

# XMLized Audit

## PREPARING FOR THE IMPLEMENTATION OF A KNOWLEDGE MANAGEMENT SYSTEM

Introducing a Knowledge Management System (KM System) is a vast and complex task. You can start from very different points to obtain various goals and you can be absolutely sure that you never reach an Entire Knowledge Management System (i.e. covering all aspects and processes). Unfortunately, if you work for such a huge Knowledge Factory as a Supreme Audit Institution, you will not even reach your organisation's Entire Knowledge Management System. There will always be some data which will change, corrupt or disperse while it is being processed and no system can fully control it.

Still, it is obvious that we have to look for effective IT tools to gain more from the Knowledge Mines possessed by SAIs. We do not intend to reach an entire KM System. The most important need for our organisations is to effectively manage knowledge with IT tools. Even today, we can see that buying mature and reasonably priced IT solutions to deal with this modest task is difficult. Simply, IT products are still not developed enough to cope with the problem of enormous amounts of various types of data.

The most straightforward way is to upgrade or to develop even better systems. Development should be based on a thorough analysis of available solutions and in particular on the institutional profile and capacity of the given SAI (especially the maturity of the decision making process, computerisation, level of the development of applied IT solutions and the complexity of audit process). Certainly, it will be costly, as development usually is.

Our question has been – if you do not have enough resources to develop such a system, what you can do? And our answer has been – prepare your data for future systems.

Currently, the Polish SAI is developing audit software called **jNIK**<sup>1</sup>. Its first goal is to provide auditors and audit managers with software supporting them in planning, performing and analysing audits<sup>2</sup>. But what is more important, the software can be also be considered as a prelude to the introduction of KM System in the Polish SAI. It is an attempt to elaborate a new approach to electronic records management and to the generation of

audit documentation in the light of fresh challenges (e.g. continuous growth in the size of files, their storage, audit deadlines and the quality of audit documentation).

### New vision of writing audit documentation – **jNIK**

The **jNIK** is an integrated IT tool that provides audit staff with a modern approach to text processing (i.e. separation of the data from its presentation) as well as user-friendly audit software combining all phases of the audit process in one tool (systemizing audit data, browsing and processing). It supports the auditors' daily work and is tailored to the organisational life of the SAI, its needs, resources and audit methodology. **jNIK** facilitates auditors' work and thus it should have a simple and flexible interface. To achieve its aims economically, the interface is being programmed in open source Java.

Now, let us focus on the essence of this technical concept. Data storage in XML format (*eXtensible Markup Language*) has the following advantages:

- file source code transparency (in contrast with MS Word solutions);
- text becomes a set of data (easy to process).
- smaller size of file – thanks to formatting code separation in a word processor (in contrast with MS Word solutions);

