

Data Governance: We Know We Want It, But What Is It?

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“Data Governance” is becoming one of the most frequently discussed topics in the data handling world, and this is, of course, good news. So much evidence has been published about the huge business benefits that come from addressing data handling essentials¹ that even the most cynical managers are becoming interested. Senior oil company executives are now more likely to be willing to invest in fixing the fundamentals. Users are more willing to discuss their underlying needs with data experts, and data management staff can work on what needs to be done rather than explaining why. This switch towards a more strategic approach does, however, have some downsides. One issue has been that some experienced oil industry data managers have suddenly had a “Data Governance” initiative thrust upon them. They know that they need to address the fundamentals to have the business impact that the executives demand, but they are daunted by the size of the task and uncertain about how to proceed.

This short paper outlines an approach to coordinating data governance that has proved successful in a number of oil companies.

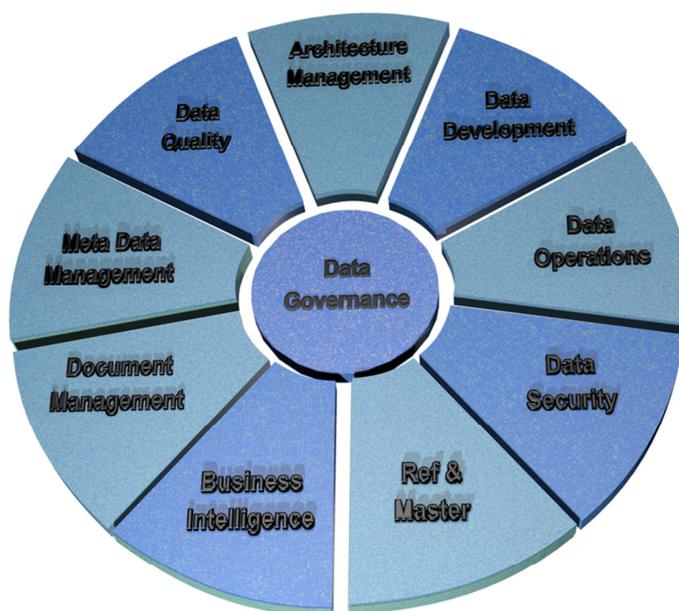


Figure 1: The 10 functions of the DAMA “Data Management Book of Knowledge”

Background

One of the main reasons for this growing awareness of data governance was the publication in 2009 of the “Data Management Body of Knowledge”² from DAMA (Data Management International). This divided the data handling activities into the 10 “functions” listed in Figure 1. Some elements of this generic approach don’t quite match the unique requirements that are imposed by sub-surface technical data, however its treatment of “Data Governance” in particular

¹ To select just three examples the CDA study “The business value case for data management” that is available for free download from <http://www.oilandgasuk.co.uk/datamanagementvaluestudy/>, Haines & Wiseman’s “Quantitative Value of Data & Data Management” presented at PNEC 15 and Turner, Harvey & Husband’s “Successfully selling the case for data quality” presented at the DAMA UK meeting in 2012

² Commonly called DMBok this material has been published in various forms, for example as ISBN-10: 1935504029

is extremely pertinent to our industry. The DMBOK provides 25 pages of detailed explanation to cover data governance, it incorporates some really good advice such as “ensure there is strong and continued executive sponsorship and support and that everybody knows about it”, and anyone who is serious about implementing a governance initiative would benefit greatly from studying it. However, this material is intended to illuminate the activity for a wide range of different industries, there is nothing here that is tailored for the oil industry, and no one would expect there to be.

