



Measuring the Benefits of Asset Management

On several occasions over the past few months, we have been faced with the question of how to measure the benefits of implementing an Asset Management orientation. Recent discussions on the PAS 55 LinkedIn group have mirrored this question, convincing us that significant uncertainty exists around this issue. Creating metrics and benchmarks for Asset Management is necessary to both assure utilities that their expense in implementing Asset Management is justified and to respond to critics who claim that it is possible to deliver the same or even better outcomes in their business without explicitly implementing Asset Management. This paper describes how we have designed a benchmark in which the effectiveness of the Asset Management function is measured and compared with the relevant business outcomes. Furthermore, it presents results and creates insight on how the business case for Asset Management can be built.

(by Jan Schipper, Managing Director UMS Group Europe and Johan Huisma, Associate of UMS Group Europe, December 2010)

Introduction of the ITAMS Benchmark

For the last 16 years UMS Group has facilitated a global learning consortium for a group of approximately 40 transmission service operators (TSOs). The program, which operates on a two year cycle, collects data on and analyses maintenance and operation costs and service levels. Some of the TSOs in this peer group began considering Asset Management and wondered if an Asset Management orientation would be a key differentiator in terms of operational excellence for their businesses. In order to determine the validity of this hypothesis, they requested that we design a framework to measure the effectiveness of the Asset Management function. This framework was required to have a strong linkage to the PAS 55 standard which is achieving broad acceptance as the best practices guideline for Asset Management in Western Europe, as well as in other regions of the globe.

In response to this request, we launched a new global learning consortium, the International Transmission Asset Management Study (ITAMS), comprising 1 TSOs from around the world. The objective of ITAMS is to use benchmarking to provide insight into best practices for improving the effectiveness of Asset Management in the electric transmission industry. The results from this ITAMS benchmarking gave us a means to develop and test a hypothesis which might answer the question on how to measure the benefit of Asset Management.

The Hypothesis

We began designing the desired framework in October 2009 based on testing the hypothesis:

“Best performers in delivering high levels of business outcomes/success will tend to be those who also have high service levels in Asset Management.”

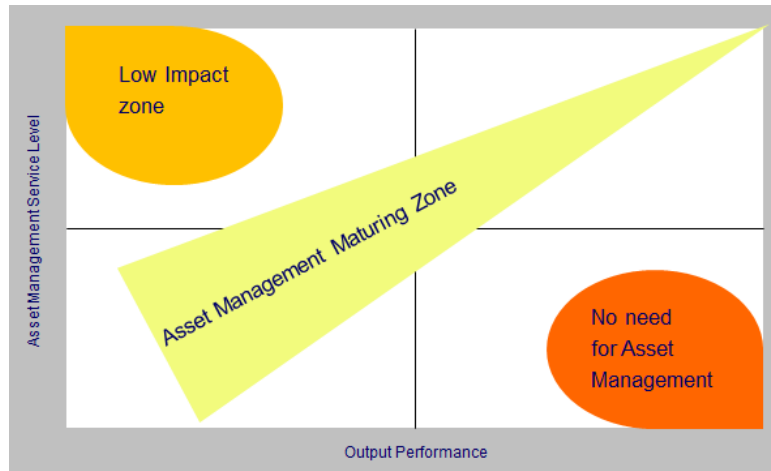
We further refined its hypothesis:

“Developing an Asset Management orientation will always bring you to a higher level of business output and success.”

In our framework (see Figure 1) we defined the zone where this hypothesis holds as the “Asset Management Maturation Zone.” Two other zones are identified in this framework. In the “Low Impact Zone” can be found companies which have highly developed Asset Management service levels, but lower than average business outcome performance. In the “No Need for Asset Management Zone”

can be found companies that deliver a very high level of business outcome performance without having a clearly articulated Asset Management orientation. If the results of our benchmarking identified any companies in this last zone, it would indicate that the initial hypothesis was wrong and that the framework needed to be re-thought.

