Making the Smart Grid Social

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The Smart Grid's effectiveness depends on consumer engagement and action, and the emerging field of social computing will be central to its success. Social computing has to do with systems that are, well, social, such as online communities and social networking sites. Whether people post status updates, upload photos or "friend" others, social interactions leave traces – data, judgments, connections. These traces are useful long after the interaction is over and, when fed back into digital systems, can complement those systems and enable solutions that are richer and more resilient.

Over the next decade social computing will infiltrate and enhance many digital systems, and the Smart Grid is no exception. Let's look at three ways social computing approaches can advance the Smart Grid.

Seeing is believing

Today's users have a vague understanding of the grid. This must change in order for the Smart Grid to be effective. According to the 2012 IBM Global CEO Study, "Leading through Connections," 67 percent of the Energy & Utilities CEOs interviewed identified customer insight as the most critical area for investment. Why? Because the ways in which consumers understand the Smart Grid will shape how they feel about it, and, in turn, how readily they adopt it, and why they use it. Consumers will make more informed energy choices if they see the Smart Grid as a regional network that is continually balancing energy generation capacity with demand, giving them chances to seize energy bargains; at the same time, this will improve the grid's efficiency and reliability.

Imagine an interactive visualization that shows the ebb and flow in the production and consumption of energy in near real-time. Users could see how much is generated locally and from what sources, and where it's being consumed. Using this social computing approach to demonstrate that households are putting energy back into the grid, or participating in demand response programs, is a powerful way of shaping perceptions and building understanding.

Peer-to-peer interaction: tapping local knowledge

In addition to the big picture, details, often specific to localities, will affect adoption of Smart Grid technologies. Those interested in solar panels need to know the impact of local conditions such as snow, hail and leaf-fall, building codes and the potential receptiveness of neighbors. Those interested in demand response programs will want to know whether their clothes will wrinkle if the utility temporarily turns off their dryer's heating element. Even seemingly trivial concerns can inhibit adoption of Smart Grid technologies.

The best source of such intelligence is the local community, and social computing systems can support such peer-to-peer knowledge exchange through social networks, blogs, mailing lists and other channels. For instance, someone might indicate that he/she is a "fan" of a demand response program, thereby indirectly informing "friends" or others in the same utility district of the system's efficacy. Knowledge that comes from one's community takes local conditions into account in a way that a generic brochure or web page simply cannot.

Furthermore, people are more willing to trust their neighbors to offer frank and practical accounts of their experiences, thus speeding adoption and adaptation of new technologies.

Changing large-scale behavior through crowdshifting

Armed with a basic understanding of how the Smart Grid works, and primed with local knowledge, consumers may well be prepared to adopt Smart Grid technologies, but taking action is another thing. "Crowdshifting," another aspect of social computing, focuses on designing systems based on social psychology and behavioral economics that support large-scale, voluntary behavioral change in socially beneficial ways. In other words, action – buying an energy-efficient appliance, turning off lights, and participating in activities like demand-response programs.

A key theory that underlies crowdshifting, and many social computing techniques, is "social proof": people decide how to behave based on what they see others doing, especially if those others seem similar to themselves. Thus, showing consumers how their energy consumption compares to their neighbors', or revealing that many in their community participate in energy conservation programs, can help drive behavior change. Other tactics include tapping competitive impulses (e.g., energy conservation contests), encouraging shared public commitments, or providing incentives for reaching certain goals.

Engagement between utilities and customers is evolving as the Smart Grid provides a foundation for richer and more constructive interaction. Utilities should rethink their model of customers as consumers and explore ways in which customers can become providers – and partners – in supplying both energy and information. In doing so, the combination of digital and human intelligence will not only make the industry smarter, it will fuel the advancement of the Smart Grid into the powerful, transformative technology it's envisioned to be.

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