

3. PRESENTATION OF NOARK-4

3.1 General description

3.1.1 *Background and purpose*

Noark-4 is based on previous Noark reports, primarily Noark-3 from 1994, as well as the Koark report of 1995. Noark-4 replaces these reports and now represents Noark standard, including Koark.

The purpose of Noark-4 is to specify requirements for as complete as possible an information and management system for the recordkeeping function of public administration. Systems which comply with these specifications, should be able to maintain the IT-based functions necessary for the daily recordkeeping, and should be able to store and retrieve the documentation -- documents and recorded information -- whose storage is the task of the registry. The systems should be so designed as to provide for the fulfilment of necessary requirements related to quality control in the recordkeeping function.

Noark-based recordkeeping systems should also work efficiently and flexibly in an integrated interaction with systems for general or specialized case handling as well as with systems for electronic mail and digital signatures. This presupposes that such systems use the communication interface which Noark-4 provides for and describes, or that the functions which Noark-4 describes are built into a more comprehensive system which also includes other types of functionality.

It should be possible to conserve the recorded information and documents stored in a Noark system for posterity. For this purpose, Noark-4 specifies how documents and recorded information should be exportable in a standardized format, on the one hand in order to establish internal historic databases, on the other with a view to transfer to archival repository. The export format should make long-term storage of the record material possible, including conversion into new platforms as technology changes. Standardized storage should also simplify long-term maintenance and searchability.

3.1.2 *New functionality*

Noark-4 represents the step from an electronic system for entry into records with a few additional functions to a completely electronic recordkeeping system. The change is considerable, partly because electronic records pose major requirements in terms of new functionality for the recordkeeping system, and partly because it provides for electronic communication and document flow as part of the work flow. New functionality directly associated with electronic records include the following:

- Case documents may be stored electronically in several versions and formats.
- The same case document may be associated with several cases and registry entries.

- Notes may be stored electronically and associated with case, registry entry or case documents in various versions and formats.
- Parties outside the registry (executive officers and managers) get extended access to registering in the records system, and the recordkeeping part of the decision-making process is managed by functions and status values in the system for entry into records.
- The system has functions for logging process information, etc.
- The recordkeeping system may be integrated with external e-mail, and provision is made for partly automated registering of e-mail received from other Noark-systems.
- The recordkeeping system may be integrated with or into a case handling system which includes electronic document flow, handling of documents and information residing outside the registry and electronic production of case documents.

There is also some new functionality which is not specifically related to electronic recordkeeping, such as:

- Several senders and/or addressees may be registered for the same document or registry entry (these functions are mentioned, but not specified, in Noark-3 and Koark).
- Individual follow-up of recipients is possible, in other words depreciation and arrears control.
- The association between inquiry and response is extended to include internal documents.
- The functional distinction between external and internal documents is abolished, but the document types are kept.
- The record structure is modified and made more flexible.
- The flexible record structure provides for differentiated principles of periodization and remote storage.
- Read access management is made clearer and firmer, and is more specifically associated with the provisions of the Freedom of Information Act.
- More differentiated write access management.
- Board-handling module of Koark is integrated in a slightly modified form.
- Some new reports such as statistical reports are specified, but the layout of information within the reports is left to the system developers to decide.

In spite of much new functionality, the basic structure of Noark remains unchanged. Case and document registration is carried out as before, and most of the information that is registered will be the same. However, no screen panels have been suggested in Noark-4. It has been left to the developers to design the panels and user interface as they select technical solutions.

3.1.3 Requirements for procedures and ways of working

The specification of requirements discusses the design of the recordkeeping system, not the use of it. Still, there will always be a connection between the design of the system and the user procedures and ways of working. The specification of requirements is based on a given set of recordkeeping and decision-making procedures, and the systems which become commercially available will influence and to a wide extent determine the ways of working and procedures of public administration. Within this framework, however, there is

usually ample scope for flexibility in the detailed drawing up of procedures. The systems, as specified in Noark-4, offer many opportunities for choice in terms of practical application, and user organizations may choose whether or not to implement a number of the functions.