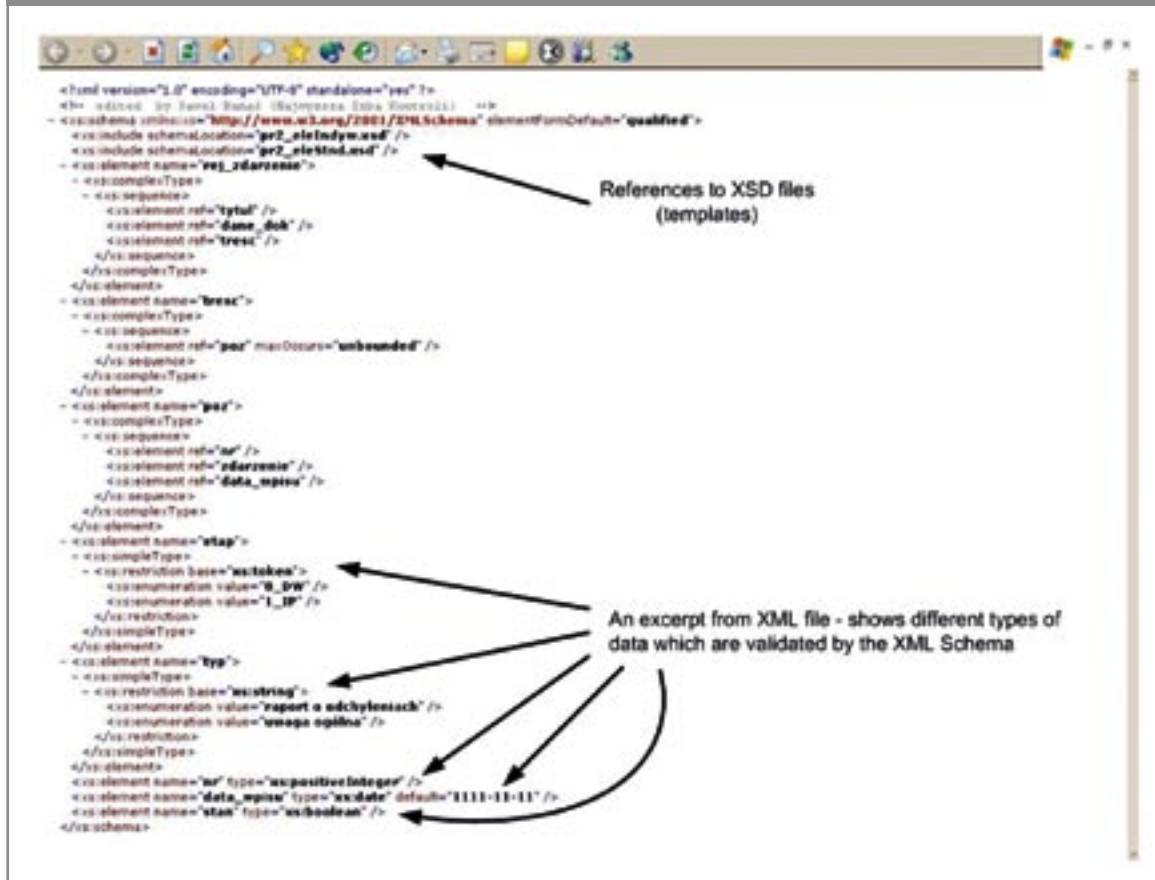
Moreover, XML code can be easily validated thanks to XML Schema parsers. XML file defines a structure of file elements which can be used to build a document, such as names, their place in the file hierarchy, attributes, values etc.

Another important benefit of XML format is that it makes it possible to generate different views of the same content e.g. different printouts, analytical layouts such as breakdowns, tables, lists etc. by **XSLT transformations**.

