Accompanying text to the architecture presentation, part of the Tender Information Event
August 28, 2020, 10h00

Slide 1 – Introduction
Erik van den Bergh, architect at KB National Library.

From my role as an architect I want to share with you some insights on how we want to streamline our application architecture in the coming years.
The underlying goal is that we are looking for suppliers who can help us with this. Both by delivering us the right applications and by helping us migrating our current complex landscape to a situation in which we are relieved of a large number of unwanted dependencies.

Slide 2 - Overview
I'm going to give you these insights by means of a number of diagrams that I've put on this slide as an overview.
As you can see all diagrams have a subdivision into 4 compartments in common.
The source of this four compartment division is the first diagram showing the highest level of our business function model, where these 4 columns represent our value chain.

Because of the importance of business functions in this presentation, I will now give a brief explanation.
With 'Business Functions' we model the activities that we, as an organization, perform;
but, without taking into account how the underlying activities are (or will be) realized.
That gives a clean picture of the 'What' we (want to) do - ignoring 'How' we (want to) do it.
And it is precisely the lack of implementation details that makes the diagram very suitable for plotting implementation aspects (such as processes and applications), e.g. as a means of classifying and comparing them.

Where this first slide shows the main layout of our business functions, the next slide will zoom in up to 2 levels. And it is this very view that contributes significantly to the design of the application landscape of the future – our target architecture.
The next slide shows our current application landscape, and actually shows above all how we don't want it anymore.
These two diagrams (detailed functions and current applications) will not be explained in detail - they mainly show how the demarcation of the logical applications was created.

That brings us to the next slide. We call the applications we have drawn here 'logical applications'. Here 'logical' means: yet without considering the 'physical' applications that are going to actually deliver the functionality.
This logical application landscape represents our target architecture, and above all serves as a guide to reduce dependencies between applications.
With every change in our landscape, we want to get closer to this dream picture - and solve some of the current complexity.
That is why we think it is important that our new applications follow the demarcation of these logical applications as much as possible.

In this presentation, this logical application landscape will further serve as a foundation for the next slides. On these last 3 slides of the presentation matters will be plotted such as: the scope of the tender, metadata streams and processes.

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Slide 3 - Business functions (main functions)
This diagram shows the main layout of our business functions in the 4 compartments I already told you about.
The 4 columns in the middle represent our primary functions. From left to right they form the value chain of the KB.These columns are enclosed by governance of the organization above, and the supporting functions below.

Now I will give you a brief introduction of these primary business functions:

1. Processing is about receiving content and metadata and then processing it in such a way that it reaches a quality level at which it can be managed.
   This management then takes place in the second business function.
2. Management is about maintaining the existing physical and digital collections and information about them and enriching them with additional information.
3. This management of our collections is explicitly separated from the delivery of services related to these collections.
   The integration function is about making collections and information available and findable, but also about connecting collections and information with those of our network partners.
4. Finally, service delivery is about developing services and providing those services to customers. Support activities such as access management and circulation are also part of this.

This four-fold division of business functions is an important foundation of our architecture and, as you will see, also has important implications for the design of our application landscape.

(Process-oriented means: fixed sequence of actions, from trigger to end result.
Task-oriented means: no fixed sequence of actions. More often from the user interface.)

Slide 4 - Business functions (primary functions in two extra layers)
On this diagram the business functions are further detailed in two extra layers.
For example: the management function has three underlying functions, namely preservation of physical items, preservation of digital items and catalog management. And, subsequently, this catalog management has four underlying functions.

As already mentioned: it takes too far to explain all the detail business functions mentioned on this slide. But it does illustrate the level at which we can derive logical applications from the business functions.

For example: After this we will see Catalog Management as one of the logical applications. The underlying business functions will thus become application functions of this application.

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Slide 5 - Current applications and information flows
On this slide, this four-division of business functions is used to project some of our current applications onto. It contains a selection of the most relevant applications in the focus area of this tender.

But, many of these applications cannot be plotted properly on one specific function column, because they often support activities that belong to multiple business functions.
Like the centrally positioned application GGC, our current cataloguing application, now positioned in the management column, but supporting just about every column. As you will understand it will be a big challenge to replace this application.
It is also common in this landscape for multiple applications to provide similar functionality.

