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Title: Fractals: Reshape energy efficiency programs for business customers by putting building operators at the center

Abstract: The focus of this talk is the highly successful execution of a human-centered program, designed to reshape building energy use at large multi-site organizations. Started in 2015 at Atrium Health in Charlotte, North Carolina at 6 pilot hospitals and now expanded across 40. The program, Energy Connect was deliberately designed to start with relationships and patterns, rather than the usual focus on individual components and pre-determined solutions. Starting with building operators, not seen as "entities to correct" but as common units in divergent healthcare buildings lead to uncovering qualities of complex social-technical decisions. Guided by systems thinking, complexity science and described by fractal geometry we provide new ways to imagine rapid, large scale behavior change in the commercial sector. This approach complements traditional analytical tools and methods giving rise to emergent symbiotic partnerships between formerly independent entities. Energy Connect contributed to energy savings ranging from 1.3% to 12.5% in all six pilot facilities. Two facilities with the most electricity savings can be directly attributed to Energy Connect (Mazzi, E. 2019, EVO Magazine). Empowering building operators to solve building performance issues as part of the building management team achieved energy savings and occupant comfort quickly and permanently. These findings are even more significant when we consider that 8% of the energy resources in the U.S. are consumed by healthcare (www.eia.gov). This work focusing on energy savings and humans in relationship to workplace context has caught the attention of others. We are reshaping energy efficiency by cultivating the conditions for individuals, organizations, sectors and states to solve their own energy efficiency challenges. We are encouraging new capabilities and functionality by giving businesses and individuals an extensible fractal to start with. In plain English, we have a model that is repeatable in multiple variations across multiple systems. Turning attention away from the individual components and instead to the relationships and patterns, we define the smallest fractal. This brings our attention to behavior, context and structure which together display the qualitative characteristics of dynamic and complex systems. From this new order we begin to solve what seemed like the most intractable problems; including climate change and rapid adoption of social-technical energy efficiency programs. Finally, current work at the Independent Electricity System Operator (IESO) in Ontario, Canada to build a measurement framework and scaffolding for the Province to quickly and cost effectively achieve new electricity savings, maintain and/or increase past electricity savings will be presented. Finally, current work at the Independent Electricity System Operator (IESO) in Ontario, Canada to build a measurement framework and scaffolding for the Province to quickly and cost effectively achieve new electricity savings, maintain and/or increase past electricity savings will be presented.