1 Name of jNIK arose from two words: Java (programming language) and NIK (Polish acronym of SAI Poland).

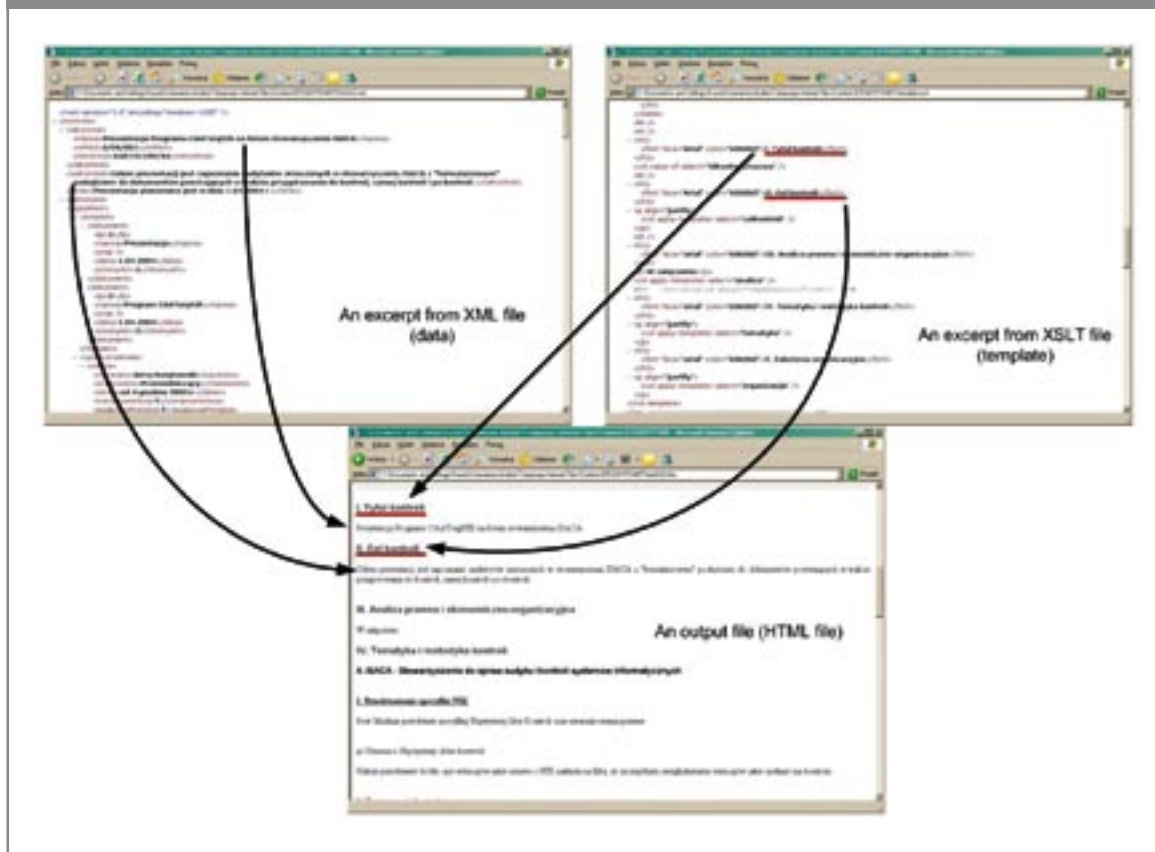
2 See also the article "CAAT - or - jNIK audit electronic papers – "Into IT" No. 21, April 2005, pages 43-50.

Diagram 1: The validated XML file



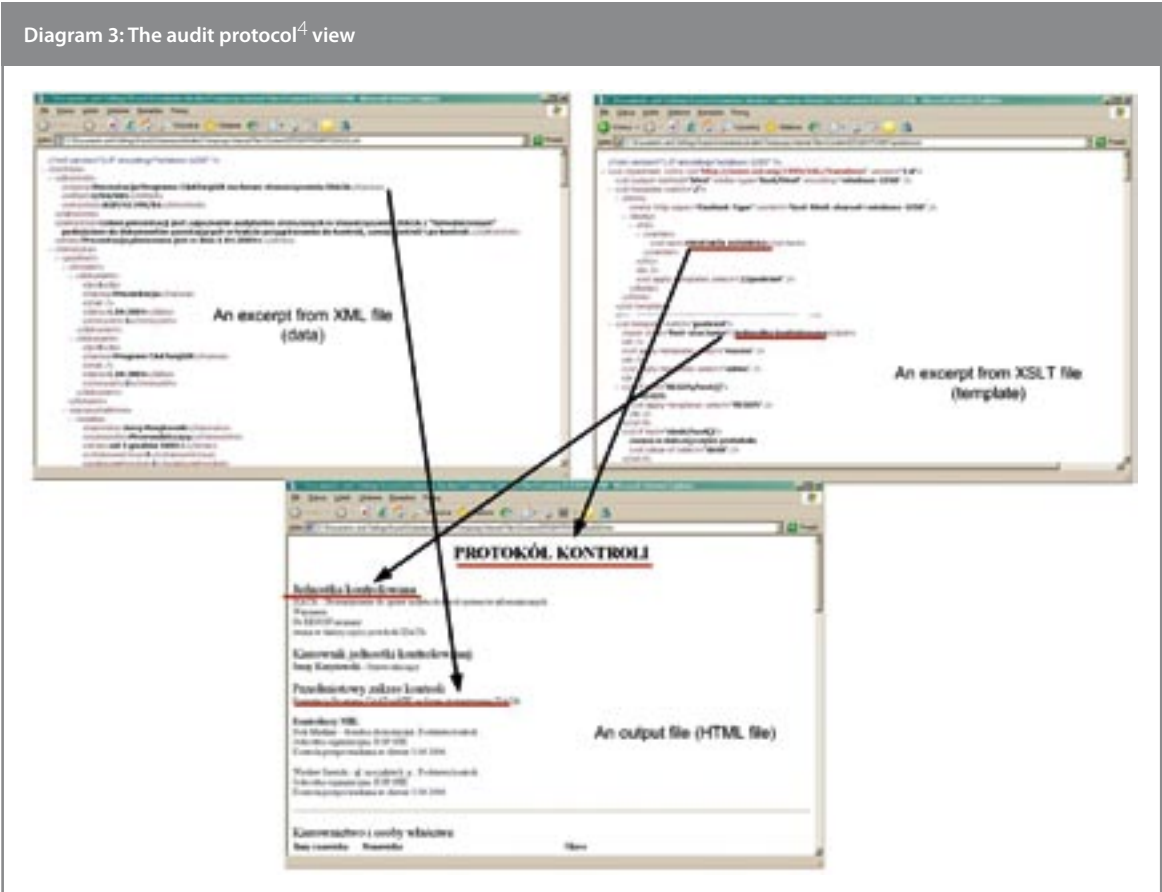
The XML file is validated by created templates (XSD files). The screen on the left shows a validated XML file (picture 1).

