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Planning with complexity in mind

1. First, reflect on how much control you have over variables that influence your complex world, especially in the long-term. Deep reflection is likely to be somewhat sobering and hopefully also quite liberating. Although you can control a fair bit, there is so much more in the system you can't control or predict with certainty.
2. Second, use this realisation to focus your thinking and energy on what you can control. Base your actions on outcomes you can reasonably predict. This may mean giving up detailed long-term planning for a set of more broadly stated longer term goals.
3. Engage more regularly in scenario planning, including roughly assessing probabilities of different outcomes. What are the few more likely outcomes?
4. Don't over-engineer your calculation of probabilities. That's because other variables in your complex system will also have an impact on outcomes, often in ways you can't predict.
5. Invest more in short-term planning and implementation to realise the short-term results you expect. Short-term is where there's most certainty. It's also where you should be looking for opportunities that will ultimately change where you end up in the longer term.

DOES COMPLEXITY MAKE YOUR PLANNING RISKY?

Planning and uncertainty

Do you sometimes feel that 'uncertainty' is an accurate synonym for 'weather forecast'? The accuracy of your assessment depends on the horizon you choose. Most experts seem to agree that 'highly skillful' 5-7 days out weather forecasts are now the norm. While that may not appear particularly impressive, it's more than twice as good as the accuracy of forecasts in the 60s-80s. Then, they were *lucky* to be able to skilfully forecast out 2-3 days!

What has contributed to increased accuracy? In short, the use of computers on an unprecedented scale and greater use of non-linear data modelling. According to investigative journalist, Gillian Carr, data is collected continuously from the multitude of weather stations, satellites, radar, weather balloons and even aircraft around the world. For global modelling, the earth is compartmentalised into boxes, 16-32 km wide. Forecast data, for up to 15 days out, is calculated for multiple layers of the atmosphere in every one of those boxes. This happens between two and four times every single day!

What's all this about the weather?

You may well be wondering what weather forecasting has to do with the health or performance of your organisation. Vitality, in trying to improve the accuracy of weather forecasts in the late '50's, researcher Edward Lorenz gave birth to the new science of chaos and complexity. In 2012, any organisation that fails to acknowledge complexity is seriously at risk. Complexity impacts on how you think about and respond to uncertainty and ambiguity, to opportunity and risk.

Congruent with the chaos and complexity theory that was to develop, Lorenz' insights emerged from a chance event. On a winter's day in 1961 he took a research shortcut. Lorenz was interested in examining more closely a particular weather sequence from an earlier computer modelling run. Instead of re-running the entire simulation from scratch, he initialised the new run with variables of interest from the print-out.

Since he'd used the same variables, Lorenz anticipated that the first part of the new printout would look identical to the sequence on the old. But, it didn't! Only a few lines into the run, the old and the new patterns started diverging. In no time at all the printouts looked completely different. That moment, writes author James Gleick, 'planted a seed for a new science'. The science of chaos and complexity was born.

On review, Lorenz recognised that, to save paper, the computer printed out numbers to three decimal places. He'd simply re-entered those. Yet, he knew

that the computer actually ran calculations using six decimal places. He had reasonably assumed that rounding off those few initialisation variables, to one part in a thousandth, would be inconsequential. How much difference could one part in a thousand make? At the time, weather data from the field was often rounded-off in this way during actual forecasting.

Anticipate variation

As Lorenz discovered, in complex systems small differences (or inaccuracies) may have little impact in the very short term but they quickly result in much bigger and quite unpredictable variations over time. There's no getting away from the fact that you live and work in an extremely complex world. Accordingly, you would benefit from taking account of this important complexity principle: small differences in starting point can result in substantial differences later down the track.

First, recognise that longer-term planning is, at best, an approximation of a possible future. Certainty is attached only to historical data. Adjusting and projecting data forward may generate a sense of confidence and help deliver plans that provide a sense of intended direction. All said and done though, long-term planning efforts are not too different from the Lorenz shortcut. Future realities of the complex system may quickly diverge from the historical pattern you expect.

Second, anticipate variation. Your medium- and longer-term planning processes ought to consider and prepare for a few alternative outcomes. What are the different possibilities, based on your best current assessment? Then, think about probabilities. How likely is each to eventuate?

Be aware that the scenario approach operates contrary to how your brain automates planning. It prefers to choose and pursue the first apparently workable plan, until that fails or the job is complete. Brains do this because it's the most efficient use of brain power. Try and avoid this linear approach.

Focus on shorter horizons

There is much less likelihood of variation in the shorter term, so that's where you might find a little more certainty in planning. Detailed short-term plans are likely to deliver distinct benefits.

Be aware that opportunities and risks emerge or take on new perspectives in the short term. Does your system only respond in the next medium- or long-term cycle, or can you act immediately? Also, the short-term future quickly becomes the present and then the past. Regularly update your longer-term scenarios using this fresh data.

In a complex world, winners will look differently at planning and certainty. What's your perspective?