Figure 1. Asset Management Service Level vs. Output Performance

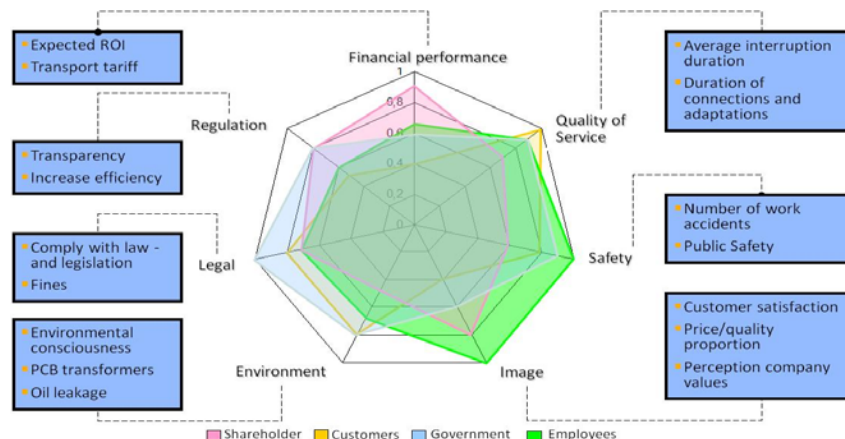


After developing the framework for analysis, the next step was to define Asset Management service level and outcome performance.

The Definition of Business Outcome Performance

The definition of outcome performance should be strongly related to the set of stakeholders to which a company must be responsive (see Figure 2).

Figure 2. Stakeholder Business Requirements

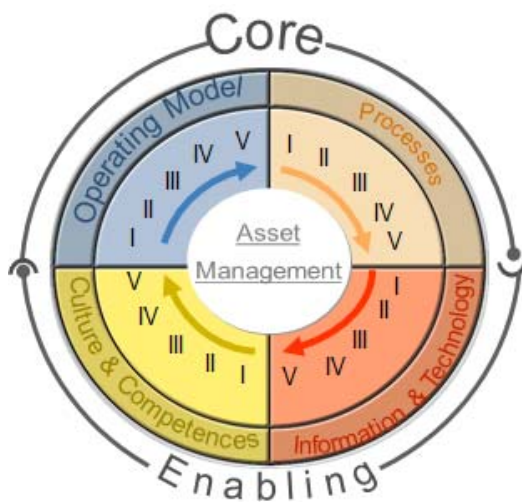


Since market conditions and stakeholder needs can differ significantly based on company focus, ownership structure, region, etc... it is difficult to define one set of comprehensive outcome performance parameters that are relevant to all companies. However, we were able to identify a subset of output parameters which we believe are applicable for all utilities. These five key



performance indicators (KPIs), which have been weighted relative to each other, were used in the ITAMS benchmark. They consisted of a quality component, a safety component, a return on assets component and a transparency component in terms of realization of planned OPEX (operating expenditures) and planned CAPEX (capital expenditures). While these KPIs do not address all areas of operations or asset management, our experience has been that high outcome performance in these areas is indicative of an overall high level of performance throughout an organization.

The Definition of Asset Management Service Level



ITAMS focuses on benchmarking the four areas which we believe are the key to best practice Asset Management: Operating (and Accountability) Model; Processes; Competences; and Information Management & Enabling Technology. A company's proficiency can be scored in each of these areas on a scale of 1-5 which runs from Innocence (lack of awareness) to Excellence. A balanced score in these four areas determines the company's overall Asset Management Service Level.



Core areas of competency are a transparent Operating Model and comprehensive/mature Processes. A best practice company should:

-  Establish separate key business roles (Asset Owner, Asset Manager, Service Provider) and clearly define responsibilities.
-  Determine and apply a business value framework and establish comprehensive processes (risk management, asset system strategy, investment planning and investment delivery management).

Enabling areas of competency focus on providing the organizational capabilities for asset management through Information Management and Enabling Technology, as well as through personnel development. A best practice company should:

-  Provide the right data for decision-making through a comprehensive asset data repository and the use of effective asset management analysis and decision support tools.
-  Transform from an engineering-based to a business-minded company culture. Ensure development of asset management related skills and competences.

These four areas provided the basis for our development of a set of service level measures consisting of a mix of quantitative data and qualitative questions to determine the Asset Management Service Level. A subset of the information collected and evaluated is shown in Figure 3.

