

## Enterprise architecture – the foundation for a strategy

The main building of the National Library of Finland is known for its beautiful architecture. However, there is another realm of architecture where the Library aspires to be among the good examples.

An enterprise architecture is basically a description of an organization from the point of view of information technology and information management. It shows what an organization is, what it does, how it is put together and what the relationships between its parts are. Although the perspective is that of information technology, it is equally important that its architecture explains processes, roles and responsibilities, as well as the flows of information.

Enterprise architectures are a tool for strategic management and planning. As with any good strategic planning, working with enterprise architectures requires bidirectional communication, from management to implementers and back. In an enterprise architecture, the emphasis lies on communication from bottom to top.

An enterprise architecture also functions as an aid at a more practical level. It shows, for example, what kind of changes and improvements may be made in one system without overlap or conflict with other systems.

How did we ever manage without one, and why we need it now? After all, information technology has been an inherent part of our services and back-office tasks for a long time. However, what is changing is the importance of sharing and interoperability.

Just a few years ago, one did not think twice about searching for information in one system and copy-pasting it in the search box of another system. Today, we would immediately ask why do these systems do not know about each other and exchange the data automatically.

Even within libraries, we are still struggling to make all our systems and services function together. For example, the management of printed and the management of digital collections tend to be rather separate activities. Nevertheless, we should be able to bridge the gap for the customers, not making them jump from one search interface to another.

The more interaction is demanded, the harder it becomes to keep the architecture organized, scalable and efficient. On the other hand, increasing interoperability may bring significant benefits in cost-efficiency. It helps to utilize work done in one place all over the organization, remove duplication of work and make processes run more smoothly.

Of course, sharing and interoperability go beyond the walls of the library. The possibilities for combining forces with other data providers are infinite, but this requires, of course, sharing and interoperability. The same applies to more mundane things such as letting customers pay their library fines with a credit card.

### Enterprise Architecture of the National Digital Library

The National Digital Library was launched by the Finnish Ministry of Education and Culture with the purpose of promoting the availability of the digital information resources of archives, libraries and museums and developing the long-term preservation of digital cultural heritage materials.

The National Digital Library comprises two separate, but connected, initiatives. The first, the public interface, enables searches through the digital information resources of libraries, archives and museums. It also integrates library services, such as making renewals, orders, and purchases. The public interface facilitates social interaction – commenting, tagging and the sharing of information – making the resources part of the networked life of the customers. The second part, the centralised long-term preservation solution for digital materials, provides preservation services for several organisations. It will secure transition between generations of systems, software and organizational structures, so that digital resources will remain usable over time.

(The National Digital Library has been discussed in previous issues of the Bulletin, and information in English is also available at [www.kdk.fi](http://www.kdk.fi).)

One may say that the National Digital Library affects every library and museum in Finland. A project of such scope and complexity obviously needs a clear big picture – and it needs to ensure that all parties agree on it.

The National Digital Library has adopted methodologies recommended by the Ministry of Finance for all levels of government architecture work. In this method, the environment is described on four different levels. From bottom to top, they are the levels of technology, systems, information, and business.



Photo by Kari Timonen

Technical architecture is a description of technological solutions used in information systems. Generally, technology architecture might list hardware configurations, programming languages and other low-level characteristics. In the context of the National Digital Library, much of this underlying technology will remain the responsibility of the participating organizations, and so it was left out of this level of architecture. Instead, much more attention was paid to standards. A standard portfolio was created and will be maintained, improved and updated. It will have a strong guiding effect on how information systems will be developed in the future.

Application architecture describes the services produced by information systems, as well as the relationships between different kinds of information. An inventory of information systems was made, filling several pages. As this list will be ever changing and hard to maintain, it was more important to identify the general roles of the systems – sixteen roles were found – and their importance.

Data architecture describes the flows of information. The purpose of data architecture is to create a shared view of key data capital and to facilitate the searching, dissemination and management of information. Data architecture describes the central information resources and the relationship between information categories and systems.

Business architecture describes the operational services and processes from the point of view of users and service items. The business architecture perspective within the NDL project contains descriptions of key stakeholders, a service map, and the main processes. The final document is available in English at <http://www.kdk.fi/en/enterprisearchitecture>.

#### National Library Enterprise Architecture Under Construction

Encouraged by the experiences of the nation-wide project mentioned above, The National Library has begun to draw up its own enterprise architecture.

The enterprise architecture for the National Digital Library took a whole year to design, and literally dozens of people were involved. One of the lessons of this undertaking was that the task is a lesson in itself. It turned out that there was much to be learned from the other participants' policies and practices, even their vocabulary – certainly much more than was anticipated.

We do not think that less than a year is going to suffice for us, either. Indeed, we are expecting to find surprises in our own information systems. The way the work with architecture increases coherence between units, often with very different tasks and priorities, is as important a result as the creation of a new starting-point for strategic planning at the Library, which the actual architecture will facilitate.

#### Enterprise Architectures Required by Law

The enterprise architecture of the National Digital Library was commended as the first complete, real-life architecture within the branch of public administration. However, there are certainly more to come.

The Finnish Government is pushing for more cooperation across organizational borders in public administration. A new act on information management will guide the way the Government works for the better technical and semantic interoperability of systems. The Ministry of Finance will have an important role as the overall coordinator. Enterprises architectures will actually become a legal obligation, and the best architecture will become a binding standard for all branches of government.

Although the National Library is not a government agency, it has very close ties with the public sector. We believe that architectural thinking will help the library sector to find new fields of cooperation. Enterprise architectures do take considerable time and effort, but they are a way to ensure that the invisible foundations of modern libraries are sound and, in a sense, beautiful.

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