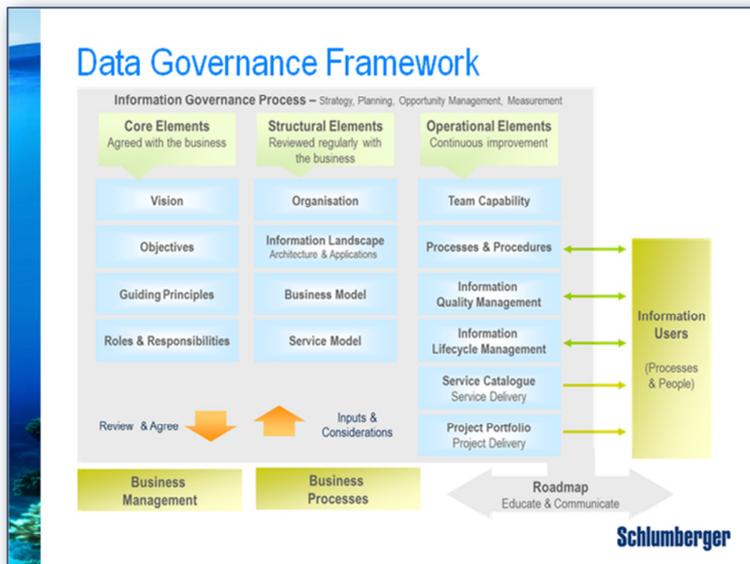


Figure 2: A data governance framework

on the overall direction. The plethora of recommendations, check lists and apparently conflicting advice might, however, lead one to focus on just one single element and to restrict the effort to familiar tasks. This, however, would hardly help deliver working data governance, so the obvious question is “what should I do first?”

What first?

An alternate picture divides the topic into three overlapping areas:

- **Charter:** the shared understanding of the scope, standards and vision
- **Culture:** the people based aspects that encourage participation
- **Programme:** the projects required to implement the changes

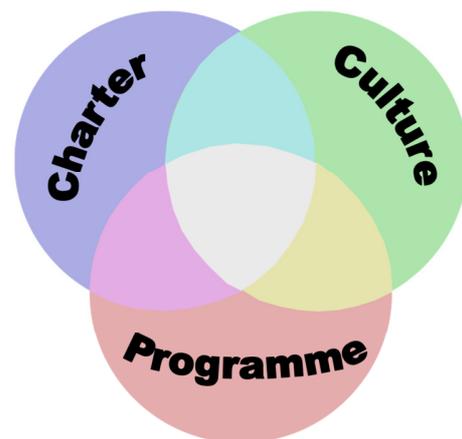


Figure 3: The key aspects of data governance

³ From Hawtin, S. “Applying DAMA to E&P Data” originally presented at PNEC 14 in Houston

Experience has shown that this alternate view makes it easier to identify which element should be addressed next. In any existing company there will be some aspect where additional investment would have the greatest positive impact. Usually the primary data related element to address can best be identified by first considering the size of the company involved⁴.

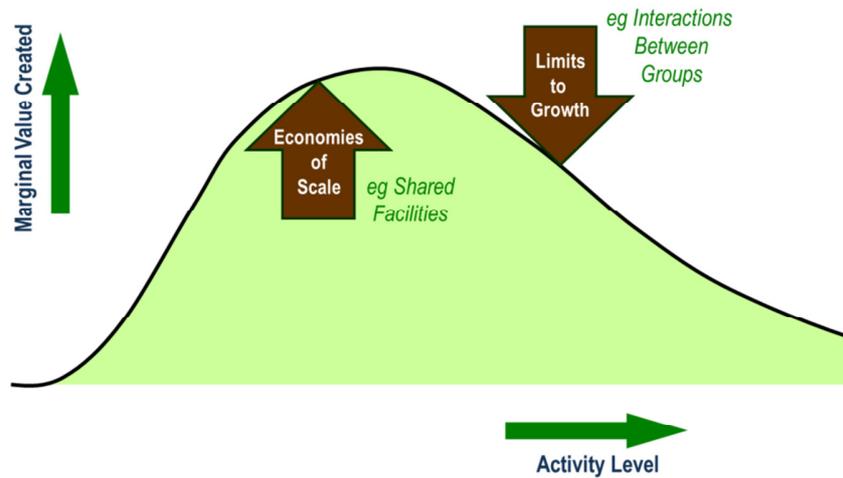


Figure 4: Any single approach has an optimal activity level

The effectiveness of any one particular data approach always depends on the scale of activity being undertaken. At low levels of activity there are not enough economies of scale to fully justify the configuration costs. For example the effective costs of defining a new standard are halved if it can be applied to twice as many locations. However, there are also inevitably limitations that restrict the benefit

