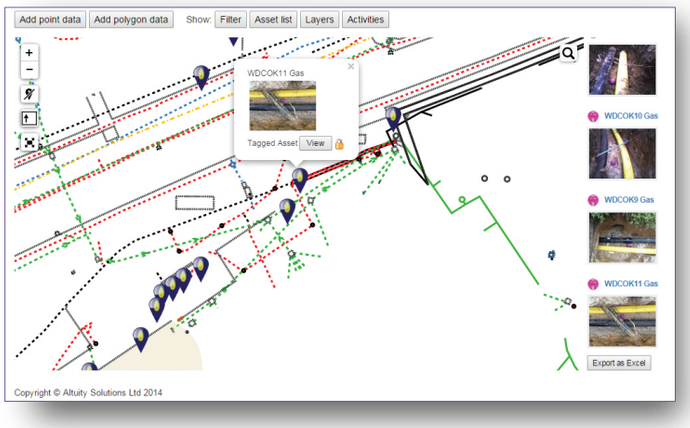
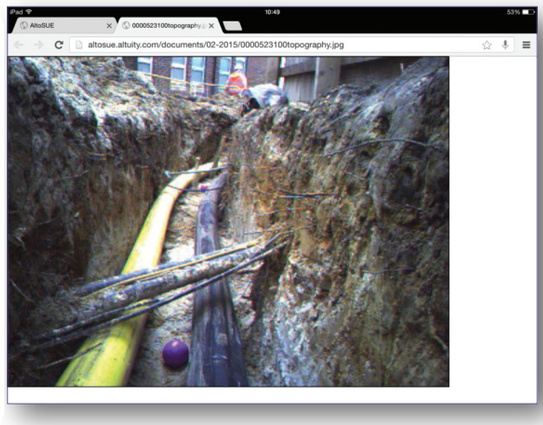




Daylighting

Altuity Solutions releases new cloud-based SUE product AltoSUE, which provides lifecycle location information for underground assets.

Sue's back! We've taken a peek at SUE before - Subsurface Utility Engineering - but here's another way of keeping track of underground assets. Digging a trench and dropping a couple of cables or drain pipes in is the favoured way of keeping town and country uncluttered by services. We have big arguments going on locally, for instance, as protesters fight to bury the transmission of power from Hinckley point, instead of distributing electricty through a network of massive pylons - the cheaper option.

The cheaper option is also the cheaper option when it comes to maintenance and repair. Underground assets - gas, electricity, water, fibre optics - may be out of sight, but are always located under someone's real estate; could well cross or run side by side with other assets; and involve high risk and cost when excavating them for repairs or upgrades.

Add to that the fact that civil engineers have been laying down such assets for a hundred years or more and that the documentary evidence of their efforts is either lost or sketchy; and that even modern assets, once laid and tarmacced over a couple of times, may be difficult to locate, if they are made of plastic or fibre optics, and you have a situation that cries out for some high-tech solution.

Did you know that there are four levels, A to D, for the collection and depiction of subsurface data, the highest of which, A, is called 'Daylighting', the precise vertical and horizontal position of the undergound utility, along with the type, size, condition and, of course, material and other asset characteristics?

Such underground assets can be found using a number of methods: Passive RFiD (with or without GPS), GPS, geo-tagged photographs, engineering survey methods such as GPR and textual or documentary descriptions. Each system has its own validity and usefulness appropriate to the quality of information required. Less critical areas of infrastructure, for instance, could simply be recorded by geo-tagged photographs.

Besides keeping up-to-date records on the location and maintenance of assets, knowing about them has other benefits - the reduction of accidental damage during subsequent site work, minimising health and saftey risks for on-site workers and the disruption to local communities, the reduction of traffic congestion - and the increase in profitability of works via improved pre-site planning, more targeted excavations and fewer dry digs.

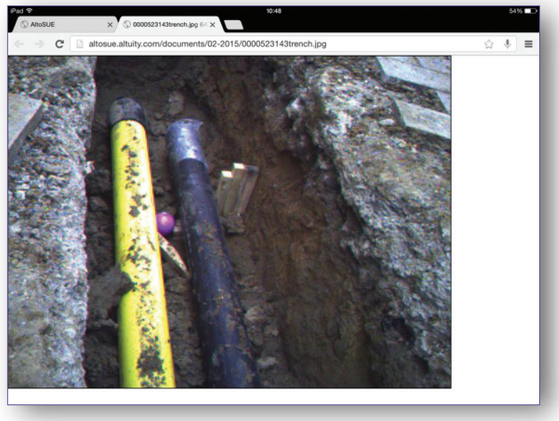
Here's another nice acronym for you - DIRT (Damage Information Reporting Tool), which recorded a 10% increase in underground utility damage between 2011 and 2012 in Canada and America.