Figure 3. Data Elements for Creation of Service Level Measures

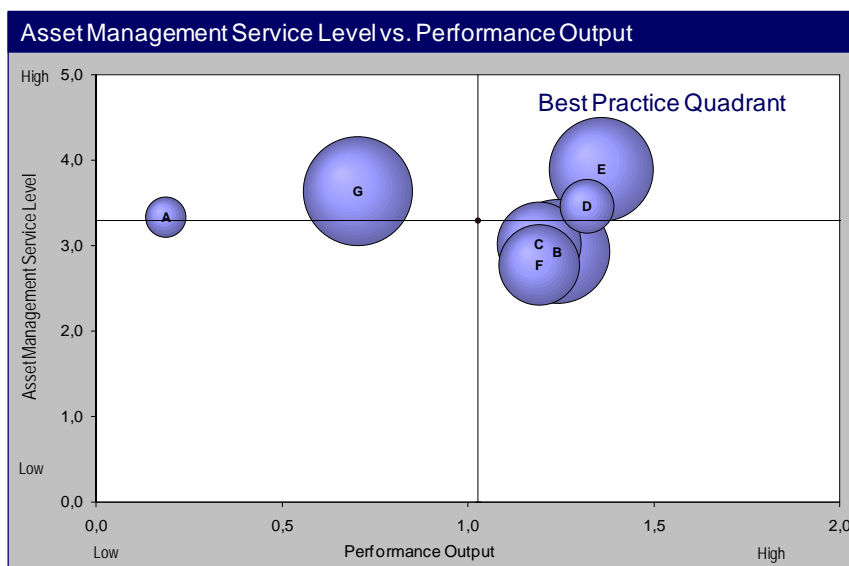
Business/Operating model (Transparency)	Process (Comprehensiveness)	Competences (Balanced Skill set)	Information Management & Enabling Technology (Data Counts)
- Stakeholder importance	- Process maturity	- Capacity	- Service Level vs. total IM & ET spend normalized by total Spend
- R&D budget	- FTEs sub processes	- Technical maturity	- Enabling technology
- Number of FTEs (AM,AO,SP)	- Value of developed solutions	- Non-technical maturity	- IM & ET annual budget
- Regulatory drivers	- Standardization level	- Organizational and cultural features (capability – quality)	- Decision making tools
- Asset Management roles	- Elements of decision making	- Education level	- Information management policy
- Management system certification	- Portfolio (short and long term)	- Age distribution	- Information Management staff (FTEs)
- Business values	- Contracting (commissioned projects/activities)	- Experience level	
- KPI importance	- Refused projects	- Annual education budget	
- Highest valued risks	- Maturity of contracting	- Education budget allocation	
	- Conformity with terms of agreement/contract		
	- Process maturity matrix		

Based on the previously discussed definitions of Outcome Performance and Asset Management Service Levels, UMS Group created a data pack which identified specific data to be collected from each participant, as well as a definition document which identified the relationship between the ITAMS framework and PAS 55. These were distributed to the consortium participants for data collection, return, and analysis.

The Results of the First ITAMS Cycle

Figure 4 presents the results of the ITAMS benchmarking study. Each bubble represents a company and the size of the bubble is a relative measure of the overall TOTEX (total expenditures).

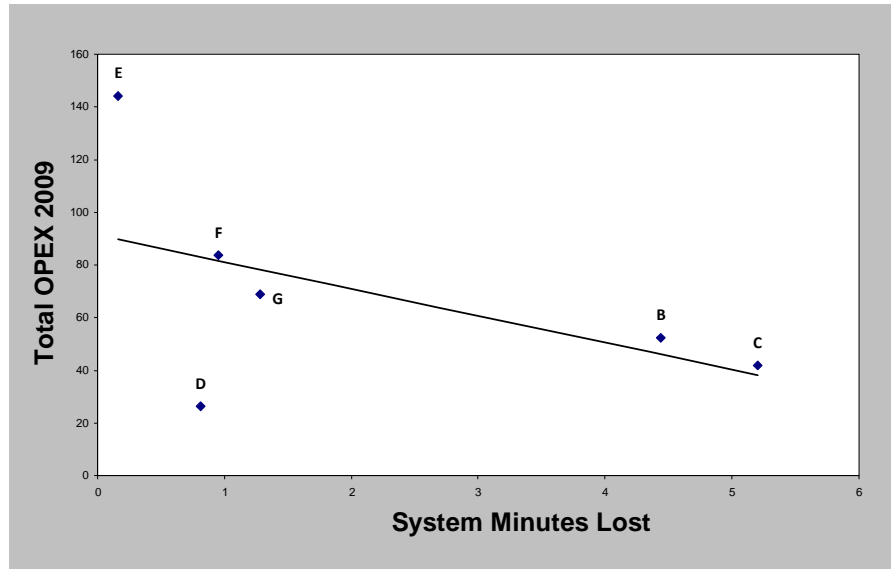
Figure 4. Asset Management Service Level vs. Performance Output



As can be seen in Figure 4, the companies tend to be grouped in the Asset Management Maturation Zone with a few straddling both that zone and the low impact zone. These results suggest a strong

likelihood that the hypothesis tested is correct. Furthermore, the analysis performed in the ITAMS study allowed us to determine where each participant fell on the continuum of relative Asset Management effectiveness and to identify potential areas for improvement for each company. Finally, the analysis identified several key correlations (e.g. between OPEX and system minutes lost) that demonstrate a positive value for Asset Management.

