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Vitens seeks balance between performance, risk and expenses

In 2010, Vitens implemented a method for assessing and prioritising its investments objectively. This was the water supply company's first step on the way to risk-based asset management, resulting in a better understanding of an optimal investment portfolio. The drinking water company has established a clear link between the objectives and the investments necessary in order to achieve those business objectives.

By Ed de Vroedt (Director of UMS Group Europe) and Eelco Trietsch and Willem Bootsma (Vitens).

Every year, Vitens prepares a five-year investment plan for the expansion and replacement of assets in order to guarantee the long term reliability of supply. Network expansions, such as the construction of main pipes and production locations, mostly arise as a result of the growth or change of the population, or from other water-distribution matters.

The replacement or renovation of pipes and production facilities is the result of rebuilding or reconstruction or of a noticeable deterioration in performance. Determining the need for renovation or replacement of an asset in particular is a relatively subjective matter: When is the failure rate too high, is the performance too low or leads a do-nothing scenario too high risk? In order to assess the investments as objectively and transparently as possible, Vitens implemented a method in 2010 that has led to a risk-based assessment of investment projects linked to business values.

The introduction of the risk-based model comes in a period in which Vitens is transforming into an organisation that is more customer-oriented and within which the asset management department plays a leading role. This requires clear business values and transparency, including in the area of investment planning, towards the operational departments but also towards shareholders.

Prior to the preparation of the investment plan, Vitens brings out an annual president letter which contains the vision, the financial and legal frameworks and the company policy. Until last year, the president letter served as a guideline in the assessment of investment requests and the preparation of the investment plan, but didn't provide an objective framework for the assessment of issues and bottlenecks in the network.
After setting the president letter, an inventory was made of all work in progress and new network bottlenecks and issues. These investment requests were then integrally assessed according to necessity, urgency, planning and cost. After preparing the investment plan, this was presented to the Board of Directors for approval and finally to the shareholders. However, it appeared that there was a great need for the transparent and objective assessment of investment requests within the organisation.

Asset Management and PAS 55
In industries where the performance of physical assets is critical for achieving or exceeding the corporate goals, excellence in asset management is crucial.
There is some confusion about the term Asset Management. The meaning depends on the sector in which the term is used. In the industrial - capital-intensive- sectors, Asset Management is associated with the management of physical assets throughout their life cycle.
Due to increasing pressure from regulators, customers and other stakeholders, recently intensified by the impact of the economic crisis, companies are almost forced to apply effective risk-based asset management.

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Until recently there was no standard for managing physical assets and infrastructures. In the absence of a uniform framework, the IAM (Institute of Asset Management), in collaboration with various organizations from the industry, has developed a specification: Publicly Available Specification No. 55, or PAS 55. The standard is currently being transformed into an ISO standard: ISO 55000.

PAS55 / ISO55000

PAS 55 is a specification that provides guidelines and good practice for the optimal management of physical assets and infrastructure.

Particularly in capital-intensive environments, such as electricity, gas and water networks, water boards, airports, and railways, this is ***the*** business model for improving the effectiveness of the management system.

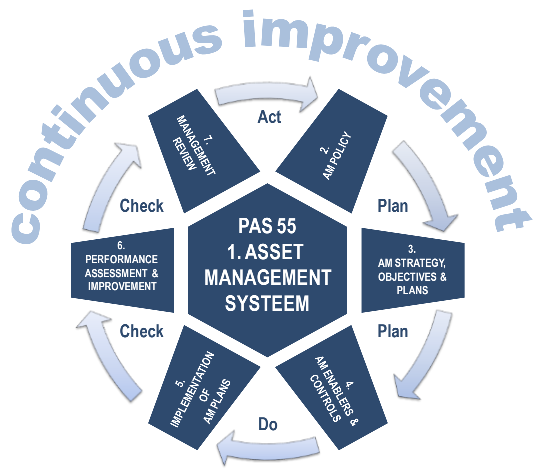

Figure 1 PAS55 framework

The standard addresses the lasting reliability and the relationship between the strategic business objectives and the impact of policies on maintenance and management. Moreover, PAS 55 not only focuses on the internal organization, but also on the connected business chain. PAS 55 can be easily integrated into other management systems, such as ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007.

