Zen

and the art of modernizing the RV

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In the Fall 2019 issue of *Watermark*, the authors introduced the concept of the Streamlined Approach to Implementing Localized Solutions (SAILS™). We will devote this article to the application of SAILS™ to the modernization of the design and manufacturing of water treatment solutions for rural communities.

It's been said that there are decades during which nothing happens, and there are weeks during which decades happen. The COVID-19 pandemic has created an innovation momentum that we probably never could have experienced without it. We've learned how quickly we can change the products we make, rapidly redeploying resources and services across sectors and reprioritizing how they are delivered and supported. We've learned there is money to be had when urgent situations require funding, just as we've learned the steep price of ignoring deeply rooted issues and inequities in our society.

The harmony created by the transfer of community needs to the innovation process has kicked off a synergetic relationship between rural communities and innovators, and it is our job to capitalize on this new sense of urgency and collaboration to better serve rural communities' water health. The not-so-simple questions are: how, and whose responsibility is it to get it right?

Our point of view, based on years of experience innovating with rural communities, is that *community acceptance* is the primary metric by which all attempts at problem solving should be measured. Too often, a superficial understanding of what constitutes *community acceptance* (if there is any understanding at all) sets projects off on an ill-fated course, one which only becomes evident long after the contractors have packed up and left the community.

Despite a mandate to create a differentiated and innovative community experience strategy that will drive enhanced well-being in rural settings, many industry leaders struggle to design programs and deliver projects that gain *community acceptance*. Memorable experiences that enable communities' self-affirmation, which drive confidence about their selection decision and the value they derive from it, can help build lasting *community acceptance*. Memorable experiences are those details that are retained at least 12 months after communities' most recent interactions with industry.

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Design-build is one of the mainstream approaches adopted by industry. The premise of the design-build scenario is that a 'turn-key' contractor (eg: consulting engineering firm or manufacturing firm) serves as a one-stop-shop solution, coordinating diverse suppliers and putting together a complete package of products and services, so the community experiences a coherent, integrated service. All community enquiries are channeled through the contractor. The contractor might not actually undertake much of the detailed work themselves; instead, they use their expertise in project management and negotiating with suppliers to complete the project. In practice, the design-build approach requires managers to be much more competent at achieving performance through the management of supplier relationships rather than through decision systems within the community. This may require some considerable attention in rural settings, as suppliers and subcontractors need to be educated about the communities' values, culture, priorities and standards, and how their work influences the final outcome.

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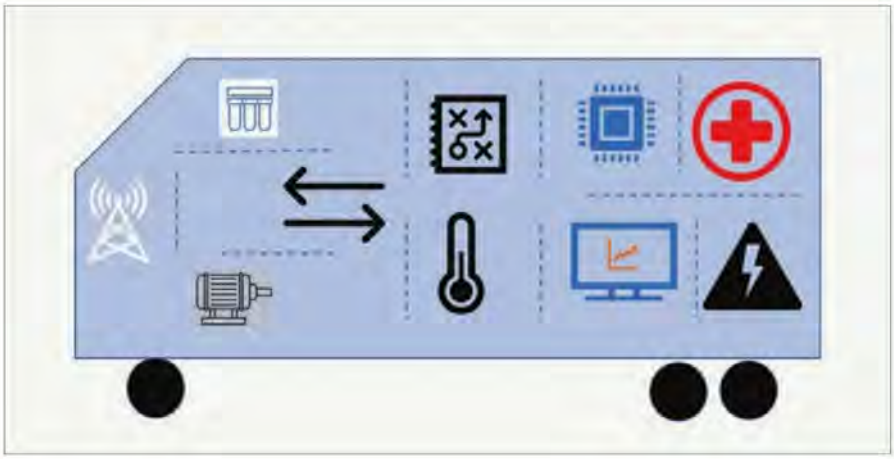
While industry leaders believe the community engagement team must deliver a superior community experience, most of the teams allocate insufficient resources (budget, skills, time) toward engagement activities. Importantly, the design-build approach does not necessarily address or strengthen social and technical capabilities that shape local capacity development within the community.

Our experience demonstrates that, by improving the service and product experience through building strategic partnerships with communities, the project team collectively can build lasting *community acceptance*. We do this by building better understanding about how communities make decisions that affect solutions, and how the communities feel about their performance and function, reaching a sustainable agreement and devising a solution that can be effectively implemented and supported by the community. More specifically, we enable communities to affirm their selection decisions. The readiness of communities to embrace the change brought about by innovation is a key element in the adoption and subsequent scale and spread of solutions.

Packaged-plant is one of the mainstream approaches adopted by industry. The premise of packaged-plant in this context is analogous to the development of a recreational vehicle (RV). It has everything one would need for a trip, bundled into a single product solution (ie: safety, comfort, energy, control, connectivity, core treatment processes, supporting utilities such as pumps, etc.). The RV may suit most travelers' needs; but for minor tweaks and the selection of a few options and add-ons, everyone heading out on the road for vacation has the same requirements.

The looming question for industry – a deceptively complex one that sounds simple at face value – is how to go about developing a packaged-plant approach to solving water problems for small, fixed budgets in a short time. The goal for industry is to develop the packaged-plant as cost-effectively and timely as possible. The hardest part of the development isn't the design, but rather testing, perfecting and commissioning the system.