ALTOSUE

There is very little that can be done about the legacy of pipes, cables and conduits left by our ancestors, if there is no evidence of its existence. New installations, however, and anything subsequently dug up, can be kept track of using the latest technology, which goes beyond merely recording the location of the asset, but links it to spatial data and other management systems to provide a whole-of-life record of its existence. Such a solution is provided by Altuity Solutiuons.

AltoSUE enables users to accurately tag and record attributes on installation, such as asset type, depth and material, capturing additional information via a photograph and then uploading and viewing the asset alongside others within complex underground networks on maps or site plans, reducing the risk of service strikes, while improving site safety.

Altuity Solutions is a cloud-based asset management software provider, which has just announced the availability of the new Subsurface Utility Engineering (SUE) solution. It uses highly accurate 3M Radio Frequency Identification (RFiD) markers,



GPS and geo-tagged imaging, and makes invisible underground assets visible. The solution is targeted at owners, contractors and workers in the construction and utilities sector - or any organisation that lays underground assets that need to be accurately recorded before being handed over to a site owner.

The passive RFiD tags used are all the same type, operating on one frequency and eliminating complexity for onsite operators. The unique key of each tag is read and data about the asset recorded via Site-Track™ operating on a tablet or smartphone that connects to AltoSUE. An RFiD locator enables the operator to get within a spade's width of the asset. Site-Track uses the RFiD's unique key to query AltoSUE - displaying information such as the asset's attributes, photographs and other associated records. Photographs taken at the time of installation or repair, prior to reinstatement, effectively 'open up' the ground beneath the operator's feet.

ALTOSUE GEOSPATIAL CLOUD

Data stored within the AltoSUE geospatial cloud database utilises maps and site survey plans to provide an enhanced visual location of assets - a detailed backdrop for underground assets to be recorded against.

Resolution and scaling differences between a site survey plan and a map may require adjustment for the system to show an asset's correct location on the plan and on the map. AltoSUE manages this translation for users, allowing an asset's real world position to be shown on a tablet or smartphone, helping with proximity searches.

3D models from CAD packages form another type of data that add value to the repository of underground asset data. However, this data should be treated with caution, as it often represents the 'as designed' state and not the 'as built' nor the subsequent 'as maintained' states. The industry is still working towards pragmatic and cost-effective solutions to the challenge of using 3D models and keeping them up to date throughout the lifecycle of an asset.

Building Information Modelling (BIM) is coming of age and will improve the use of models throughout the lifecycle of an asset and remove data silos that currently exist. However, it is already possible to access such 3D models on site where they add value to the data that a worker needs. For example, AltoSUE enables models to be displayed via a browser.

Accessing these data sources on site provides significant benefits, in terms of helping to reduce damage caused by accidental strikes, and provides greater confidence that the onsite team knows what lies beneath their feet, thus reducing accidents.

Works are less likely to suffer from delays and there will be fewer dry digs, reducing costs and improving profitability.

Placing the AlltoSUE solution in context, Steve Voller, founder of Altuity Solutions, explained: "AltoSUE is different from other SUE solutions, in that it provides a cost-effective way to record 'as built' and 'as maintained' information about underground assets using integrated hardware and software. AltoSUE uniquely uses map and CAD site plans as the background to view data, and combines this with the ability to record underground asset locations using a variety of techniques - rather than a 'one size fits all' approach. We've placed huge importance on ease and simplicity of use to ensure AltoSUE's acceptability by back office and onsite workers."

RFID tagging is not a new technology, but is rapidly gaining ground as a method of transmitting information over short distances - from its use in subsurface utility engineering to, even, Oyster cards and cashless debit cards. It's an easy step, once the asset has been located, to link the information to corporate GIS and management information systems or, alternatively, to go on site and dig out the information on what is under your feet using mobile technology - laptops, tablets and so on.

A final word from Steve Voller. "The AltoSUE geospatial Cloud database is hugely beneficial when multiple contractors or sub-contractors are involved in a project. Having shared access to highly detailed representations of underground assets can reduce the risk of service strikes that result in delays, injury and potentially even a fatal accident."

Altuity Solutions' tiered pricing options for AltoSUE allow businesses to only pay for the functionality needed - taking out a subscription for a licence from either three to 12 months.

www.altuity.com