Sustainable utility matters: Data science as a service

An interview with Tom Martin, Vice President of Data Science Commercialization at E Source
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This week we're introducing a new series to the E Source Blog. "Sustainable utility matters" will feature short interviews with subject-matter experts from E Source and other organizations. We'll highlight industry trends and challenges utilities are facing. We believe that to become sustainable, utilities will need to take actions that drive decarbonization, provide reliable power, and serve all customers equitably—all while ensuring a strong bottom line.

For our first interview, we sat down with Tom Martin, our vice president of data science commercialization, to learn more about the concept of data science as a service (DSaaS) and why it matters to utilities.

Is DSaaS right for your utility?

Many utilities are exploring how data-driven decision-making can support their internal goals and encountering challenging questions along the way. Contact our team to learn more about how leading utilities are incorporating data-driven decision-making into their business:

Sannie Sieper. Let's set the stage. How do you define DSaaS?

Tom Martin. DSaaS is a comprehensive package of data science resources and capabilities. Think: people, algorithms, data, and a cloud-based platform, for starters. DSaaS enables utilities that want to become more data-driven to accomplish that in partnership with experts in a flexible, organic way that accelerates speed to value.

At E Source, we've embraced a DSaaS approach because we've seen too many utilities struggling to progress with data science, paralyzed by the perception of bad data. Every utility has its share of bad data, but it's a myth—and a costly one in terms of missed opportunity—that data needs to be extensively

scrubbed and somehow perfected before integrating data science. DSaaS is a great way to put your data to work as-is, with the help of our experts who are experienced at wrangling data and fusing it with invaluable third-party data. And, in the process, we're cleaning it and making it artificial intelligence (AI)–ready so it can quickly deliver value against desired business objectives.

The other big advantage of DSaaS is that it uses the scalability of the cloud, much like other software-as-a-service offerings, without morphing into a big time-consuming IT project. Using the cloud (that is, the E Source cloud-based data science platform) enables utilities to do more than dip their toe in the water of AI and predictive data science. They can jump right in.

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When we explained to the COO of a large investor-owned utility that our DSaaS solution would provide all the horsepower needed to process billions of bytes of data from his utility's systems in the cloud with minimal IT involvement (enabling him to focus on *where* to point this processing power to address his top priorities instead of focusing on the *how*) he said, "Sign me up."

Similarly, another big utility saw DSaaS as a great workaround for its large-scale data problem. After several attempts at trying to stand up satellite-based weather data internally, it became clear that the initiative would be too costly. So the utility turned to us to host and crunch that data. What had been taking a year and not delivering as planned, morphed quickly into a smooth-running, cloud-based solution. Another win for DSaaS and our utility clients.

Lastly, DSaaS provides great flexibility in utilities' approach to predictive data science. They don't have to know up front which projects will be tackled in which order. Sometimes a project unearths something unexpected and needs more resources to maximize the benefit. Other times, the hoped-for value isn't there, so let's move away from that quickly. Yet other times, priorities shift and resources need to be pointed elsewhere. With DSaaS, it's all good. I liken it to an all-you-can-eat buffet. Utilities can take what they want, in the order they want—DSaaS gets them their seat at the table.

SS. The flexibility to bring data science into the utility's operating environment and have those resources applied where needed versus starting with a rigid punch list of projects sounds appealing. What exactly is a utility getting when it signs on for a DSaaS subscription?

The E Source DSaaS solution

TM. Our DSaaS package consists of four main components: data and the cloud-based platform needed to process it; our team of expert data scientists, called the Science Squad; solutions—AI and machine-learning algorithms and applications; and our Agile Data Science methodology.

First is data. Over the last several years, we've assembled an industry-best collection of customer-side demographic, behavioral, lifestyle, and structural data. This helps utilities radically rewrite the old rules of segmentation, enabling them to understand and reach their customers with more precision and granularity. We've done something similar on the grid side, amassing third-party data that can be applied to a wide swath of transmission and distribution challenges—from vegetation management to

storm-outage prediction and water-leak prevention.

Whether the data is customer- or grid-related, our team gets it ready to be put to work on our cloud-based platform in service of informing better decision-making.

Speaking of our team, the E Source data scientists are the second ingredient in our DSaaS mix. I've already mentioned that they're experts, but not just in building algorithms and models; they're also steeped in the world of utilities. That focus distinguishes our team, and because we have a deep bench we can curate the right team for the right engagement. So, whether you need geographic information system expertise or weather, satellite, statistics, or sampling, we can bring all the pieces together into one collaborative team to support the variety of utility use cases. That's the power of our Science Squad!

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Next, we have our solutions, a library of AI and machine-based algorithms and applications. This is crucial. We've been at the forefront of AI application development for utilities for years now and have solutions in production at utilities across the US. We designed our algorithms to learn from utility-specific data in recognition that every utility is unique. This level of machine-driven configuration creates models that are specific to each utility (and each operating company within a utility) to provide the relevant context for data-driven decision-making.

Whether we're using our existing applications, evolving them further, or developing new ones to solve new problems, it's great to not have to start from scratch every time. This helps our team deliver value quickly when and where it's needed. It also helps our clients benefit from recommendations their peers have already tested.

And, finally, we have our Agile Data Science methodology. Drawn from the Agile software development process, it's how we ensure efficiency and speed to value in our entire DSaaS offering. But where Agile software development is about delivering prescribed features in the most efficient way possible, Agile Data Science is about staying nimble and pivoting to what will create the most value. This is something that's often discovered in the process of "doing" rather than being prescribed beforehand.

SS. DSaaS sounds like an end-to-end predictive data solution for utilities. And they get the added benefit of being able to point it at a variety of use cases and in a flexible manner as priorities change or new priorities emerge. What do utilities gain when they take a DSaaS approach to data science?

TM. In my opinion, it all comes down to speed to value. Utilities have traditionally thought about their choices in terms of build versus buy, but that shouldn't be the focus anymore. Predictive data science isn't just about developing one app. It's about bringing a data-driven approach to a wide swath of utility operations, making each part better, more effective, and more efficient. Yes, there might be one project at the top of the list, but if you stop there, I think you're looking through the wrong end of the telescope. Especially when we know that looking through the right end can reveal solutions to focus on in optimizing grid reliability, customer value, and your program portfolio.

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A DSaaS approach scales with the needs of the organization. It also supplements internal data science teams. Some of the best work we've done to date is with utilities that already have some data science capability, usually in the form of a small data science team. We can bring our knowledge to those teams, making them more effective. We can also divide and conquer as needed. We can take the lead in cases where E Source has a strong working solution. Or where a brand-new solution is required, we can codevelop that with the internal team.

That flexibility goes a long way. Utilities appreciate that DSaaS provides a powerful and proven way to become more data-driven while allowing them to proceed at a pace and scope that fits their business needs and pivot quickly when those needs change.

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