Diagram 2: The audit programme<sup>3</sup> view

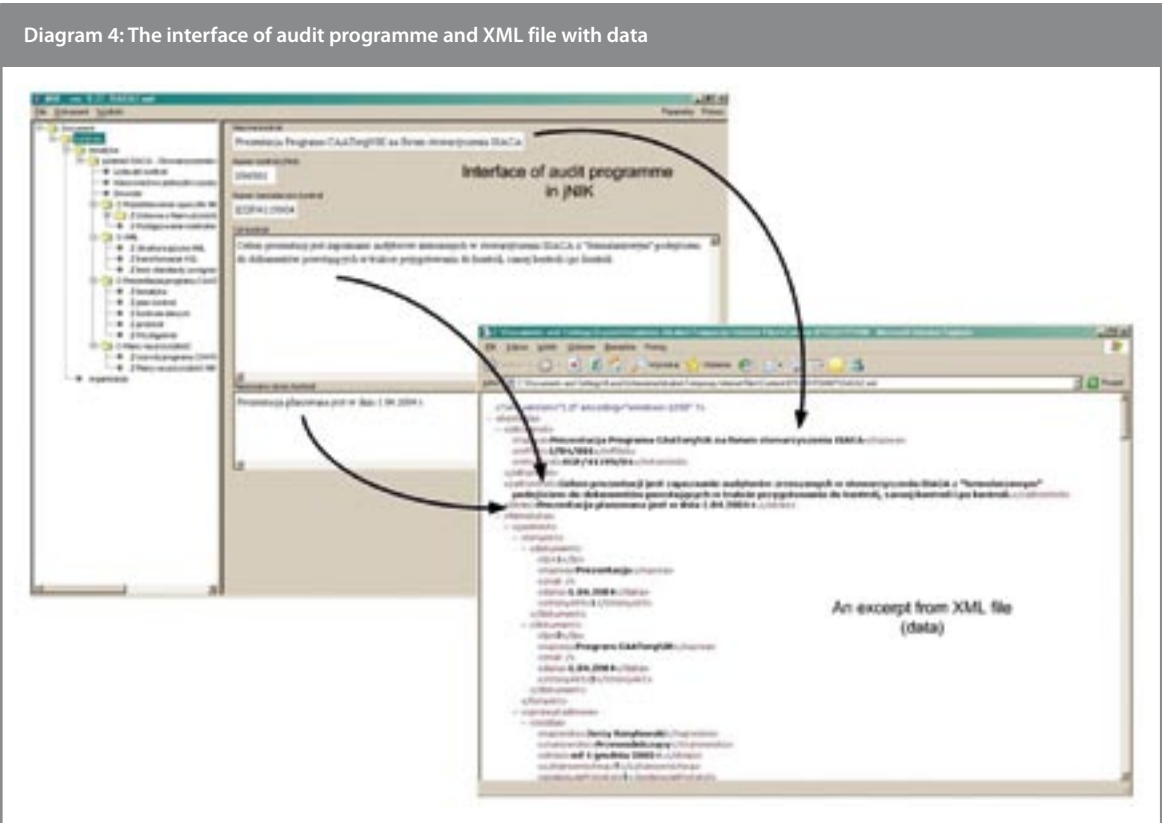


Here you can see two examples of different audit data views (picture 2 and 3 – please note: data comes from the same source file).