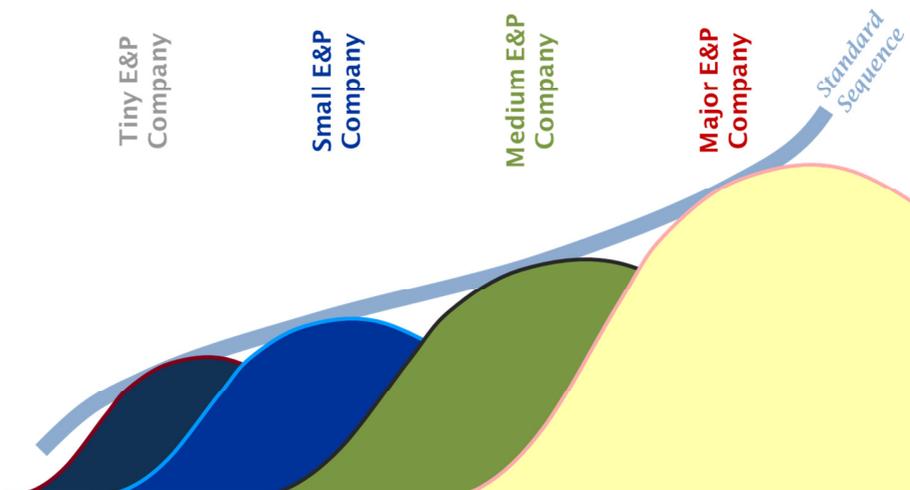


Figure 5: Different approaches are appropriate for different organization sizes

once the activity level increases beyond a comfortable level. For example the number of interactions expands proportional to the square of the number of locations.

So any single approach will have a “sweet spot” for which it is the most cost effective tactic. What has been observed is that four different sizes of oil

companies adopt distinct data handling approaches suited to their activity levels. When an organization grows beyond the capabilities of their current strategy there is a need to switch to an alternate approach, this transition is often disruptive.

⁴ This approach was outlined in “The Main Sequence: Matching Data Management Change to the Organization” presented by Jess Kozman at PNEC 12

- Vision
- Mission
- Policies
- External Standards
- Terms
- Company Standards
- Procedures

Figure 6: Written elements of the data governance charter

Charter

This aspect of governance covers all the shared understanding across the whole organization. Documenting what the company considers to be consistent and appropriate behavior certainly helps encourage conformance. However, most organizations cannot justify the costs to write down standards for every single aspect of data handling. They rely on the professionalism of their staff to determine proper conduct. Certainly before undertaking a comprehensive process to explicitly document all possible angles it is worth considering which

aspects are currently working “well enough” and leaving those components as “unwritten conventions” until later.

Vision

Any Data Governance initiative that is not rooted in visionary and active leadership from the top will be doomed to failure. A written “vision” for data handling will help spread awareness and encourage compliance. Ideally, this is a concise and precise description of how everyone is expected to behave when handling data, preferably it will have been endorsed by the highest level of management and incorporated into mandatory training. The need to be comprehensive, universal and short can make this a very difficult document to write.