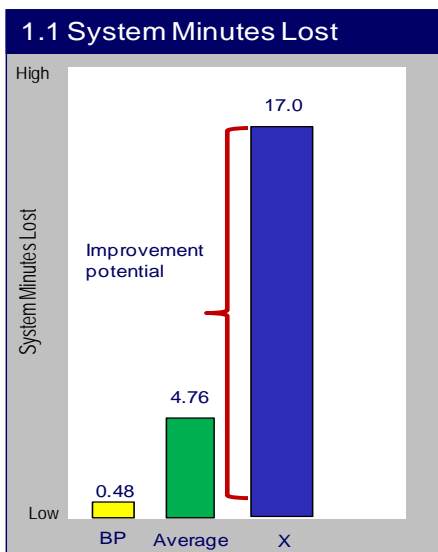
Figure 5. Total OPEX 2009 versus System Minutes Lost



Tying it all Together

This brings us back to the original question of how to measure the benefits arising from an Asset Management orientation. From the Output Performance metrics defined, it is possible to measure the gap compared to average and best practice performers as shown in the following example.

Figure 6. KPI System Minutes Lost



This graph presents the output KPI for System Minutes Lost. The bars represent the results of the best performer (BP), the average of the peer group (Average), and one of the participants (X). The gap identified between the participant and the best performer identifies the business improvement potential in this specific area.

Similar improvement potential can be derived from each of the output performance KPI's, providing evidence for significant total value realization.

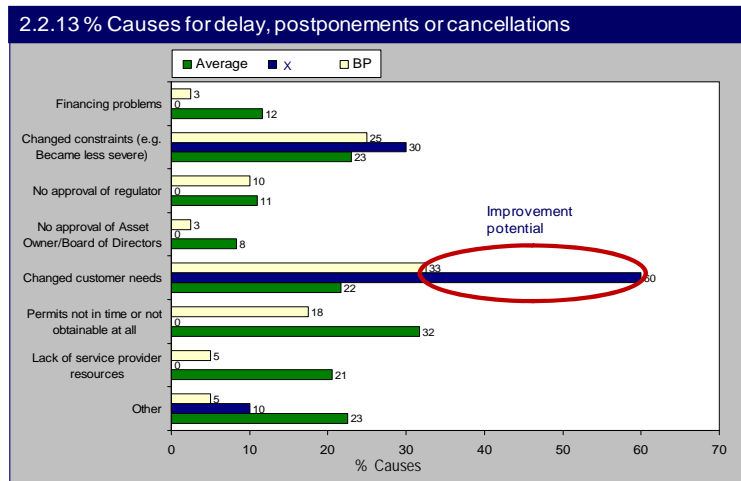
This finding corresponds to our experience that strong improvement in output performance goes hand in hand with the development of the Asset Management function (capabilities and orientation / mind set). Our anecdotal experience is strengthened by the results of the ITAMS benchmark (see Figure 1).

To fully capture the business improvement potential in output performance requires making an investment in developing key Asset Management competences. Identifying the areas requiring development can be accomplished through benchmarking of Asset Management Service Levels, as demonstrated in Figure 7.

Figure 7. AM-service level: KPI % causes for delay

Diving into the ITAMS results for participant X shows a relatively high level of delays in the execution of projects, caused by changing customer needs.

It appears that the organization responsible for this task within Asset Management has significant room for improvement and value creation through process refinement to anticipate or better manage changing customer requirements.



Final Conclusion

The ITAMS study and the framework designed to correlate business performance with Asset Management service levels provides a roadmap for measuring company-specific benefits from the business improvement that comes along with implementing an Asset Management orientation. However, implementing the targeted business improvements identified by an exercise such as this is not the same as implementing a full-scale Strategic Asset Management Transformation. The difference is that adopting Asset Management principles within focused areas of the business provides limited, or one-time benefits, while a full transformation allows a company to move along the Asset Management Maturity scale to a point where continuous improvement is not only possible, but embedded within the organization’s culture.