Proceeding of audit process under jNIK



The first step is to set up an Audit programme in XML file format (picture 4).



3 A document determining a subjective and objective audit scope as well as the type, scope/range and dates of audit procedures and resources required to fulfill the audit objectives.  
 4 A document with findings regarding the status quo in the audited activity, disclosed during the audit.

Then an auditor who carries out an audit according to the audit programme, makes findings. The elementary unit in the XML file is not an audit document, but a finding. In the **jNIK** a typical finding consists of:

- title (short but meaningful);
- type (finding/irregularity/information);
- description of facts (description of finding);
- list of evidence (title, date of elaboration, references to the audit dossier, optionally: detailed description).

In the case of irregularities the auditor should extend his/her description by filling out other sections like: indicators of soundness (desirable state), criteria of evaluation (the Polish SAI is bound by four criteria: legality, sound management, integrity, efficacy)<sup>5</sup>, persons responsible for failures, their causes, scope and results. Adding the auditor's assessments would lead us to draft the management letter. It would be a perfect situation which allows to reduce time on writing audit documentation and performing appeal procedures (picture 5).

A finding is the main part of all SAIs' output, therefore this point of the project seems to be crucial for the Knowledge Management System. If audit documents are stockpiled in MS Word format, you will have to look for a separate solution to use them in a new built KM System. You will have to distil text from MS Word files and then to categorize its elements to make them database-readable. If you store XML format files, in fact you have a collection of elements which can be processed easily in traditional or future databases.

## Flexibility

The basic legal act of the SAI of Poland is currently being amended. The legal environment of the Polish SAI's audit process and approach to audit documentation (i.e. layout and content) are probably going to change. **jNIK** will need to be adapted to these new provisions. However, it must be emphasised that one of the desired features of **jNIK** is flexibility, therefore changes to it will not need to be too profound. Another desired function of **jNIK** which is being implemented is to easily export and import the elementary units of XML audit documents to and from databases, even legacy ones (i.e. made before the implementation of **jNIK**).

## Status of the project and future actions

The Polish SAI has used a beta version of **jNIK** software in several audits. The experience gathered during those audits and numerous suggestions have allowed us to apply necessary upgrades to the software. The project team (staff of the Polish SAI – auditors with IT knowledge and software professionals) is completing the preparatory phase i.e. analysing available software solutions and technology, gathering necessary resources, elaborating project procedures and necessary form templates, appointing project roles (according to PRINCE 2 methodology) etc. After approval of the Project Initiation Document by the Polish SAI's Top Management<sup>6</sup>, the development of the production version of the program (version 1.0) will be started.

Simultaneously, it is intended to extend the initiative beyond one department (the Economy, State Treasury and Privatisation Department)<sup>7</sup> to other Polish SAI's departments (IT and audit ones). Probably in the near future other state institutions which carry out audit tasks (e.g. tax control units, Ministry of Finance etc.) will join the project in order to develop common audit software.

