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NOVA SYSTEMS INSIGHTS

WHAT TO DO WITH PROBLEMS THAT CAN'T BE SOLVED.

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**As our assets and their operation become more and more complex,
they are often accompanied by what appear to be “problems that
can’t be solved”.**

Some examples of “problems that can’t be solved” include:

- Further enhancing productivity
- Reducing unplanned down-time to zero
- Greatly reducing the cost of gas well workovers and field development
- Excess power usage
- Unpredictability in operating costs

So, exactly why is it that we often can’t solve such problems?

At Nova Systems, we have determined that the primary reason is that these problems are complex in nature. Yet people are trying to resolve these by using thinking approaches designed for solving far more simple problems. Systems thinking tells us that the solution approach must be commensurate with the nature of the beast.

“Whenever I run into a problem I can’t solve, I always make it bigger...” – General Dwight D. Eisenhower

The reality of such problems is that there is no single or easy solution; from our experience the overarching “issues” are typically a complex aggregation of 20 or more underlying problems. These underlying root problems are locally manageable, but somehow, they coalesce into an emergent issue that seems unsolvable.

The good news is this: most complex problems can be solved, or at least greatly relieved.

The successful approach requires the application of creative problem solving, a willingness to consider divergent/convergent thinking, the development of an opportunity ‘hopper’ and the derivation of value assessments. In terms of value, it may turn out that solving 15 of the 20 underlying problems solves 95% of the overarching issue. Taking this further, our experience shows that ‘fixing’ the overall issue often pays for itself in 12-24 months.

Typically, solutions require a far more refined degree of asset and operations monitoring and control than is the norm across a range of industries. The benefit of this is that such refinement enables the expansion of operating envelopes to yield higher productivity benefits, within an acceptable level of risk. Here’s the rub: doing this will change the way you operate your assets and more broadly, your overall business ... for the better.

When addressing these “unsolvable problems”, early effort needs to be focused on the problem space – specifically, defining it and placing some initial boundaries around the area of concern. The approach then turns to fact finding and the winnowing out of extraneous information that typically confuses the core issues and creates the ‘noise’ that often obscures the real problems. The gathering of facts leads in turn to deriving objectives and an initial list of opportunities that can be addressed to tackle the broader problem.

The net effect is to define a solution space with elements that can be conventionally engineered and managed. Putting these elements together in a logical sequence, as an *integrated solution*, starts to relieve the overall issue at hand and “move the dial” for your operation.

The key to this approach is to re-frame problems as opportunities in order to create value. Value is of course determined by your objectives – that is, the problem to be solved.

On occasion, these ‘unsolvable’ problems can even appear chaotic in nature, with no obvious method to even begin to characterise the problem. All that can be seen is a set of random symptoms of issues with no apparent cause-effect relationships. Examples of this appear in a number of complex environments, including the Australian energy market, where there are thousands of factors interacting in real-time. For these chaotic problems, it becomes necessary to try test solutions to figure out what the actual problems are.

“When you’re facing a complex problem or trying to do something bold, start with a smaller version of the larger problem. Focus exclusively on that small problem and solve it. Use the answers to this small issue to expand your knowledge of the larger issue. Repeat.” – James Clear, Author

This method of problem solving can deliver profound results for your business. It can eliminate the noise and allow you to focus on the real issues that need to be fixed. All it takes is a measured and repeatable process, and a willingness to challenge traditional methods.

*The above Insight has been published from Nova Systems Energy & Resources program. For further information regarding **Problems That Can't Be Solved**, contact Tim Anderson, Program Manager – Energy & Resources tim.anderson@novasystems.com*