

Digitalisation – what does it mean and how do we realise the benefits in pumps within the UK water industry

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Introduction

Digitalisation, IoT, Big Data and other phrases are all around us today. We are all using digitalisation to one extent or another in our daily lives both at work and home such as the use of Apps, on line shopping and banking. But what does it mean in terms of pumps and pumping within the UK water industry and more importantly, what benefits can be realised by the water and wastewater companies by embracing digitalisation and what are the barriers that must be addressed to realise these benefits. This presentation and paper explores areas of digitalisation within pumps and pumping that exist today and the benefits they can bring to end users.

Benefits

The idea of digitalisation and all that it brings is new, exciting and, to coin a phrase, offers lots of opportunity to “disrupt” how things are done today within the water industry. However, it is important that the benefits of using digitalisation are understood at the beginning of any digitalisation project and that the project will require other significant changes beyond just adding a digital platform to realise the benefits. Moreover, if we can't see and measure the benefits we simply should not embark on the project. Within the water industry we must look at the commitments within PR19 to OFWAT to understand where we need to realise benefits. These commitments, as indicated by OFWAT, are outlined below along with the inevitable requirement to deliver cost efficiency within the AMP period.

1. Customer experience measure	2. Developer services experience measure	3. Water quality compliance	4. Customer water supply interruptions	5. Leakage	6. Per capita consumption	7. Customer property sewer flooding (internal)
8. Wastewater pollution incidents	9. Risk of severe restrictions in a drought	10. Risk of sewer flooding in a storm	11. Asset health: mains bursts	12. Asset health: unplanned outage	13. Asset health: sewer collapses	14. Asset health: treatment works compliance (WaSCs only)

Area of focus

 Customer experience  Day to day performance  Future performance/resilience

**1 to 6 and 9, 11 and 12 apply to WoCs and WaSCs
7, 8 and 10, 13 and 14 apply to WaSCs only**

Against this backdrop of OFWAT commitments we should also recognise that pumps are the single largest operating cost of a water company due to energy use. In addition, if you look at many of the large fines for environmental discharge failures, pumps have been cited as part of the reason for these failures. Digitalisation of the end to end selection, procurement, operation and maintenance of pumps could address all these issues and must be embraced by the water industry if they are to meet their OFWAT commitments.

Digital solutions

Grundfos has a range of digital offerings that support pumps and pumping, ranging from pump selection through to operation and maintenance. These offerings are categorised through, what we call, our lighthouses that look at digital offerings at different stages of engagement as follows.



Lighthouse 1 relates to digital solutions that support the selection and procurement of pumps. This includes us of systems and Apps to find service information, order pumps and parts and get data on pumps such as drawings O&M manuals, service videos etc.

Lighthouse 2 is associate with digital solutions to provide real time asset data to optimise the pumps. This includes solutions such as managing pressure and flow, therefore reducing leakage and energy use, and identifying problems with pumps before they fail, allowing proactive maintenance which significantly reduces maintenance costs and risk of disruption of supply and environmental failures.

Lighthouse 3 considers how the availability of larger amounts or real time data can be accessed readily, permitting us to look at alternative business models to support a totex approach. These models include payment per m³, payment on energy savings etc. This aligns very much with the culture of leasing that exists in many areas such as cars, mobile phones etc.

The presentation will touch on these Lighthouses with real examples of where this is happening today and importantly the benefits that can be realised.