#	Vision
1	All data is a strategic asset, whether corporate, shared or isolated and underpins the business decisions of the company
2	All data will be handled in accordance with applicable laws and regulations or company standards, whichever are the more stringent
3	Each professional is responsible for disclosing the quality and uncertainty of the data they share with others and for understanding the limitations of the data they employ
4	The ownership of all shared information should be clearly defined understood and implemented
5	The creation, use and destruction of corporate data should be carried out in compliance with group standards and legislation
6	Within the constraints of safety, budget and corporate standards the company will take every action to realise the full potential value of data assets
7	Any restriction that data handling standards place on the flexibility of working or the creativity of the company's professionals will be justified by a business case

Figure 7: An example corporate vision

Mission

Data mission statements are more specific than the vision and often tailored for particular groups within the company.

Policies

Company policies are a set of guidelines that direct and limit the actions that can be taken in pursuit of the company's objectives.

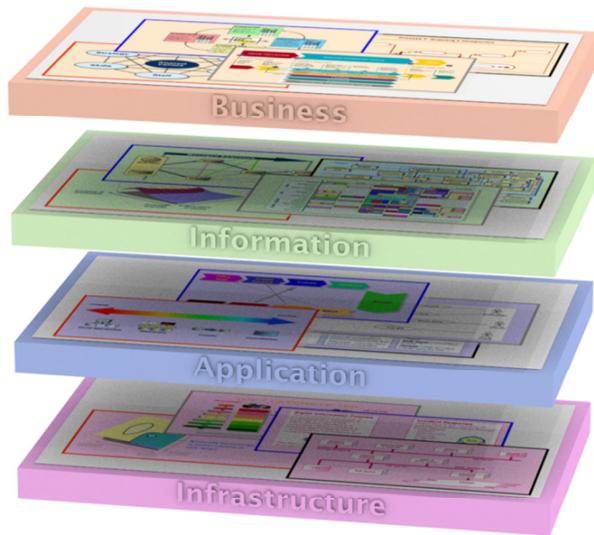


Figure 8: Levels of Enterprise Architecture

External Standards

There are a large number of industry standards that could be adopted, clearly listing which of these is endorsed by the organization will make everyone’s work easier.

Enterprise Architecture

One area in particular has proved to be an invaluable foundation for much of the governance work, that of “Enterprise Architecture”. It is highly recommended that those involved with data governance become familiar with their company’s enterprise architecture activities.

Combining Standards

It has also been pointed out⁵ that a combination of service delivery standards such as ITIL, project management standards like PMP or PRINCE2 and DMBOK can be mutually supportive. In this picture the services drive the business activities, service improvements are implemented by focused projects and these are all under the umbrella of a common vision based on DAMA.

Terms

Often one of the most valuable initiatives that can be started is to document the terms used to classify the standards. Ensuring that there is an agreed set of names for the activities in the information lifecycle, that the data categories names are consistent, and, that the meaning of terms such as “data steward” are widely understood. To succeed this

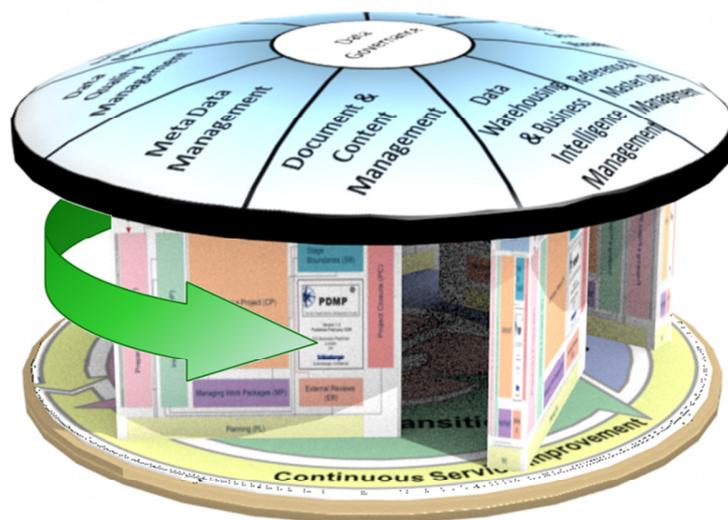


Figure 9: The Data Management “Roundabout”

⁵ Originally in the presentation “Information Requirements” presented at ECIM 2010 by Nigel Corbin

effort must gather input from a wide range of sources, shared decision making is the hallmark of good data governance.

