IS BIG DATA & THE INTERNET OF THINGS THE NEXT BIG THING IN BUILDING AUTOMATION?

The most recent step in building management systems technology is the development of building analytic tools. Terms like ‘big data’ and ‘internet of things’ are being used extensively, but what do they really mean and is analytics and IOT the next “big thing”?

There is no doubt that analytics offers the potential for a wide range of hidden building operating issues to be highlighted and corrective actions to be undertaken before the issues develop into costly energy consumption and operational problems.

Building and energy monitoring systems have collected large amounts of data for many years, however until fairly recently the analysis thereof has fallen to those brave few prepared to use the relatively modest capabilities of BMS trending systems or by the tried and true method of exporting to Excel and manipulating the data to investigate problems.

Building analytics systems have the capability to analyses vast amounts of data very quickly so in that sense that can effectively identify issues before they reveal themselves by way of energy bills, breakdowns or angry tenants.

Building analytics systems work by applying rules based algorithm’s to historical trend data on a continuous basis. The key to building analytics working effectively lies in identifying what the data relates to, the quality of the data provided and in the rules that are used to analyse the data.

Information such as indoor and outdoor comfort conditions, building occupancy data and plant operating parameters can be compared and analysed to pinpoint problems and optimise building operation to maximize energy efficiency and occupant comfort.

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The data itself needs to be identifiable to the analysis system and of good quality. The issue of identification seems innocuous enough, however for example what I call Supply Air Temperature may be Discharge Air or Off-Coil Temp to you. So a means to identify the data, regardless of point name, for example, is required. This is achieved by the concept of 'tagging' which is additional information or meta-data associated with a BMS point.

Of course tagging must be applied consistently , so adopting a tagging standard is an important step to organizing your data. One such tagging scheme being utilised by BMS suppliers is 'Project Haystack' (http://project-haystack.org/). This provides a naming convention to tag data, allowing building analysis rules to identify data that is appropriate to that rule without user intervention. Without a tagging scheme a costly and time consuming process to identify and map the data would be required to make it useful.

At the very least BMS systems should be specified with a very clear point naming schema .

Of course the old adage of garbage in garbage out is never truer than in the building analytics world! A good analytics system will have rules designed to try an identify data problems, but an inaccurate temperature sensor causes many knock on problems, not least of which is dodgy analysis warnings. Now more than ever a well designed BMS health programme targeting key sensor points and control strategies is critical to building success!

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The potential to combine data and interact with other facility management systems such as energy monitoring , security and booking / timetabling systems and the like—the so called Internet of Things (IOT) - holds great promise for taking the step from simple interfaces to truly smart buildings.

THE KEY TO EFFECTIVE BUILDING ANALYTICS IS NOT BIG DATA BUT GOOD DATA!