

Five tools for Long Term Asset Planning (LTAP)

A well substantiated LTAP gives insight in your long-term asset-related investments. The LTAP is therefore essential for water authorities, who are focused on the long term by definition. A good LTAP is risk-based and has been created with input from all asset-related departments and requires a good insight in the current condition of assets and (future) performance requirements. The advantage is consequently that the organization gets in control regarding performance and risks and at the same time peaks in investments are prevented. Based on our Asset Management model we offer tools to reach this advantage.

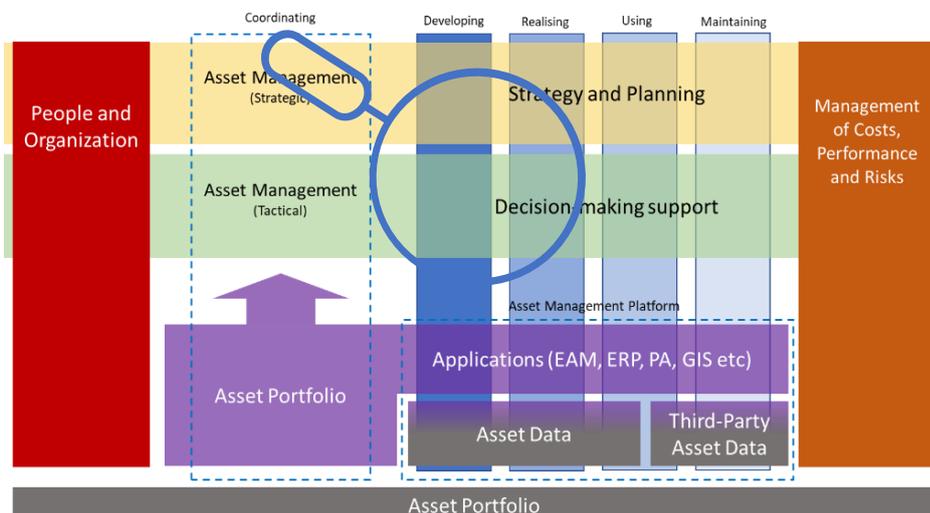
But first: why has this become so difficult? The answer probably has something to do with historical development. Meanwhile it is a couple of decades ago that the distance between employees and assets was small and communication was self-evident. Nowadays, we work centrally in different departments, on a distance from the assets, which operate fully automatic. Even though this is very efficient, knowledge about assets has decreased. Exactly this knowledge is so important in order to estimate the current condition and the associated risks for the mid- to long term. A well-known phenomenon is that not all assets are in the management system or that essential data is missing. Then, you need to trust historical knowledge which scarce experienced employees have, which is an implicit risk for the organisation. Ultimately there are financial constraints which force decision making; but which risks are you going to accept?

In summary:

- Vertical disconnection: insufficient transparency in bottom-up risks and top-down choices.
- Horizontal disconnection: departments have often become silos.
- A good working process for the LTAP is often missing.
- Asset-related information is in different systems.
- The quality of this information is often insufficient.
- The historical knowledge (in minds) decreases.

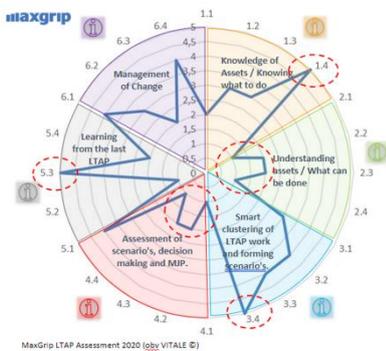
Using our Asset Management model, we have identified five main themes which are needed for a well-oiled LTAP machine:

1. Creating a shared framework with respect to risk acceptance.
2. Setting up horizontal communication structures.
3. Enlargement of asset knowledge.
4. Setting up an LTAP process including KPIs.
5. Line of Sight (transparency)



But first it is important to establish where you stand with your organisation and what your ambitions should be. The first step is therefore actually step 0: the thermometer in the organization.

o. LTAP Assessment



With an LTAP assessment you can map exactly where you stand as an organisation. Based on six dimensions which relate to the process of LTAP formation, the maturity is mapped. We do this by sending out a questionnaire, followed by interviews to explain scores by asking what the mutual differences are and explaining outliers in scores. This gives lots of insight and at the same time contributes to an awareness at the participants as well as a basis for change. The outcome of this LTAP assessment is discussed in a workshop which forms the basis for a widely applied improvement plan wherein probably more than the 5 earlier named components return.