The most significant change in terms of ways of working occurs when electronic record-keeping is implemented, possibly in combination with an electronic case handling system. Such a transition is bound to influence the distribution of roles within the organization and the interaction between the various involved parties, and it will change people's tasks and the sequence of these tasks. The implementation should be carefully planned. It must be decided whether to implement in one operation or gradually. A gradual implementation will involve a combination of paper-based and electronic recordkeeping, and it must be decided what kind of combination can be handled in an appropriate way. Adequate tools and procedures must be provided for, so that electronic record material may be preserved in the long term and through technological changes, possibly until an external archival repository is ready to take over responsibility. Noark-4 offers no complete guidelines as to the implementation of electronic recordkeeping, but chapter 5.5 draws attention to a number of details which should be considered at the planning stage.

It should be noted that Noark-4 has no intention or authority to *impose* particular procedures on users. Such injunctions must be justified by current laws and regulations. The intention of Noark is to provide for good procedures within the existing regulations at the time of publication of this report. There may, however, be cases where opportunities described in Noark are restricted by adopted regulations. For instance, the National Archivist might restrict opportunities for periodization of records as described in chapter 12. In such cases, the laws and regulations do of course take precedence of any possibilities described in Noark.

3.1.4 Gradual implementation of new functions and procedures

The new functionality of Noark-4, and its associated procedures, may be implemented gradually. Suppliers who develop systems according to Noark-4, may choose to start with the basic functions (see ch. 1.4) and extend the system gradually, or they may choose to offer versions at different levels, for instance with or without electronic recordkeeping. Administrative bodies will be able to choose to what extent they want to implement new functionality. Some of them will probably choose to use paper-based recordkeeping for the foreseeable future, while others are gradually preparing for the implementation of electronic recordkeeping.

Thus, in the years to come, Noark-based systems and the usage of public administration are likely to be spread across various levels. What is common to all, is the fact that the basic functions comply with the Noark-4 specifications, and those who go beyond the basic level, will also follow a common set of functionality and procedures complying with the enhanced specifications. This way, both systems and procedures may -- should the wish and need arise -- develop towards the higher levels of Noark-4, including integration with e-mail and electronic case handling. Noark-4 is intended to include functionality with an adequate potential for development for years ahead.

3.2 Main structure of Noark-4

Noark-4 is described in terms of five modules. In this context, "modules" is not to be perceived as independent system modules which may be combined according to need. Each module describes a main function, closely integrated with the rest, and it cannot function independently of these (except one of the modules). Together, they offer a total solution for electronic registering, storage and retrieval of document-related information and documents.

The five modules are:

- Module for registration and records management (records management module)
- Module for electronic recordkeeping
- Module for administrative structure and record structure (record structure model)
- Module for access control and user management (access-control module)
- Module for board handling (board-handling module)

Three of the modules are compulsory if systems are to comply with Noark-4. The module for electronic recordkeeping and the board-handling module may be omitted, but if included, they must follow the specifications. Electronic recordkeeping represents the top level of the specifications, and needs to be included only in the the most advanced systems. The board-handling module is a necessary part of systems delivered to the local administration sector, and it may be of interest even to state bodies where advisory and governing boards take part in the decision-making process.

The *module for registration and records management*, hereafter referred to as the *records management module*, is the core of a Noark system. This is where all incoming and outgoing case documents are registered, going to or from external clients or internal units. The documents are associated with cases. The cases are associated with folders (through file code) and records, as well as with executive officer and administrative unit. The module also maintains the usual follow-up functions, including checking up on deadlines for processing, depreciation and arrears control, etc. It also makes it possible to register internal notes for cases and documents, capture and store processing logs, etc.

The concept of *records management* is introduced as from Noark-4. It is meant to indicate that this is where the recordkeeping functions of an organization are managed. This keeps track of case documents, be they electronic or on paper, as well as all information associated with those documents. Access to electronic case documents is managed through this module. In Noark-3 and Koark, the corresponding functions are referred to as the *registry system* ("journalssystemet") or *registry section* ("journaldelen"). However, the records management functions go so far beyond traditional recordkeeping that a change of concept was deemed appropriate.

The *module for electronic recordkeeping* is that part of the system which stores the documents (case documents, etc.) in electronic form. The documents are mainly accessed through document registration (*registry entry*) in the records management module, but certain kinds of documents (such as minutes) are accessed from the board-handling module. One and the same electronic document may have several *functions* (e.g., be a main document or an attachment), and it may be stored in several *versions* and several *formats*. Thus, the relationship between registry entries and electronically stored documents may vary a great deal.