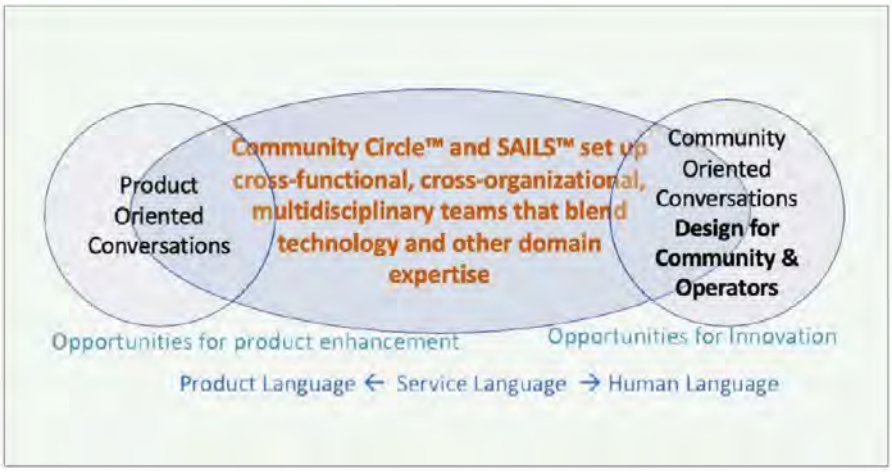
When we view the plant as one single deployment unit, we only have one thing to manage, one thing to test and one thing to deploy. In a way, we are doing that 'hard thing' less frequently – in any event, there is a limit to how many times we can do testing, as each test carries risks. For these reasons, single deployment may inhibit agility and flexibility in implementing changes to certain components or scaling some components of a unit independent of its other parts.

Perhaps what we need is larger number of smaller functionalities, rather than a smaller number of larger functionalities (the RV). Instead of building features to prevent failure from happening, perhaps we should accept that failure will happen and build features to minimize its impact. All of these factors may influence the manufacturers' skill/resource footprint.

But how do we modernize packaged-plant development in order to give us the agility and flexibility we are looking for?

Modernization no longer is a pure technical endeavour. In other industries, the trend is to select individual components of the solutions as a service from the catalogue that is available to them. But how do we determine from the packaged-plant approach what breaks out as an individual functionality/service that needs to be modernized? What is the goal for that individual component that we need to modernize? What is it that holds us back from allowing us to deploy that feature with agility and flexibility that we need, or allowing us to scale that capacity? What are the small changes that we can implement? What components can be reused? What need to be rebuilt from scratch? What new functions or experiences can be piloted in a more iterative/agile way without impacting the rest of the solutions? What functionalities are available off-the-shelf, with vendors sharing ownership and responsibility when customizing them to deliver the functionality we need, which is essential for avoiding the pitfalls of passing blame and causing negative impact on community experience?

To answer these questions, we need some form of decision rubric all players can agree upon. But this depends on local communities' needs. The goals for specific functionalities within the deployment cycle may be quite different, and the amount of risk we are prepared to take may vary depending on certain circumstances. This applies to every aspect of modernization, as they need to be modernized to different levels in order to deliver the flexibility and agility that is needed.



Sustaining all of these are a set of supporting elements: changing outdated way of doing things, challenging the assumptions made when building the original solution (as they may no longer be valid), building skills/capacity, standardizing certain functionalities, and, of course, financing.

The COVID-19 crisis has revealed the need for thinking about innovation differently. Mobilizing existing solutions from larger or urban settings to smaller or rural settings is predicated on a pre-existing notion of benefit from industry to the rural communities. However, the cumulative effect of complementary processes, technologies and infrastructures to leverage the value of solutions is not yet in place in rural communities. Also missing from the picture is the compatibility of the solutions with the values, needs, experiences,

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behaviours, expectations and desires of the people living in rural communities. These attributes can be unique to a specific group and may not be available to innovators, which translates into the need for new ethical, cultural, behavioral, attitudinal and transactional metrics and goals.

If we were to apply SAILS to modernize the RV from bumper to bumper, we would be looking at leveraging microservice options like Uber, Airbnb, scooters, bicycles, SUVs, rentals and the like, rather than looking for a single solution that attempts to deliver everything. For the packaged-plant, on the other hand, we encourage industry to look beyond the mainstream 'cut-and-paste' approaches.

The underlying problem is how to design solutions that are customizable to local needs, and how to scale such capacity?

In conventional problem solving, we don't give much control to the communities and operators (ie: there is a lack of customization) and we don't think of designing and innovating in the context of rural settings, but rather often apply what has worked in urban settings (ie: a lack of localization). Amazon, Google, Facebook and LinkedIn have decades of detailed data about their customers' characteristics, behaviors, interests, budgets, etc. This allows them to provide customized/personalized solutions at scale. On the other hand, in rural communities we are limited to the number of case studies that exist, so we need to be more creative in generating new knowledge, and utilizing the scarce knowledge we have, in designing solutions.

When it comes to infrastructure projects, the local communities' governments do three key things for their communities: *acquiring* the solution, *owning* it, and *advocating* for it. These involves an awareness and assessment of needs, discovering value opportunities, storyboarding to size the outcome and other active verbs: engaging, evaluating, selecting, procuring, onboarding, using, rating, sharing, recommending, demonstrating, celebrating and defending. These goals translate into *expectations, experiences and memories*, which in turn put pressure on functional silos within industry, government, professional associations, universities, NGOs and media.

SAILS™ is designed to break down these silos and help the local community governments to do those three things better. By setting up cross-functional, cross-organizational, multidisciplinary teams that blend technology and other domain expertise, it navigates both product-oriented and community-oriented conversations.

If we don't align our innovation, manufacturing and decision-making processes with community experience and acceptance to create better solutions, it soon won't matter if a decade happens next week or a week happens over the next decade – eventually, we will run out of time altogether, and a crisis will be wasted.

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