Although not required in other (non-regulated) industries, PAS 55 has received the full attention of regulators and frontrunners in the industry in recent years. For example, OFWAT, the British regulator of the water and sewerage industry, has adopted the specification. In addition, an increasing number of companies worldwide recognise that excellence in asset management is a crucial element of their operations, taking PAS 55 as a directive.

Introduction of *risk-based* asset management

The proper organisation of an asset management system leads to efficiency, quality improvement, cost reduction and more. But the most important thing is that it leads to transparency. Organisations are able to demonstrate that all risks and issues around asset management are managed in a professional manner. Questions such as "To what business objective does this project contribute?" and "What activities do we carry out in order to reduce this risk?" are easier to answer if an asset management system - in accordance with PAS 55 - has been implemented.

A water supply company runs risks on a daily basis that may lead to the company failing to achieve its business objectives. Without a clear methodology such as risk-based asset management (RBAM) it is impossible to make links between business objectives, the risks and the activities that a water supply company executes in order to achieve its business objectives. This is one of the main principles within PAS 55, the **'line of sight'** (see figure 2). A first step in RBAM is the translation of business objectives into (measurable/testable) business values.

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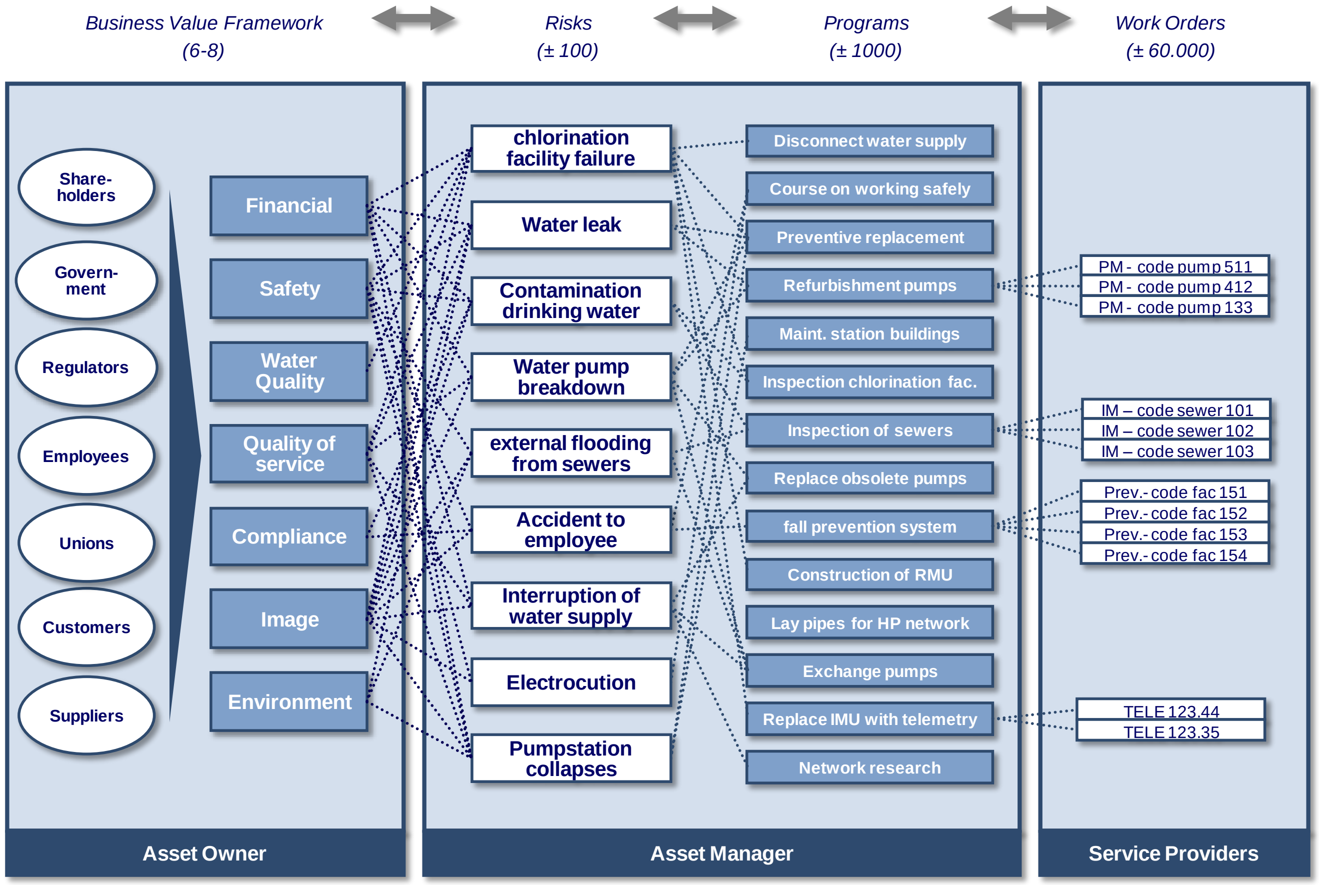

