanced (and more expensive) tools are not always the best or most cost-effective solution.

Numerous companies provide software systems for managing intellectual property assets—including filing patents (mostly U. S. patents) and licensing inventions. A number of these systems are customizable, including software packages that either the clients or the company must modify to fit their own needs. All of the systems are quite expensive to purchase. They are likely to be most useful to larger research institutions and research-based companies. You can find a list of providers and links to their Web sites in the endnotes following this chapter.²

Finally, there are many other options for less-specialized, less-expensive document management system. A simple search will turn up 20 or 30 companies that provide such software. It is quite possible that future versions of common operating systems or office productivity suites will include such applications. However, as discussed in this chapter, contract management is much more than just storage and retrieval of documents.

3.2.3 Personnel considerations

When transferring information from the old system to the new, considerable time will be needed to locate existing documents, convert them to electronic files, and enter the corresponding data into a database. At the same time, new contracts must be entered into the system. After the initial transfer is completed, keeping the filing system and database up to date must be considered as a time-consuming task. If a system design change becomes necessary, time will also have to be allotted for accomplishing this task.
The amount of staff training that is required by a change in management system will depend on the complexity of the system and on existing staff skills. Staff may be trained in such skills as filing, data entry, reporting, and day-to-day problem solving. Providers of commercially purchased management systems usually offer employee training sessions for an additional fee.

3.2.4 Select information technology infrastructure

The choice of Information Technology (IT) infrastructure is largely guided by the balance between accessibility and security discussed above. A contract-management system might include some or all of the following items:

- **Physical storage facilities.** Fire- and flood-proof filing cabinets that can store hard-copy originals, or system-backup media, that do not require frequent access.
- **Computer/server.** A computer or server with the necessary software that stores all electronic documents and the database tools—in other words, the central collection point. The organization should obtain professional IT advice and continued IT support to ensure data security.
- **Backup system.** A system in the form of another computer or storage medium that automatically backs up the information in the contract-management system on an hourly, daily, or weekly basis, depending on how frequently data is updated. If automatic backups are impossible, manual backups should be performed, for example, on backup drives or other storage media, and the copies stored safely away from the central collection point.
- **Scanning capability.** Scanning hardware and software, with or without optical character recognition capabilities that can convert documents into searchable electronic media.
- **Network.** Computers connected to the central collection point also with professional IT support that can ensure stable accessibility as well as data security over the network.

- **IT and system support.** Support both for maintaining network infrastructure and for running the system. If the system is designed in-house, details of operations should be extensively documented in order to make future maintenance and development easier. If the system is purchased off the shelf or designed by an external developer, the service provider should provide on-site or telephone support.

3.2.5 Budget considerations

Finally, the desired system requirements, such as accessibility, data security, existing tools, personnel resources, choice of system tool, and information technology infrastructure must be compared to the available budget. Trade-offs will be necessary and each organization must determine which needs are absolute requirements and which are only desirable. While it is often tempting to cut back on such expenditures as training and support for users, it is important to note that the system investment will be a waste of money and resources if it is not used to its capacity.

Some organizations have the resources to think big and to implement systems with more capability than is needed at the outset, thereby delaying the cost of frequent upgrades. Where possible, an organization should plan for success and institute a system that seems too big now, as it will likely appear too small in a few years time. An organization with tighter budget restrictions should aim for a system that will serve its current needs and implement a smaller or cheaper system, but try to ensure that there is room to expand it later.

3.3 Monitoring benefits of the new system

Because it is costly to implement a new contract-management system, and because the cost must be justified to senior management, it is important to be able to measure the benefits of the new system. Many, if not all, of the benefits can be tracked and monitored automatically by the most advanced systems. Table 1 outlines the baseline data that should be established and against which benefits can be measured.
Table 1, below, provides only examples; each organization will want to monitor itself according to its own criteria. Monitoring the benefits of a new system not only helps to justify its expense but also helps to identify aspects of the system that need revising.

4. CONCLUSIONS
Managing contracts and agreements is not glamorous, but it is vital—especially if the organization is involved in complicated technology transfer deals with many rights and obligations. Ideally, a contract-management system should be

<table>
<thead>
<tr>
<th>Baseline Data</th>
<th>Measurable Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time and resources spent searching and managing contracts</td>
<td>Additional staff time available for performing other tasks due to more-efficient contract management</td>
</tr>
<tr>
<td>The value of successful proposals, less the value of unsuccessful proposals</td>
<td>Increase in the value and number of successful proposals, due to less time spent researching potential conflicts with existing contracts</td>
</tr>
<tr>
<td>The value of invitations to submit proposals Grounds for successful and unsuccessful proposals</td>
<td>Improved reputation with collaborators, funding bodies, boards, and contractors</td>
</tr>
<tr>
<td>Resources spent or committed without contract</td>
<td>Minimized exposure due to nonexistent or expired contracts</td>
</tr>
<tr>
<td>Number of deliverables that are not submitted according to contract</td>
<td>Fewer deliverables not submitted according to contract</td>
</tr>
<tr>
<td>Number of delayed reports. Resources committed to preparing reports</td>
<td>Time and resources saved because reports (whether scheduled or ad hoc) are processed timely and with minimal effort</td>
</tr>
<tr>
<td>Penalties for delayed payments</td>
<td>Money saved because payments are processed on schedule</td>
</tr>
<tr>
<td>Number of times that confidentiality terms are broken</td>
<td>Confidentiality terms are adhered to</td>
</tr>
</tbody>
</table>
established before any contracts are negotiated. The sooner a functional system is implemented, the easier it will be to keep it updated.

Identifying the system requirements starts with balancing accessibility against data security throughout the life span of a contract. This is followed by considerations for the available resources, including personnel and budget. The contract-management system should be planned and implemented with the full involvement of all levels of the organization to make sure that it becomes a useful tool and not another administrative burden.

Smooth contract management is almost invisible, but the marks of poor management are all too evident: lost deals, a poor corporate reputation, and, in the worst case, lawsuits. Investing resources in management is like any preventive measure: you will really never know how much time and money it has saved you.

1 If negotiations are aborted, there may still be certain obligations that affect future deals. These include confidentiality agreements. Being aware of other types of information about the party with which negotiations were aborted, for example reasons for failure or specific problems encountered, may also be useful when future deals are being contemplated.

2 Knowligent has developed IP-Portfolio (an IP management system) and many lab-management software modules. www.knowligent.com/

Computer Packages provides customized solutions for managing IP portfolios and collecting royalties. www.computerpackages.com/

Inteum LLC is the maker of Inteum C/S® (the successor to a widely used system called DEALS), a program that manages the entire technology life cycle from negotiations to final obligations. www.inteum.com/

InfoEd supplies module-based software for managing sponsored research programs, including technology transfer modules. www.infoed.org/

O P Solutions Inc. provides software to the IP legal industry, including software for patent and trademark filing and prosecution management. www.opsolutions.com/

Master Data Center provides IP management software, including installation of software systems and maintenance services. www.masterdata.com/

Knowledge Sharing Systems LLC makes TechTracs, a complete management system covering sponsored research, patent filing, and compliance with licenses and agreements. www.knowledgesharing.com/

ROBERT POTTER, Senior Associate, Agriculture & Biotechnology Strategies, Inc., 106 St John Street, PO Box 475, Merrickville, Ontario, K0G 1N0, Canada. rpotter@agbios.com

HILD RYGNESTAD, Managing Director, Rygnestad Canada, 179 George Street, Apt. 306, Ottawa, Ontario, K1N 1J8, Canada. hild@rygnestad.net