The next step: implement data management.

John de Croon   *29 June 2012*

In two previous columns, I described the automation of respectively the Asset Manager and Service Provider. The conclusion was that when information systems would be implemented without a unified data model and the roles for handing over the correct data are not clear, it is like frame in a museum without a painting. In this column, I discuss data management.

Apparently, some things take time. An article of 13 years ago[1] stated that many software solutions were only applied as an electronic data base for supporting operational processes. Our experience, almost 15 years later, is that in many companies this still is the case. The work may be carried out more efficient, but information still is little used as management information. A major reason is that it is not defined which management information is needed. But it also happens that information is not current or consistent. What do you need to do so the data will be current and consistent?

We first briefly discuss the causes of incorrect and incomplete data. First it is not always clear who must decide before a change request in automated systems can be implemented (think of a new report, revised data or added metadata). Also data in different information systems is not always automatically interfaced, so changes in data in system 1 are then often made in system 2. Besides, the data management process is often not modelled. Roles and responsibilities of this process are not clear. Finally, it is not always clear what the impact is of making changes in the data.

This has several implications. In practice we saw that a change request for a report was implemented in an asset management information system. After this change, the report was no longer suitable for other staff, who also used the report. If asset management data is not current, it is difficult to manage asset management processes and improve these.

When a company wants to make sure that the data quality improves and data also remains clean, it is necessary to implement a data management process. In addition, it may be necessary to improve the data quality by enriching it and cleaning up the data. These two components can be part of a project to improve the data quality.

Let us first look at the data management process. In the figure below the process is outlined.
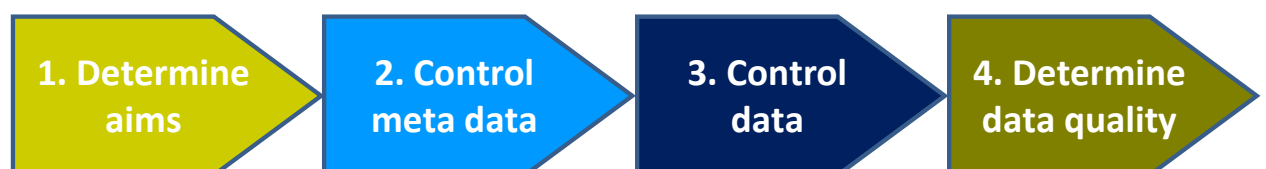
In the first process it needs to be determined which management information is relevant. That includes the targets as well as a definition of reports to measure the defined goals. Also the administrators need to be appointed.

In the process 'Control metadata' the desired data atlas and the data model need to be created. It states which data we want and the desired data quality. The data model contains the business objects

---

[1] Onderhoudspakketten spelen in op nieuwe ontwikkelingen. Maintenance Magazine maart 1999. Dennis Fokkinga, Lisette van den Boogaard and John de Croon

(entities), the relationships between them and the attributes. This must be derived from the desired management information. It must also be determined how changes will be handled (think about who must decide).

The process 'Control data' includes assessing and designing changes in the data and the data model, realising changes in the metadata and implement the changes in the data.

In this process, a Plan - Do - Check - Act cycle can be found (as in PAS55 and ISO9001). Therefore, in the last process is measured whether the desired quality is achieved and necessary improvements are defined if required.

The improvement of the data itself can consist of the improvement of:

- completeness of the data (is the required data available)
- accuracy of the data (is the data is accordance to reality)
- consistency of the data (does data match between several systems).

Note that the improvement of the data quality is similar to the improvement of the availability of a plant. To improve for example the quality of the data from 70 to 80% is not so difficult. The accuracy and consistency can sometimes be improved with relatively little effort by means of automated scripts. It may also be useful to ensure that certain combinations of data can not occur. This prevents future inaccurate data in the system.

To improve the quality from e.g. 95 to 96%, large investments could be needed. Implementation and improvement of the data management process will thus not be easy! So determine whether such improvement still is meaningful.

The method has great advantages but implies changes as well. The manager (process owner or process coordinator) gets responsibility to approve or reject the change requests. For example direct requests from end users to programmers to make changes in (meta) data are not dealt with anymore. Remember that often a major investment is needed. For implementing information systems sometimes millions of Euros are needed, for improving the data this amount can be even more. So do determine what data is needed. This to prevent that again money is burned and no proper asset management is performed.