As in the previous slide, it is not the intention to go into detail on all applications shown. Rather, the intention is to give an impression of the complexity of our current landscape. And to serve as inspiration for a landscape with fewer dependencies.

Slide 6 - Logical applications and information flows
As already mentioned, logical applications are primarily ‘desired’ applications; they form a target architecture, our 'spot on the horizon'.

The logical applications are demarcated according to the well-known best-practice 'minimum interfaces - maximum coherence'. This maximum coherence is already achieved to a large extent by demarcation in accordance with the business functions.
So, it helps minimizing interfaces. In addition to minimizing interfaces, such a demarcation also offers advantages in preventing conflicting quality requirements for applications.
Data processing applications, for example, will often have different quality requirements than management applications. Think of desired flexibility and changeability versus integrity and reliability. Also, management applications will often have a longer life cycle, precisely because they are less subject to change.

In summary: as architects, we find it important that applications follow the lines of our business functions as much as possible. This stimulates functional coherence and reduces and simplifies interfaces. And makes it easier to adapt or replace targeted applications from our landscape, while other applications remain in use.
For example, it is not strange to consider that in, say, 4 to 5 years' time there will be a need for a different data ingest system, while the catalog management system will be perfectly adequate for a longer period of time.

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Slide 7 - Logical applications in scope
On this slide the scope of the tender is marked by means of the rounded frames.
The main focus here is on a catalog management system - in combination with a data ingest system.

Currently, the KB already has about 20 variants of content and metadata processing set up - both digital and physical. It is precisely here that there is a need for rationalization, e.g. by standardization and reuse. And by further automation of these processes, which is becoming increasingly possible through the delivery of content and metadata in digital form.
This is also where the desire exists to be able to respond quickly to new forms of content - even forms of content we do not yet know of their existence.

As I also explained in the previous slide: in this tender we, as architects, will therefore pay extra attention to how a data ingest system and a catalog management system relate to each other. There are important differences in functionality and quality; we would be well advised to take them seriously.

Also part of the scope are two logical applications that can support collection and contract management from an integral starting point (i.e. for all forms of digital and physical content).

Specifically for the support of management and circulation of our physical content, two more logical applications are part of the scope. They play a role in the replacement of a legacy application LBS.

And, as you can see on this slide: logical applications in the integration layer are not part of the scope of this tender.

Slide 8 - Metadata managed in-house versus externally
This slide has been added to show the difference in processing of internally managed and externally managed metadata.
The catalog management system basically manages metadata about all items of our collections. It concerns both our physical and digital items; but also licensed digital content. Also the metadata of the National Bibliography is managed in this catalog.
This category of metadata (and content) is visualized on this slide with the red information flows.

However, there are also collections in libraries in our networks that we want to be able to offer to our customers by importing the metadata into a metadata publishing system.
This category metadata (and content) is visualized with the green information flows.

As this picture shows, the green information flows are not part of the scope.

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Slide 9 - Information flows realized by multiple (example) processes
This slide shows how the different logical applications contribute to the different types of processes that play a role in the processing of content and metadata.

This slide is mainly intended to better explain the intended operation of logical applications. The processes are obviously not complete, and show a simplified representation of reality. They are process patterns rather than processes.

In three processes one of the nodes is drawn with a circle around it. This indicates a process where task-oriented activities are carried out; starting from this circled node. Usually this is the place where the user interface has been realized. These are typically processes in which the sequence of the various steps is not fixed in advance, but is determined by the user.

In the processes without such a circle these steps are more or less fixed. In current practice these are often workflows with a combination of manual, and/or software supported and/or fully automated activities. The starting point in these processes can be implemented in several places.

When we look at this picture from the scope of the tender, we see here the many variants of process-oriented data ingest in addition to the task-oriented processes around catalog management and acquisition.
Beyond scope, but important for interfaces to be realized, is the outlined decoupling between catalog management and service delivery by means of an integration layer.

Slide 10 - Logical applications in scope (revisited)
With this previously shown picture I want to conclude this explanation.
I hope it has become clear that we are not looking for a mere replacement of a number of legacy applications. Precisely because these are applications that touch the heart of our organization, we are looking for a supplier that can help us – together with the help of our enterprise architecture - to take our application landscape to the next level.