Terms like evolution, co-evolution, adaptation, red queen, competition, adaptive renewal systems, cell based structures, ecosystem, flow and awareness might make you think I'm talking about some form of biological system. That's because I am. A business is a living thing not some physical machine. The more classical view of the machine has advantages in management thinking as it implies it's simple and can be managed just by pulling the right levers or adding the right algorithm. This works fine if you're in competition with others who think the same way but don't assume everyone does.

Biological systems are highly resilient to change in total. Individual members or species might be taken out by some disease or some catastrophic event but the system of life itself adapts and evolves through mutations in the entire population or exaptation (re-use of components for another purpose). A classical machine has a far more limited scope of resilience, no matter how well designed or scenarios considered and it does not evolve with its environment in the same manner. CS Holling distinguished between these two types of resilience as engineering versus ecological. Whereas engineering resilience is primarily about the efficiency of function, ecological resilience is focused on the existence of function.

A *fragile* system is one with low engineering and ecological resilience. It has very limited constraints of physical operation and it cannot adapt or cope with change well. It breaks easily and ceases to function.

A *robust* system is one with high engineering but low ecological resilience. It has a broader range of physical constraints that it can