Company Standards

Probably more time and effort will be needed to define and agree company specific standards than any other part of the charter. Such standards can potentially be quite abstract, Figure 10 for example shows the data ownership model that applies in the Danish oil company DONG⁶.

The level of enforcement of standards has an extremely significant effect. Where the standards are mandatory and compliance is measured they will usually be more comprehensive and widely referred to. In companies where the “data management group” creates standards that the geoscience users can treat as optional or advisory, they will be generally ignored and are often less mature.

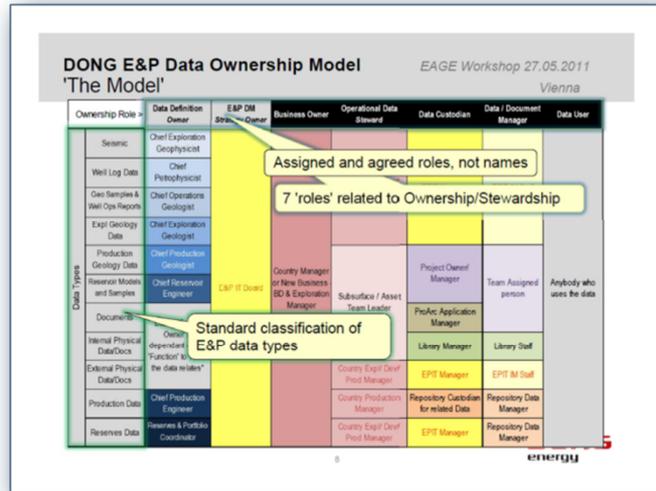


Figure 10: DONG’s data ownership model

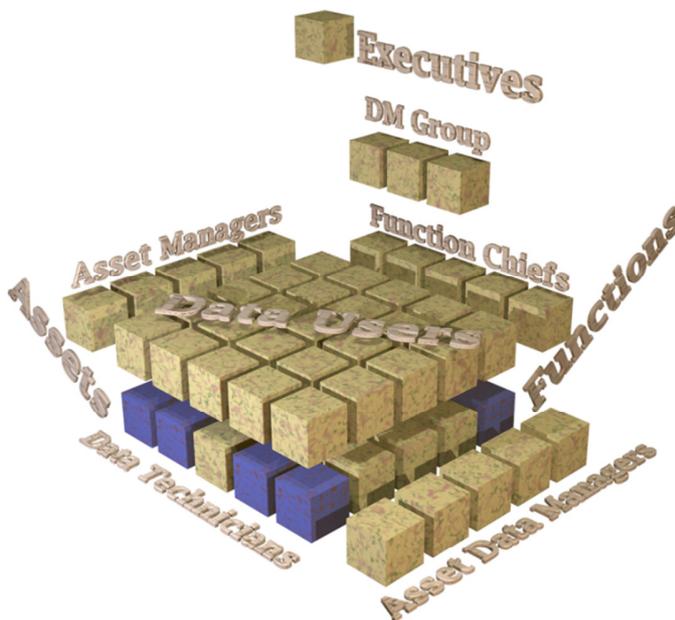


Figure 11: Typical Oil Company structure

Culture

Within any data governance initiative the importance of the cultural impact cannot be overstated. Each oil company has its own environment, but in many of them the same key groups can be identified. Executives need to endorse the initiatives, and be seen to actively participate. Data quality must be defined by the function chiefs, implemented by the data technicians and enforced by the asset data mangers. In most organizations, however, the most challenging aspect of implementation is getting the data users to accept explicit responsibility for the quality of the results they generate. Objectively measuring and

⁶ This is from “DONG E&P - Data Ownership Model” by Kenneth Nordstrøm & Guttorm Vigeland presented at EAGE Workshop Vienna 2011

reporting the quality of results, for example, how often and how well they are documented,

Stakeholders Wake-up Ability Review Measure

provides one lever that can be used to dramatically improve the overall business impact.

