

Being President in a Complex World

By T. Irene Sanders
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Donald Trump's success in the 2016 presidential election does not guarantee his success or effectiveness as president once he takes the oath of office on January twentieth. His overarching message during the campaign---make America great again by putting America first---clearly tapped the angst of many voters who feel that they have been left behind while others prospered at their expense. This message helped him win the election, but if he sticks to this message as president its linear simplicity does not bode well for his effectiveness when dealing with the realities of a rapidly changing and interconnected world. President-elect Trump must develop a deeper understanding of complexity and an appreciation for insights arising from complexity science.

Concisely stated, complexity arises in situations where an increasing number of independent variables begin interacting in interdependent and unpredictable ways. Traffic is an example of how complexity arises. One careless driver can create havoc for those around him and alter traffic patterns for miles. In the airline industry flight delays piling up in Chicago can affect arriving and departing flights from many airports worldwide, while a big winter storm can create backups and cancellations that may take days to sort out.

Complexity science studies the structure, behavior and dynamics of change in complex **adaptive** systems such as forest ecosystems, the weather, the stock market, cities, businesses, societies and the United Nations. Because the components are constantly interacting and adapting to one another, change is nonlinear. This means that the system's behavior cannot be described by simple cause and effect relationships, making it difficult to predict the future while at the same time creating conditions for surprises and unexpected future outcomes.

When viewed through the lens of complexity, it's easier to make sense of the 2016 election results. While our individual experiences and local circumstances may be different, we are part of an interconnected system whose overall health suffers when part of the system is languishing. To his credit, Donald Trump heard and articulated a response to the concerns of those who felt ignored. Trump's message and persona captured the imagination and trust of those who saw other parts of our system thriving while theirs is suffering or dying.

In complex adaptive systems small changes or disturbances in the system can be amplified over time and throughout the system, bringing about significant overall shifts. While the mainstream of both major parties rejected his candidacy Trump turned to the only part of the electorate that welcomed him, energizing and mobilizing a movement against the Washington establishment and the liberal policies of the last eight years. Trump's simple message gathered support and momentum eventually erupting like a massive hurricane or tornado that swept through the country creating a dramatic overall shift in the national political landscape. This is an example of what is known metaphorically as the "Butterfly Effect"---a term which evokes an image, and lots of cartoons, of a world so interconnected that a butterfly fluttering its wings in Asia can cause a hurricane in the Atlantic.

We have seen similar dynamics in other situations such as South Africa where the strength of the African National Congress helped to abolish that country's policy of apartheid, the Arab Spring and the Brexit vote. Those dramatic political upheavals were missed by many

intelligence professionals, futurists and pollsters because traditional methodologies pay more attention to what the leaders are saying than to the rumblings in the streets and local neighborhoods. Those most surprised by the outcome of our recent presidential election were listening to traditional top-down sources of election news and information, while ignoring or broad-brushing the concerns and deep-seated anger of those hardest hit by changes in technology and the economy.

Going forward it will be important for President-elect Trump to understand that the same dynamics that created his victory will undermine his success if he fails to develop a coherent approach to the revolutionary changes taking place in the complex global economy. His tendency to use simple linear sound bites and tweets as policy statements is disconcerting in a world so interconnected that the slightest offhand remark or miscalculation on his part has the potential to create serious concerns and resentments among our allies and opponents alike.

. Complex systems research has provided powerful new concepts, tools and a set of questions that can be used to think about, understand and influence a wide-range of issues, emerging situations and rapidly changing circumstances. Let's hope that our new president develops the skills of complexity thinking as he works to ensure the peace, security and ongoing health of our country and the world system as a whole. Being president of the United States is an enormous privilege and challenge, and using insights from complexity science will increase his effectiveness at home and as a world leader.

T. Irene Sanders, executive director of the Washington Center for Complexity and Public Policy, is author of "Strategic Thinking and the New Science: Planning in the Midst of Chaos, Complexity and Change" (The Free Press).