



Foresight

A global infrastructure perspective

A modern water supply company

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Asset management as a way to introduce Industry 4.0 in the water supply and sewage sector

Water supply companies operate on the basis of fixed assets. Water intakes, water treatment plants, distribution network and sewage treatment plants – such companies could not run their business without these and many other assets.

Since the 1990s, water supply companies have multiplied their fixed assets. They have built more than 142 thousand km of water pipelines and 116 thousand km of sewerage pipes. Several hundred of new sewage and water treatment plants have been built. Today, a total of 84% of households are connected to the water supply network, with 48% being connected to the sewage system. In this respect, Poland does not deviate from the European standards.

Assets and their maintenance are the most significant component of the balance sheet and income statement. Costs associated with asset maintenance are the second largest cost item, following payroll. However, if we add the value of investments, the spending on fixed assets is the single largest cash expenditure item for water supply companies.

What is Industry 4.0?

Industry 4.0 is about using all kinds of modern technologies, from data collection and processing to robotics and automation in order to boost performance.

For a water supply company, this means using customer monitoring solutions, detection of illegal water consumption and, above all, monitoring and analysing the performance of various devices and components of their distribution network.

There is, however, one other very important reason for introducing Industry 4.0, in addition to raising operational performance. In today's world, this is a strategic question and a matter of survival for any business. For over 15 years, companies relying heavily on the use of fixed assets for their core business, i.e. also drawing on engineering knowledge and competence, have increasingly struggled to attract new talents. On the one hand, this results from the collapse of engineering education in the 1990s and early 2000s. Why do some companies still struggle today to attract graduates of technical schools? This is because young people, called Millennials, are using social media and mobile devices in their daily life to collaborate and exchange

information. Thus, if a potential employer does not offer similar solutions, but relies on procedures based on employee memory and physical records in machine logs, etc., such an employer becomes completely unattractive. Even if we call the new solutions 'playthings', the gamification of the social and economic life is a fact. Based on the regular KPMG survey conducted among managers of the largest companies in the world (KPMG survey "CEO Outlook 2016"), we find that 41% of business models will change over the next three years. More than 2/3 of the respondents believe that this change will occur as a result of newly emerging disruptive technologies. As many as 99% of CEOs believe that they can only address the coming challenges through talent management. Therefore, being an attractive employer for new personnel is an essential survival factor for water companies. Is that fantasy? Not quite. The energy sector based on traditional power sources also followed this line of thinking and felt it would always exist. However, the city of Bristol has built its own renewable energy sources and is supplying the public buildings through its own distribution network. In this way, the city completely cut itself off from regional and national energy distribution networks.

Asset management as a 4.0 solution?

Asset management is a philosophy of decisions regarding expenditures (costs and investments) on each of the assets, based on three equivalent perspectives:

- economic outcome (the revenue generated by the asset),
- risk (the likelihood that the asset will not work and generate value),
- total expenditure (costs and investments) needed to maintain business continuity.

These three perspectives are always considered in parallel, with respect to determining the importance of individual assets, and they can tell us about the effectiveness of expenditures. Should we spend money on water supply to a snobbish single house

near the forest, or to a housing estate? If the pumping station has four pumps, two of which work at 70% capacity and two are back-ups, should we overhaul both back-up pumps every year? While these may be trivial examples, they nevertheless show that both engineering knowledge and monitoring data for a number of factors (the number of working hours, vibration, overheating and many others) must be collected and analysed in order to determine whether preventive measures are already needed or not. Is it better to spend money on repairs now or perhaps further utilize the machinery since we can easily get spare parts and the repair will take just one hour?

In order to monitor the work of various assets and analyse the need for maintenance and investments, we need to collect and analyse multiple data. These are the new competencies of the 4.0 era that correspond with the interests of the new generation.

When implementing this philosophy of asset management, it may be helpful to invoke the best practices and standards such as PAS 55 or the ISO 5500x series. KPMG is the only advisory company which is a substantive partner of the Institute of Asset Management. Our competence centre has helped to translate PAS 55 to ISO standards. We have supported many companies across Europe and in Poland in the implementation of asset management practices based on these standards.

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