Concepts...

DAEDALUS OVERSIGHT

"Concepts" is published by Daedalus Oversight to raise as many questions as it answers. It is driven by the belief that the industry, its products and its services are ever evolving. The ideas reflect the challenges faced in the continuous journey of innovation and improvement.

The Certainty of Uncertainty:

This statement is false. That assertion is used as the easiest way to explain Kurt Godel's Incompleteness Theorem. That four word sentence is paradoxical. If it is true it can't be false and if it is false it must be true. The irresolvable logic can be used to justify the tenants of the Incompleteness Theorem. Namely, that with any system governed by a set of axiomatic rules, it will be either complete and inconsistent (i.e. the rules are applicable across the whole system but will have situations that don't fit with the rules) or consistent but incomplete (i.e. the rules apply without error but there are situations that fall outside the rules).

Could this be why the world keeps running into problems? Whether it is social, economic, financial, political, technological even artistic, the world can't seem to stop making mistakes. Of course there is a plethora of opinions from any side of the argument that can blame the opposite view point. There is even a school of thought that says the problem is all the discord and difference of opinion. There is an apparently near infinite set of "if only..." solutions to select from if you wanted the best result. Godel's Incompleteness Theorem points to something much more fundamental. Perfection is unattainable; there will always be the potential for errors. Uncertainty cannot be purged from the world and it is a better place for it. The challenge is comprehending and recognizing the significance of these statements and acting with that knowledge to deal with another paradoxical phrase: The certainty of uncertainty.

The incompleteness theorem came about, ironically, from the then attempt to find the "completeness" in mathematics. David Hilbert a famous and extremely accomplished mathematician of the 19th & 20th century listed twenty three problems that were the greatest problems in mathematics. The goal of finding the solutions was to demonstrate the finite proof of the consistency of the axioms of arithmetic. In simple English, he wanted to show that all of mathematics could be shown to cover all situations with a finite set of rules. Kurt Godel, in applying himself to this problem found he could only prove the opposite of this position (i.e. that any system of axiomatic rules would be incomplete or inconsistent). One of the tougher concepts to digest from this position is that in any system, say, the entire Universe, there will always be a truth that cannot be proven. That is, something will happen that could not be predicted.

"You're kidding?"

In a real-world analogy for the incompleteness theorem, any Financial Risk Models will either correctly predict certain situations but will not predict others or can predict all events but will have the potential for inaccuracy. Since 2007, the financial world either made some avoidable mistakes and or the incompleteness theorem was demonstrated in all its glory. The latter is postulated to be true but that doesn't discount the possibility of the former. There will always be the case for refining or making a better model but the incompleteness theorem will trump the analysis and no matter how much a model is refined, errors will occur.

Aligned with this is another truth: It is impossible to predict the future. However, with ever increasing technology, humans have been able to describe more thoroughly why things are the way they are and make them behave in more predictable ways. From Godel we realize we will never be able to describe things fully and there will always be a level of uncertainty or unpredictability. So in an increasingly complex and technologically driven world we will create ever more impressive toys and tools that will increase the consistency and reliability of our lives. The reliability of all our

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technology leads us to believe that we have the potential to create certainty in all aspects of our lives. We have mechanisms that allow us to model economies, markets and apparently risk. There is much controversy at the moment about Climate Change models. Godel's theorem effectively proves the science could never be "settled" by models with or without the data integrity issues. Beyond the limitations we know are present from Godel's perspective, many of these models are statistically driven so have inherent flaws regardless (See Concepts - Lies, Damn Lies & Statistics). Subsequently analysts lull us into a false sense of security and create the illusion of 100% certainty from models that, with perfect alignment with their assumptions, can only be correct 95% of the time with any confidence. We really don't need Godel's paradox to see the pitfalls in blindly following these models. So are you supposed to crawl under a rock and shelter from this unavoidably uncertain and error prone world? No, the uncertain world is better than you can imagine and you should embrace it.

If you could see the future, you would either spend your life forever correcting your behavior to optimize the outcome but even that apparent success would be boringly confirmed before it happened. Horrifically, at one point you would be unable to avoid your own predicted death. A passive approach would require you to plod through life from one inevitable situation to the other. Nothing would be a surprise and life would not seem to have a purpose apart from following your predestined course.

With uncertainty, it becomes much more interesting, your destiny is very much in your hands, but whatever you try, you will make mistakes; unexpected events or setbacks will occur. The more eventualities you imagine and can prepare for without too much limitation on your normal life, (e.g. saving for a rainy day, requiring a little more collateral, mixing uncorrelated returns in a portfolio) the more you will be able to ride out the rough with the smooth. For a business this is called scenario planning.

The great mistake is the hubris of success. People start extrapolating too many certainties from the solution in their field of influence, to which it applies. They may even make the argument that they are controlling only a small, self contained environment and that is why it is reliable. Even if it is the Petri-dish of a laboratory, any controlled environment cannot completely disconnect itself from the surrounding environment. Within the financial services acting with many people, clients and markets globally around the world, any claim of control or certainty now has to be regarded with justifiable, due skepticism.

We can never get things right all the time. We are in a struggle to find the best answer that we know will be competing amongst a series of answers that are all, fundamentally, almost, but not quite right. No one has the perfect solution or guarantee of success. We have to allow a variety of ideas to compete based on results knowing that at any point a currently successful paradigm may fail or be supplanted by a better idea. The above resembles the capitalist society of a free people. That is why, throughout history the greatest successes have come from the freedom of potential. Capitalism is often referred to as an experiment and this is an apt description, where a good result is the aspiration but the outcome is uncertain.

Any attempt to control or restrict environments can only further limit the flawed potential of a system whether it is organizational, societal or governmental. Businesses managed by draconian procedures or governments believing problems can only be solved by more legislation, are really reactionary management creating a false certainty in their increasingly inflexible environments. The rigid rules either drive an enterprise or country into decline or worse create an environment where the containers of certainty from the mandates create a pressure cooker of unsustainable and explosive results. Both the Russian Revolution and the fall of the Berlin Wall came from unsustainable oppressive regimes. The indebtedness throughout the global economy; the propping up of unviable businesses and the extended control on the price of money have now pushed the world to a potentially explosive result. The wave of uncertainty will be of potentially, tsunamic proportions. Unfortunately, the degree and timing of this event are impossible to predict.

If you have refined your models and question the outputs rather than just believing them, you will know the impact of any of the imaginable scenarios and should be prepared for them. You should then be in a good, if not, the best position. You know now, truthfully, it would be impossible to be the perfect one.

Paul F Dowding

Daedalus Oversight would be pleased to discuss the realization of these concepts with you further. We thank you for your consideration.

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