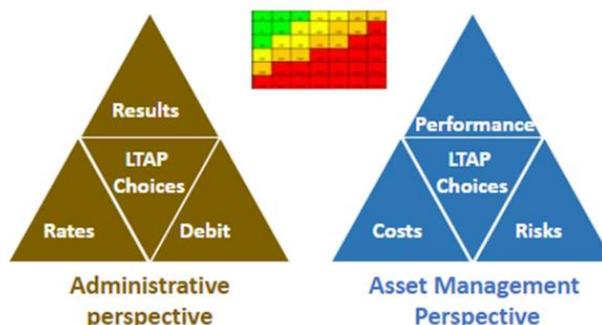
1. Framework risk-acceptance

The perception of risk from the board’s perspective and from asset management often turns out not to be in sync. Asset Management often thinks about the performance – costs – risk balance. The board often thinks in a results – rates – debit balance, which can be translated as performance – OPEX – CAPEX. Comparing these two triangles one could conclude:

- Results = performance + risks
- Costs = rates (operational costs) + debit (investments)

In order to make the right administrative choices it is therefore important to make risks explicit. On the one hand it helps to make a established company risk-matrix which gives a scope for risk-acceptance. On the other hand, it is essential to express the asset-related risks on board level . This requires two competencies.

1. Assessment of risks on a higher aggregation level than is done through Risk Based Maintenance; it requires insight in the system so that criticality of a pumping station or pipeline can be made explicit;
2. Insight in the relation between investments (CAPEX) and operational costs (OPEX). For how long can you postpone an investment before operational costs go up? This requires insight and knowledge of asset degradation.



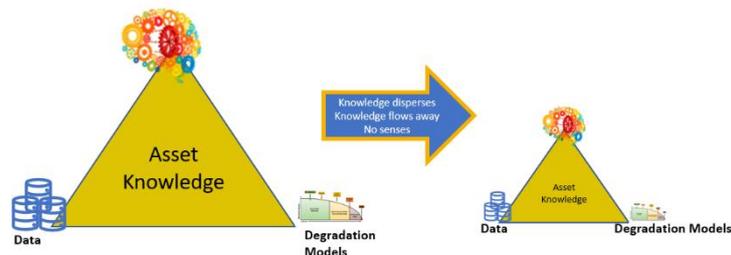
2. Setting up horizontal communication structures and clear responsibilities

What makes the Asset Management model visual, is that Asset Management goes straight through asset-related departments. All departments do “something” with the asset portfolio: develop, realise, and operate & maintain. Unfortunately, these departments have often become silo’s where cooperation between departments isn’t always self-evident. We often see that there is a reflex to improve this by setting up processes and procedures using systems which support this. Although important, these are only 2 of the elements from the familiar picture People – Process – Technology. We advocate the picture on the right-hand side where people are the most important factor. Start by setting up periodical horizontal meetings with asset-related departments, managed by Asset Management. Even if the tools and processes are not optimally furnished, it will create a structure which can boost development of a better LTAP. But of course, this isn’t enough: eventually you have to acknowledge roles and responsibilities and a working process. (part 4).



3. Enlargement of Asset Knowledge

The introduction already implied that there is a trend of reducing asset knowledge. This asset knowledge, lies, as in the picture, in 3 dimensions; within the heads (tacit knowledge), systems (data) and in (degradation) models. If we take the average increase of age and centralization as a given, we have to take the following actions:



- Exploitation of the existing historical knowledge in people’s heads. This can be done by distributing knowledge through the earlier named horizontal structures. On the other hand, knowledge can be converted to data and models.
- Using data that until now hasn’t been used and combine this with better understanding of asset degradation (the craft Reliability Engineering). In this way, you gain grip on condition monitoring of assets and it becomes possible to prioritize investments in the context of the LTAP. Of course, a greater dependence upon data increases the need for adequate Asset Information Management (AIM). AIM forms in our digitalized time the basis underneath many processes.

4. Setup of an LTAP process with KPIs

In an LTAP process the following steps are followed yearly on object-level, where knowledge of the asset portfolio is of course the first requirement:

1. Which requirements are expected of the object in terms of performance (quality, quantity) and RAMS criteria? What is the criticality?
2. What are the actual and expected future performance? What is the remaining life cycle? This requires insight in both the condition and degree of degradation on both component- and object level.
3. What are the learning points from the former LTAP update? What were the deviations? Which mistakes shouldn't be made anymore? This appeals to the project management process which has given accomplishment to the plans of this year.

We see often that this process is supported with excels, but to make the process more transparent and more efficient, you can use the available software systems on the market.

5. Creating line of sight

"Line of Sight" is a term from the ISO55000, which includes transparency from strategic level to operational level and vice versa. So, ultimately it should be clear for a mechanic how a certain maintenance task contributes to strategic corporate goals. From the LTAP perspective, this means that a thoroughly constructed and aggregated LTAP proposal is put down, which in turn explains and advocates the choices and decisions, providing the required transparency. In practice, this decision-making process is often less transparent, causing a MJP to be adjusted without proper explanation of the associated risks of the choice made. An example: a carefully bottom-up drafted LTAP proposal cannot compete with innovative proposals, like energy generation, sustainability initiatives, etc, which have a high and positive exposure. A choice for an innovative idea can be legitimate, provided that the risks of NOT executing a part of the LTAP is explicitly accepted and communicated.

MaxGrip has applied this methodology as part of an audit, commissioned by water authority Rijnland. MaxGrip has also applied this methodology for Waternet as a pilot for a first Asset Management Plan, including a LTAP. More about MaxGrip and asset management in the water industry, including case studies, can be found on our website: [Water and Wastewater | MaxGrip Asset Management Consultancy](#).