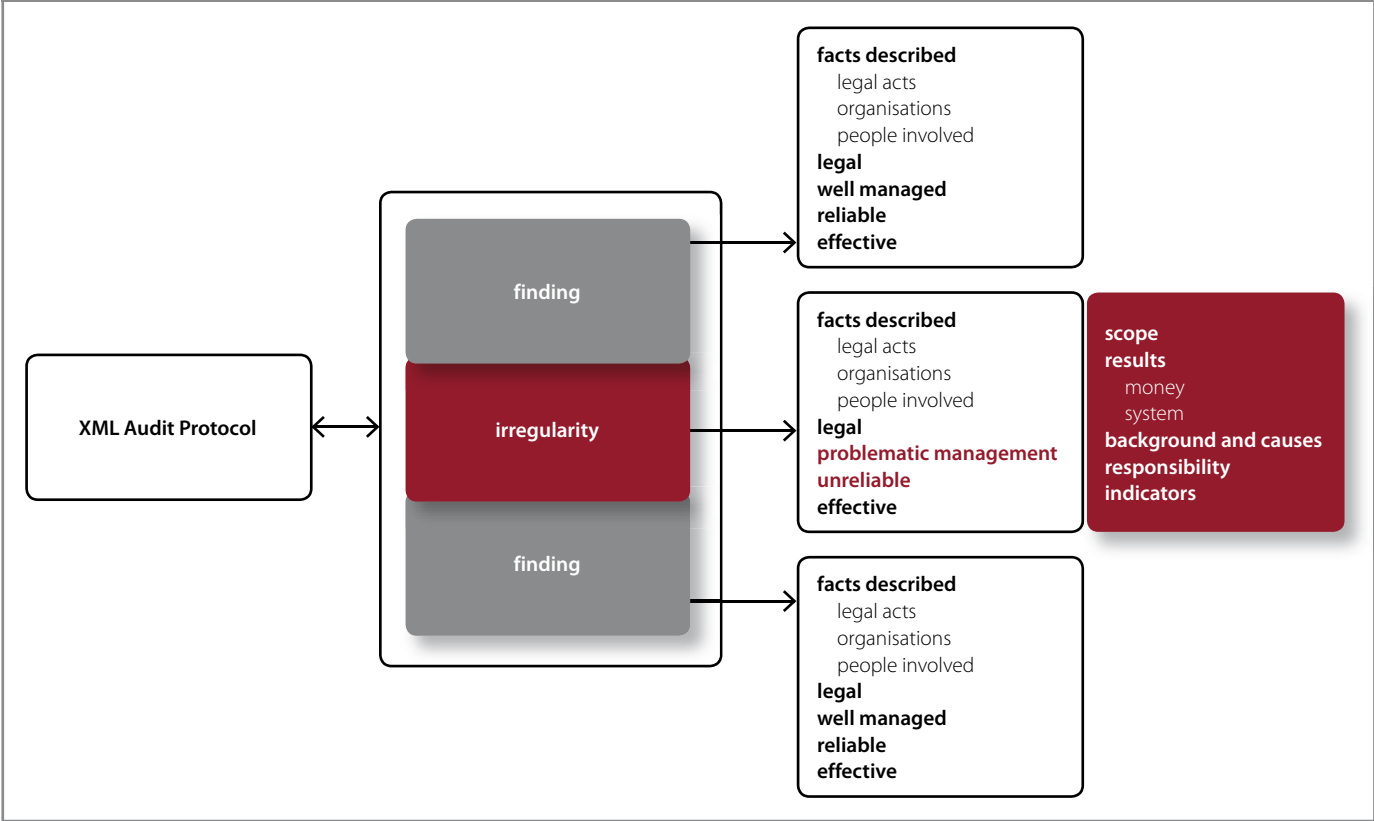
After reaching a proper level of quality and functionality of the designed software (**jNIK**), it is planned to make it available to other members of the audit community (nationally and internationally). We hope that sharing software source code with partners as open source solutions will support technical software development. We also hope it will be a right step to improve audit methodology and to facilitate auditors' working methods i.e. by integrating all types of audit documentation in one XML file. It will also impose a clear and compact way of writing audit documentation, which then will help to assess audit's quality.

5 For details see "Glossary of terms related to audit in public administration" – [http://www.nik.gov.pl/o\\_nik/metodyka/Glosariusz.pdf](http://www.nik.gov.pl/o_nik/metodyka/Glosariusz.pdf)

6 Top Management consists of the President of Polish SAI, Vice-Presidents and Director General.

7 It is the department where the idea of **jNIK** came from and which is leading the project work.

Diagram 5: The schema of XML audit protocol structure



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