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# Big Data for Big Impact at Small Sites

Big Data and Digital are shifting organizations' focus toward the online world. They can also help small sites embrace the digital revolution.

In the energy world, a "small site" is one that is less than 10,000 square feet in size, and with an annual energy consumption spend of less than $35,000. It could be a small office, a restaurant, a café, a bank branch or a clinic.

In the past, these small sites had no business requirement for putting in place Building Management Systems (BMS) / Building Automation Systems (BAS) / Energy Management Systems (EMS), primarily because of their low energy consumption. Also, the absolute energy savings generated by these systems were not big enough to pay for investments in a 24-36 months' timeframe. Thus, small site owners or operators stayed away from such investments and, consequently, had no digital footprint.

Things are now beginning to change. With the advent of Internet of Things (IoT), low-cost metering, sensing and networked thermostats as well as wireless technology, the cost of deploying an EMS has reduced significantly. Therefore, organizations today are looking to upgrade their smaller sites to embrace the digital revolution.

This revolution would also bring in a deluge of data. For example, a restaurant chain with 200 outlets with couple of thermostats, meters and lighting controls can easily start logging 30-50 unique data points (related to temperature of an area and the like) every 2 minutes. This may generate close to 2.7 billion records per year.

Add to that the weather data and the business data, and we would be talking about Big Data from small sites opening up numerous transformation possibilities – such as food safety for restaurants, surveillance for banks, fire safety for fuel stations, etc. All these benefits result in tangible savings, both in cost avoidance and in productivity improvement.

# The twists and turns

As a result, organizations are now becoming increasingly open to investing in technologies that would digitize their small sites and get them reasonable return on investments (ROIs). In this road to improving site efficiency, there are some roadblocks that small site operators face. However, there are ways to circumvent those hurdles as well. Some of the questions that need to be addressed are:

**Which use cases to include in benefits / savings?**

There is a need to have a very objective framework for garnering savings that would flow as a result of the initiative. While energy savings are very direct ones, visible on the utility bills, it is important to include savings from other use cases as well, such as staff productivity improvement, which can be as high as 10-15%. Reduction in truck rolls, maintenance teams' man-hour savings in investigating and fixing field issues can be the factors. Adding these components by clearly defining the baseline pre-implementation and the expected change post implementation can help the small site operators understand the overall business impact.

**How to handle initial requirement for CAPEX?**

A significant cost element in the business case is CAPEX on hardware (sensors, meters, controllers, etc.) that each site needs. This cost is typically in the range of $4,000-$8,000 per store. For a large enterprise with hundreds of sites, this would run into millions of dollars. With competing needs for investments, many enterprises find it difficult to spare such amounts. Where CAPEX investment is a constraint or where the cost of capital is high, engagement models with financing / technology partners should be explored, wherein there is no need for upfront investments and ongoing savings cover the CAPEX.

**How to deal with recurring costs?**

Small site operators need to ensure that recurring costs are not wringing them dry. They need to regularly review recurring fees payable to technology & analytics service providers against the value delivered. This can be done by ensuring that only those providers are selected who can offer multi-year engagement models, wherein they take commitment to not only safeguard recurring costs but also provide incremental year-on-year savings. Predominantly, small site owners get stuck with product suppliers whose prime interest is to "supply", and they do not have the business models that can assure outcomes of the various use cases.

### How to develop skills to mine data?

The skills required for Big Data analytics are complex. The engineering and maintenance teams at small sites are typically not exposed to analytics at all. So trying to develop these in-house may not be the best option. It may be more prudent to focus on the outcomes. This is because apart from the resources with analytics expertise, there is a need for specialized systems and software that can mine such data. A partner who brings that as a core skill would serve better.

### How to reduce time between detection and fixing?

Small sites usually do not have dedicated engineers. So unless precise actionable information is provided, the field engineers struggle to act on insights generated by Big Data. A Central Operations Center that analyzes the data and generates precise "actionable intelligence" for field teams helps address this issue. It also assists in knowledge management and learning transmission across site networks.

### Rollout or piloting?

Before a network-wide decision is taken, it is always prudent to do a pilot with a small set of representative sites. A 4-5 month pilot across 5-10 sites can help demonstrate the benefits and the expected savings. Well-defined success criteria should be articulated at the beginning of the pilot and the same should be revisited at the end of the pilot to decide on the rollout.

## Signature tune

As small sites embark on their digital journey, data sources from across locations can be integrated into the BMS / EMS, lending more visibility into site operations. This helps track and capture the complete "site signature", i.e. all key data points about the site that give a complete view on the performance parameters. The "site signature" brings in transparency and gives real-time visibility into front-end and back-end operations.

This visibility makes way for customer analytics, such as how can site managers know more about the customer as s/he walks into the site, how much time the server took to attend to a guest, etc. Small site operators can bank on the results from customer analytics and work out ways to drive online customers back to the stores. This can also help organizations design better sites & associated business processes in a way that the small site delivers the specific results that it was designed for, in the most efficient way possible.

## About the Author

**HAPS Dhillon** heads Energy Management and Sustainability solutions for hospitality and banking sectors at EcoEnergy. As part of EcoEnergy's senior leadership team, HAPS is responsible for global P&L for these segments. He has extensive experience in operational cost reduction, analytics, energy efficiency, IoT, Managed Services, with deep skills in solution architecting, delivery and product development.

HAPS holds an undergraduate degree in Mechanical Engineering, and is a postgraduate in Business Administration from the Indian Institute of Management, Lucknow.

## About EcoEnergy

EcoEnergy's award-winning connected services combine the power of its Technology Platform & the agility of its Command Center with the expertise of its industry experts and analysts to deliver desired business outcomes – such as energy efficiency and occupancy comfort. Forever pushing the edge of the learning curve, EcoEnergy has built strong expertise across industries and employs only the latest technologies to deliver transformative results.

EcoEnergy is a part of UTC Climate, Controls & Security, a unit of United Technologies Corp., a leading provider to the aerospace and building systems industries worldwide.

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