Figure 2 Illustrative example of translating business objectives of a typical water company

Within Vitens, seven business values have been identified:

- Laws and regulations,
- Quality of service,
- Water Quality,
- Financial,
- Safety,
- Sustainability *and*
- Image.

For each business value, a weighting factor indicates the importance. The weighting factors are dependent on the vision, the business strategy and the objectives. For every business value, one or several business standards have been defined in the form of critical performance indicators. An example for the business value (water) quality is the number of exceedances of a norm value.

The business values form the basis of the risk matrix. This matrix is used to determine the level of risk (for each business value) based on the severity of the consequences and the probability. The collective name of business values, standards and risk matrices is called the ‘business value framework’. In its most recent president letter, Vitens has translated its vision and policy into specific and measurable business values. In addition, a risk matrix has been developed for each business value in order to assess all investment projects.

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Enriching the investment portfolio

The decision-making regarding investments is objectified by "enriching" the initial investment portfolio with additional information. In addition, the projects are assessed according to their risk. The starting point for the RBAM method within Vitens is the initial portfolio of running projects and new investment requests. For all new investment requests, the risk of not implementing the project next year, is being determined. First we determine which business value(s) are affected by the project. We then apply the effect appraisal matrix and the probability to this/these business value(s) in order to determine the risk level. All investment requests are then corrected for inflation and other correcting factors.
The underlying idea of the correcting factors is the simulation of practical situations, such as underutilisation of the budget and not meeting the plans. It is becoming increasingly important to be reliable in the prognoses, especially towards the financial market in attracting the required capital.

Scope for discretion

The mandatory projects and the projects in progress are (by definition) included in the investment program, where the prognoses are updated every year according to the findings of the second quarter. The remaining investment requests - the '**Scope for discretion'** - are assessed and prioritised based on a risk profile. The method gives an insight into the scope for discretion and to use this as effectively as possible. The scope for discretion is the freedom to make investment choices based on a risk assessment method. Many companies maintain an investment cap.
The scope for discretion will preferably be large enough in order to meet the needs of the stakeholders. In the current investment plan, the scope for discretion was very limited due to the large number of mandatory projects required by law and due to reconstruction work.

In addition to the work in progress and mandatory projects, we have assessed what projects pose an acceptable risk and what projects pose an unacceptable risk, based on the desired risk profile. What is left is the freedom of choice that the company has in order to determine what projects create the most added value for the company and ultimately its stakeholders. The prioritization of the remaining investments within the scope for discretion is effected by assessing the risks based on the business value framework.