The *module for administrative structure and record structure*, hereafter referred to as the *record structure module*, is a support module for the records management system. Noark-4 provides for the registration of an arbitrary number of levels within the organization's administrative structure. The record structure distinguishes between record-organizational units (*registry management units*) on the one hand and physical/logical units for storage of record documents (*records* and *record sections*) on the other. By splitting records into records sections, which are freely defined parts of records, it is possible to establish more flexible and controllable solutions for periodization and remote storage of record material, implementation of new filing plan, etc. Records sections may also be used to define record series with their own organizational principles (e.g., object series and board documents).

The *module for access control and user management*, hereafter referred to as the *access-control module*, manages and controls all use of the system. The individual user is assigned one or more *roles*, and based on this the system decides what functions the user has access to. Access to information within the system, i.e., read access, is controlled by the individual user's administrative and/or record-organizational association and by *access codes*, which are tagged onto information to be screened. It is also possible to define *access groups* with access to specific information and documents according to need.

The *module for board handling*, hereafter referred to as the *board-handling module*, is a tool for managing the work flow of collegiate bodies such as boards, councils, committees, etc., and storing documents from this process. The module is specifically designed to manage the work flow of local and regional political bodies, but is presumably of interest for others with similar decision-making procedures. The board-handling module includes processing plan and processing history for individual cases, association with recorded case documents, preparation of case plans for meetings, production and storage of board-related documents (such as summons to meetings and minutes), etc.

The formalized main structure of Noark-4 shows the relationship between the individual modules. The individual modules are described in more detail in chapters 4 - 5 and 7 - 9.

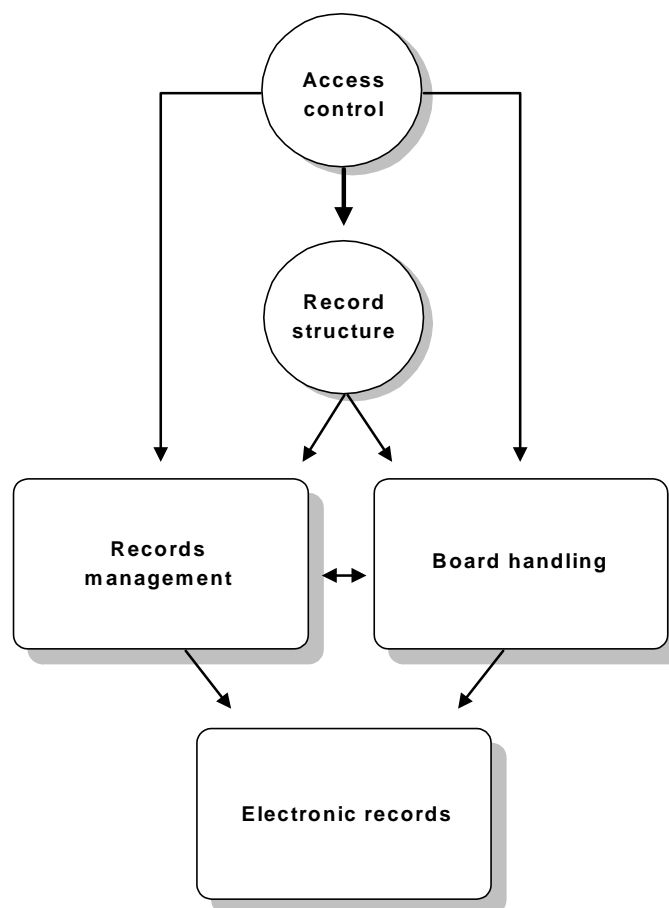


Figure 3-1: Main structure of Noark-4

Modules shown as circles are auxiliary modules, which means they contain functionality which is not of primary importance to a recordkeeping solution, while still providing important functionality for supporting the use of it. The functionality of the auxiliary modules are, however, an obligatory part of Noark-4-compliant solutions. The rectangular boxes represent the "operational" modules, the only obligatory one being the records management module.