As with any change management effort it is important to take a systematic approach, to ensure that there is a focus on communication, to measure the impact of initiatives and to be willing to adjust any course that is not achieving the results required. There are many different Change Management methodologies that can be successfully applied.

Figure 12: One Change Management approach

Programme⁷

In any organization there are more potential improvement projects than there is budget and resources to implement. Some way has to be found to select between these candidates.

In the best organized oil companies the prospective projects for improving data management are reviewed by a single coordinating group. To be classed as a programme⁸ a collection of projects must meet a strategic need, have high level leadership and direction, and involve a range of activities that combine together to deliver the outcome. These initiatives often emerge from



Figure 13: OGC define the role of the programme

a growing requirement to encourage cohesion, enforce compliance against a building body of standards and end up being driven by a shared vision.

⁷ A common convention, which is adopted here, is to employ the English spelling of this term in order to distinguish this type of collection of projects from computer software

⁸ This definition comes from the “Office of Government Commerce” (OGC) in the UK. This is the body responsible for the original creation of the PRINCE project management methodology and the ITIL service definition standards. Their “Managing Successful Programmes Manual” describes the supervision of these types of groups of related projects

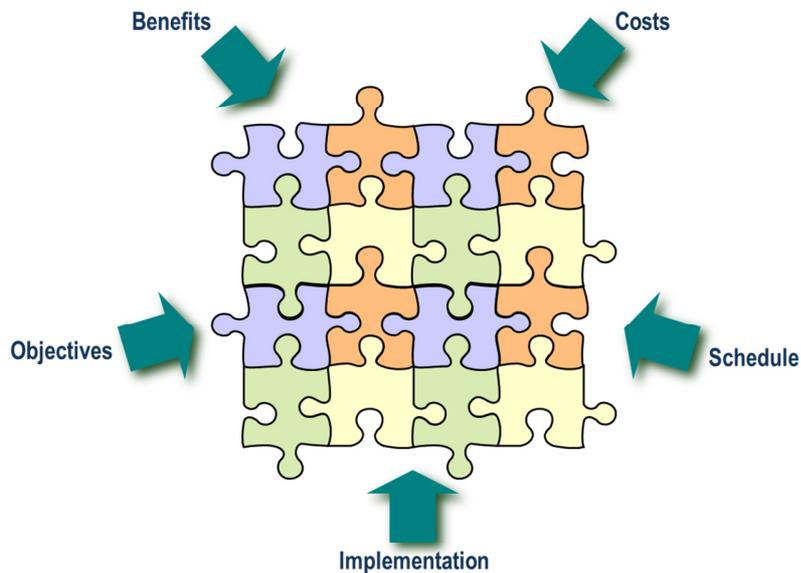


Figure 14: A programme must balance between different projects

applying it to contrast between the candidate projects allows the various trade-offs to become explicit.

Conclusion

Governance is a crucial part of the effective implementation of data management for any oil company. The fact that this is becoming more widely understood and appreciated must, surely, cause anyone involved in delivering data handling services to celebrate. It is true that, in most oil companies, there is an enormous gap between our vision of how the business should handle its data and the reality of today's practices. But, rather than perceiving this as an insurmountable mountain that must be overcome, it should be viewed as a wide range of choices for what should be implemented first. Any data governance initiative should focus on reaching achievable business benefits, the primary goal is not to reach perfection but to deliver an improvement to the current situation.

Information management improvement projects can be characterized by their: financial cost; potential benefits; fit with corporate goals; timing requirements; need for resources; dependencies on other projects; the data domains being addressed; assets that will be affected; impact on staff training; business processes affected; and legal and accounting implications. Creating a consistent way of measuring each of these factors and