Figure 2 shows an example of the structure of a risk based investment portfolio

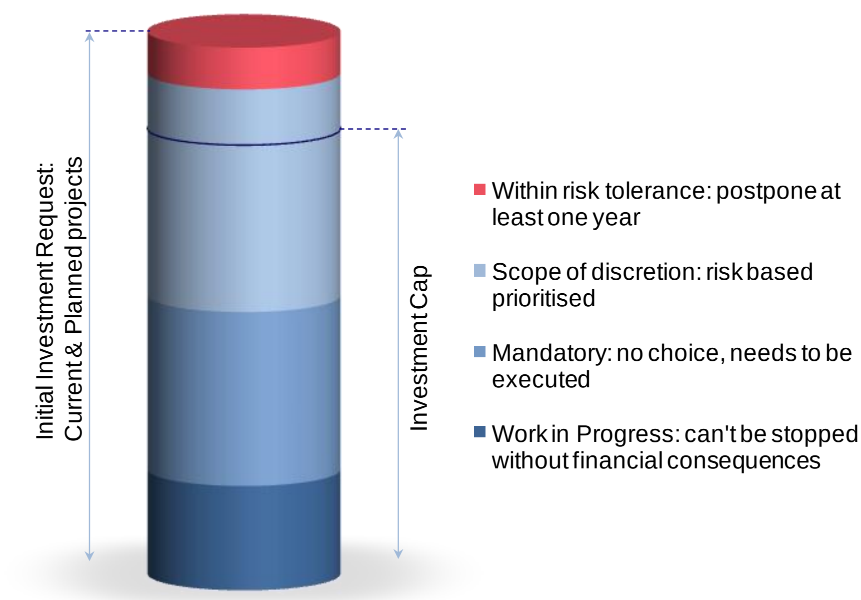

Figure 3 Structure of a risk based investment portfolio

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Finally, the presentation of the investment plan outlines the stakeholders for each project (combination possible): the customer, the employee, the government or society? Based on this categorisation, it appears that over half of the investments are made for the customer: improvement of service and water quality. The other large investments mainly concern a more sustainable operation and the prevention of desiccation (society) and reconstructions (government).

Outcome
Using the RBAM method when preparing the investment plan has marked the start of risk thinking: what will this project contribute to the business objectives / values of the organisation? Within Vitens, the risk-based asset management method has contributed to a greater insight into the compilation of a project portfolio and to greater transparency and understanding of the choices that are made. These choices are reproducible and objective. The role of management is also given a new dimension: thanks to the increased understanding of the risks and the compilation of the portfolio, the decision-making regarding the investment planning is objectified even further.

Based on the desired risk profile of the company, the optimal mix of investment projects can be chosen in order to achieve the business objectives. It is important to keep the risk assessment objective in order to maintain clear rules and to train employees in risk assessment using practical examples. One of the recommendations is therefore to form a (small) team that will assess all investment applications. In order to keep the management scope as large as possible, mandatory investment applications must be thoroughly examined. To what extent is an investment request really mandatory? Or may a business standard lead to the major investment costs that accompany it?

Future
Using the RBAM method, Vitens is taking the next step in risk thinking, moving towards managing risks rather than avoiding them. Now that investment projects are prioritised using the business value framework, the next phase of the RBAM method starts: building up a risk record in order to assess the risks rather than the projects. For unacceptable risks, projects will be developed that are included in the investment portfolio. Building up a risk record is usually done one step at a time by working out concrete risks according to cause and effect. This allows for a gradual transition to another business model.
The role of the asset manager is also going to change. He or she will give the asset owner - usually the Executive Board or the Board of Directors - more and more insight into the consequences of the chosen business value framework: what measures must be taken in order to achieve business objectives and to stay within the desired risk profile? The asset manager will fulfill an advisory role for this purpose and will provide insights and scenarios for the Board of Directors for the right investment choices. Eventually, the Board of Directors will be able to make a well-informed decision on the investment portfolio that corresponds with the chosen business strategy.

For more information on our viewpoints and case studies regarding Risk Based Asset Management and PAS 55, please contact us at: info@umsgroup.com