3.3 Main functional requirements

The following functional requirements apply in general for Noark-4:

3.3.1 User interface

K3.1	The user interface of all modules should be based on common principles, so that the user threshold is as low as possible. All panels, dialogues, etc., should give a uniform impression. The same term should be used when a function is repeated in several parts of the system.	A
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K3.2	All text and messages should be in Norwegian.	O
K3.3	It should be possible to choose between "bokmål" and "nynorsk" for messages and text.	A
K3.4	There should be help for all the functions that are available to the user.	O
K3.5	There should be help for each field, function, pushbutton, etc.	A
K3.6	The user should be given informative messages in any error situation. In cases where giving adequate information in the message is not possible, it should be indicated where further information may be obtained.	O
K3.7	The individual user's access to information should be limited by his/her role(s) and the access control of the system, as discussed in chapter 8.	O
K3.8	The included modules should be closely integrated so that they are perceived of as a system by the user. This means that all information which is necessary for a specific task, should be immediately accessible, irrespective of what module the information belongs to.	O
K3.9	For tables between which relationships have been defined, such as Case - Registry entry, Cfr. case - Case and registry entry, Registry entry - Sender/addressee, it should be possible to open the relationship. It should for instance be possible to view all registry entries associated with a case. This does not apply to help indices.	A

3.3.2 Registration functions

K3.10	The registration panels should be designed so as to make the registration as efficient as possible. If possible, all fields used in connection with a task, such as the registration of an incoming document, should be accessible in the same panel.	A
K3.11	It should be possible for the individual user to decide the sequence of the runthrough of attributes (fields) in the panels during registration. It should be possible to skip attributes which are used infrequently, while at the same time having easy access to those attributes if desirable.	A
K3.12	It should be possible to store and retrieve the aforementioned registrations sequences (see previous point).	A
K3.13	All information that is registered or changed, should be immediately accessible to other functions and other users (within the limitations posed by the rights of the individual user, cfr. ch. 8).	O
K3.14	It should not be possible to make registrations or changes that conflict with the principles of the technical description.	O
K3.10	For fields where the table description specifies lookup in a help index, it should be possible to retrieve a summary of permissible values from the help index, based on the criteria specified in the technical description.	O
K3.11	For help indices (see previous requirement) where the number of	A

	values may be high, it should be possible for the user to search for the correct value based on information in the help index and, where appropriate, other tables associated with it.	
K3.12	For fields for which the table description specifies lookup in a help index, it should not be possible to register values which do not exist in the help index, unless the technical description specifies explicitly that this is permitted.	O
K3.13	During registration of new records, the system should, where possible, display the fields in the registration panel already filled in with default values based on the context in which the registration is carried out and on the role of the user. As a minimum, the default values described under the individual attributes should be used.	O
K3.14	The presentation of dates in panels should be configurable. If not configurable, the format should be DDMMYY (day, month, year).	A
K3.15	All dates/times should be stored using 4 digits for years. The same applies to years which are part of a case number, serial number, etc., irrespective of whether two or four digits are displayed in the panel.	O

3.3.3 Searching

K3.21	All attributes with a length restriction (i.e., not free-text fields or binary fields) in all tables should be searchable.	O
K3.22	Information described as derived attributes in chapter 14 should be searchable, just like any other attribute.	O
K3.23	It should be possible to make any search case-insensitive.	O
K3.24	In a search, it should be possible to specify values for several fields in the same table using an AND operator between the fields.	O
K3.25	In a search, it should be possible to specify an OR operator between fields or groups of fields.	A
K3.26	For all date fields and numerical fields, it should be possible to search for intervals of values.	O
K3.27	For text fields with length restrictions, it should be possible to use left or right truncation while searching.	O
K3.28	For text fields with length restrictions, it should be possible to mask single characters while searching.	A
K3.29	Free-text searching (i.e., searching for any word in a field) should be available in all text fields, whether they have length restrictions or not.	A
K3.30	Where appropriate, it should be possible to search for information from several tables simultaneously. This applies in particular to the tables <i>Case</i> , <i>Filing plan code</i> , <i>Part in case</i> , <i>Registry entry</i> , <i>Sender/addressee</i> and <i>Document description</i> .	O1
K3.31	It should be possible to do further searches beyond the records found in the previous search by adding new criteria to the existing ones.	A

