

Governing Energy

The Iceberg Principle

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Anyone who has seen the movie, Titanic knows that the damage to the ship that ultimately sank her came from below the waterline and was hidden from view. More often than not, it is the unseen hazard that is more dangerous than the visible peril.

Any risk management process must assume that not all exposures are known. Famously, former Secretary of Defense, Donald Rumsfeld said, *“There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we know we don't know. But there are also unknown unknowns. There are things we don't know we don't know.”*ⁱ

Years ago, while working on yet another corporate reorganization, it seemed to me that there were market forces at play that we just did not understand. Regardless of any actions we took, a host of management consultants retained and management shakeups, the results were tepid at best. It seemed that we *did not know what we did not know* about the microeconomics exerting themselves on the firm.

I asked myself if there was a better way. I believe there is and it is available to all of us. The remainder of this article describes a better way of understanding our business environment.

The Iceberg Principle states that 90% of any system's structure is below the surface or hidden from direct observation. This *latent* component controls *all* the processes associated with the system.ⁱⁱ

Statisticians define latent variables as ones that are not directly observable and must be inferred through mathematical modeling.ⁱⁱⁱ In other words there are tools available that can shed light on unknown unknowns.

It is not the intent of this piece to dive deeply into statistical models. These models are usually the purview of professionals in their fields. However, the models must be populated with relevant data and that process of developing the data set is often the real value of the exercise.

The *Structural Dynamics* methodology that enables a better understanding of unknown unknowns has a discovery process associated with it. It is this activity that generally tends to drive out a range of thinking that challenges the status quo as management asks hard question and dives deeper than a PowerPoint presentation into ground truth.

There is a time and place for high level executive briefings. Deciding the future of the firm is not one of them.

This not to say that we must be buried in data. Just the opposite, much of the 'data' is in the minds of knowledgeable individuals. Behavioral economics provides us the tools to better understand and articulate our knowledge and reduce the number of unknown unknowns.

This introspection is not an easy process. If it was, it would already have been done. It is however, personally rewarding when the health of an organization is improved.

We all have icebergs to navigate around. Having a better understanding of the iceberg structural dynamics is a better position than the skipper, crew and passengers of the Titanic found themselves.

Readers interested in a more technical discussion are invited to check out my recent monograph, *Structural Dynamics: The Foundation of Next Generation Management Science*.^{iv}

Have you taken a structured assessment of possible unknown unknowns that might help avoid an organizational shipwreck?

About the Author

Dr. [Scott M. Shemwell](#) has over 30 years technical and executive management experience primarily in the energy sector. He is the author of two books and has written extensively about the field of operations management. Shemwell is also the CEO of Knowledge Ops, Inc.; a firm that focuses on providing its customers with solutions enabling operations excellence and regulatory compliance management.

End Notes

ⁱ <http://www.youtube.com/watch?v=GiPe1OiKQuk>

ⁱⁱ http://www.therrinstitute.com/uploads/Structural_Dynamics_-_Version.pdf

ⁱⁱⁱ http://en.wikipedia.org/wiki/Latent_variable

^{iv} http://www.therrinstitute.com/uploads/Structural_Dynamics_-_Version.pdf