K3.32	Users should be informed of the number of hits for a search.	O
K3.33	The system should have functions which prevent the user from inadvertently starting a time-consuming search.	A
K3.34	The system should provide information on the estimated time required to perform a search.	A
K3.35	It should be possible to cancel a search in progress.	A
K3.36	The individual user should be able to choose if the result should be displayed only in terms of the number of hits or as a list with selected attributes from the records found.	A
K3.37	The individual user should be able to decide which fields should be displayed in the result list for a search (see previous point).	A
K3.38	It should be possible to store and retrieve the setup (layout) of result lists (see previous point) as needed.	A
K3.39	The individual user should be able to choose the sorting principle for the results of a search.	A
K3.40	It should be possible to get printouts based on the results of a search.	A
K3.41	It should be possible to store and retrieve a set of search criteria (predefined search) as needed. It should be possible for the user to change search criteria retrieved this way before the search is carried out.	A
K3.42	Any search should be restricted according to the access provided by the user's roles, authorization for access codes and membership of access groups. This means, for instance, that if the user searches using a criterion for one specific attribute, then the search should not produce hits for records where the user is not authorized to view this attribute, even if other attributes of that record are accessible.	O

3.3.4 Technical design

K3.43	The system should handle the transition to year 2000 without requiring any user input.	O
K3.44	The system must be adapted for use with standard backup solutions. Descriptions of backup procedures should be included in the system documentation.	O
K3.45	The system must have recovery functions, so that the integrity of information is maintained in case of interruption due to power failure or computer breakdown.	O
K3.46	It should not be possible to delete records that are referenced from other tables.	O
K3.47	It should not be possible to change key attributes used for referencing from records in other tables without changing the corresponding attributes in the referring records.	O

K3.48	All functions which involve updating more than one record, should be performed in such a way that all or none of the records are updated.	O
K3.49	The system should be secured so that noone gets access to information for which they are not authorized, if they try to use other tools than the Noark system.	O

3.3.5 Additional information

If the system provides for adding information beyond the requirements of Noark-4, this information must be regarded as record material like the rest of the Noark base. This means that all such information should be exportable according to the principles of chapters 14 and 15 (see also K12.12).

A Noark system that satisfies the basic requirements of Noark-4, cannot be enhanced with additional information representing alternative solutions to the specifications of Noark-4 at a higher level.

K3.50	If the system includes attributes which are not specified in Noark-4, these should be exportable as additional information according to the principles described in the table <i>Additional information</i> (14.2.31).	O
K3.51	A Noark system should not be able to substitute for the attributes defined in Noark-4, corresponding or similar data elements under other names or with another structure, etc. If the system uses other attribute names internally than those specified in chapter 14, these must during export be converted to the names specified by Noark-4 (see chapter 15).	O

3.3.6 Simplicity

Noark-4 specifies a rather complex functionality in many areas. This is necessary in order to offer the advanced solutions demanded by a number of administrative bodies. On the other hand, many organizations obviously have very limited need for the more complex functions. The most common tasks usually involve simple functions, and it is important that these can be carried out in a simple and rational way. Simple tasks should be simple to perform. Simple and frequently used work operations should not be weighted down by the system's offering more advanced functionality within the same area. The following are examples of such operations:

- Noark-4 allows for the registration of several senders and addressees for one and the same document (see chapter 4). Nevertheless, there should be a simple and rational way of registering the most frequent combinations:
 - one sender on an incoming letter
 - one addressee on an outgoing letter
 - one sender and, optionally, one addressee on an internal document
- A registry entry may be associated with several electronic documents in several versions, and, similarly, a case document may be associated with several registry entries, cfr. chapter 5. There should nevertheless be a simple and rational way of

associating one document in one version and one format (i.e., one copy) with one registry entry.

- A Noark base may include several record entities which may in turn contain several records sections (see chapter 7). Still, there should be a simple and rational way of using a base which only includes one records entity consisting of only one records section.

It is impossible to formalize requirements of this kind, since it is not possible to decide whether the requirements are satisfied or not. The requirement concerning simplicity is therefore only a general appeal to system developers. The user-friendliness of the system will to a wide extent depend on the degree to which this requirement is met.