

**The Governance Challenge in a Resilient Planet
International Systems Science Society (ISSS)**

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**Accosting the Governance Challenge
by Javier Livas**

Introduction

To prepare for today, I watched and listened attentively to 24 lectures on Political Science from Yale University.

I realized how naive I had been to think that any political science major or lawyer would ever read my book "The Cybernetic State", given that Socrates, and Plato, and the rest of the immortal greeks who invented political science were no where to be found in my book. Sixteen years later after writing my book it still does not have an audience. I hope the opportunity I have been given today will change things a bit.

Having studied Law, I see Lawyers as cyberneticians without the title; for instance, the founding fathers of the United States of America.

So I come to Canada angry at myself for being patient, well-educated and respectful and getting nothing to change at all. I remember Stafford Beer's activism: Chile, Colombia, Uruguay, Mexico, I know he tried hard, but we are still stuck.

If you do not like the world as it is: the hunger, the ignorance, the lack of drinking water, the terrorism, or even the overpopulation, you have to fight before you realize it might be too late for you as it seems for me.

All of us present are insulated from poverty, from the helplessness, the oppression and desperation of millions. We should at least do our best effort to point our fingers in the right direction.

The challenge for cybernetics and systems science is: how do we change this? Is change possible? How do we change Government?

Cybernetics should have an answer to this. After all cybernetics is the word that originated the word government and governance.

As we enter the second decade of the Third Millennium, it is hard not to notice that the number of people who want something important to happen is rising rapidly; people have this intuition that much more can be made to happen that is not happening. Change is in the air.

Turning this possibility into a fact requires following the story of cybernetics more closely. It is a very short story but it explains why many people feel that change is in the air.

Cybernetics, as you all know was formally born as “the science of communication and control”. Wiener and the rest of the Macy Foundation Group gave the kickoff in 1947. The sciences that collaborated to create Cybernetics (Mathematics, Biology, Psychology, Sociology, Electrical Engineering, Neurophysiology and others) took the new insights back home with them. The cross-pollination has been so large that composite sciences have emerged continuously at an outstanding rate. Biophysics, astrophysics, molecular biology, nano-technology, computers, cyber this, and cyber that. Wiener’s biographers refer to the Macy conferences as the “Big Bang of the Information Age”.

The world got so busy applying the new knowledge, that people forgot where everything started. You do not need history to start your car with your voice. You do not have to know cybernetics to fly a plane. The world is full of black boxes, but about their contents nobody could give a dam. Input and output is all we care for. “Click here”... get what you want!

However, those of us here today are aware that cybernetic mechanisms and loops are behind all the magic that modern technology displays. Blind men can see, the deaf can hear, the crippled can walk thanks to the legacy of Cybernetics.

The realization that humanity has become a god-like force in such a short time has perhaps made us forget what cybernetics was all about in its origins: governance. How easy it is to govern machines that do not have choices. How easy it is to program electronic machines to make our choices for us.

Fortunately, cooperation is arising more and more frequently. The “competition is good” paradigm has reached its peak and is starting to slide to its proper level. There are some people that say that Cybernetics was a fad, or a science that has petered out. Nothing can be more wrong.

We used to see the Universe as an unchanging thing. Now we know for a fact that it is a process. We humans are processes too, and everywhere there is a process, cybernetics can explain how this process is sustained against the forces of entropy.

Ashby said that the most important concept was that of **difference**. Difference is associated with **transitions**, an apple from ripe to rotten, for instance. A series of

transitions becomes a transformation. A series of transformations brings about: high scale change.

Cybernetics is the expert on transformations, and therefore not dead at all. It is only gathering steam. Without the tools created by cybernetics, we could not be speculating about the change that we know is now possible. Computers, lasers, GPS, the Hubble Telescope are not the inheritance received from a dying science but tools for the platform for change that can take us to materialize a world beyond anything that we can imagine right now.

The idea that fits perfectly comes from Chaos Theory, also a part of Cybernetics, just as Information Theory is. It is the **attractor**. We must create an attractor of such magnitude that it will pull everything inwards and start drawing a unified humanity it to its center in the same manner as a big black hole pulls everything towards the center of a galaxy.

Many years ago, I felt the need to find the connection between Law and Cybernetics. Both have to do with control, I thought. So, I wondered: How deep was this connection? It has taken me many years and Stafford Beer's guidance to fully appreciate the closeness of the connection. One thing I know for sure: that the best is yet to come.

Building a Bridge

Today I come here with one goal in mind: to speak to ISSS members in a way that will ensure that attorneys, judges and legislators will also listen. Law is too important to be left to lawyers, just as Economics is said to be too important to be left to economists and Politics to politicians. The time has come for all of them to welcome the cyberneticians and systems scientists. Highly complex systems should be everybody's concern, not just ours.

Traditional science tries to act as an **impartial observer** of the world and to suppress observation-selection effects. Cybernetics, on the other hand, pretends no such thing. We are aware that our brain is an intermediary between the world and ourselves; and that the models that reside inside our brain, however they got there, predispose our perception.

Lawyers are closer to cybernetics than most lawyers are aware of, and have more power to change the world than all the rest of the professions put together.

Therefore, we need build a bridge between the world of Law and the world of Cybernetics. I have been pointing my finger at this connection for years, and nobody even cares to bite my finger, but I am convinced it is possible and necessary too, even urgent. If I can open the door to the legal world to you, maybe together we can flood the stables like Hercules and get rid of lots of manure in one big swoop.

Politics is about reaching decisions, and economics is about transformations and use of energy and materials and exchanges of products and services. Law is the only science

which is strictly about control. To meet the Governance challenge we must look at the Law through cybernetic eyes. Redefine what it is, how it works, why it doesn't, and how to fix it.

Here is a list of key ideas from Management Cybernetics, right next to their equivalent in the world of Legal Theory.

Management Cybernetics	Legal Theory
Observer relativity	Many definitions of Law
Information	Essence of Law, and of legal rights as an information state that can be described as a set of recursive instructions,
Viable system	The Nation-State, State, County, City, Suburb, etc.
Closure	Supreme Law concept / State sovereignty, municipal autonomy
Requisite variety	The "Stare decisis" strategy
Self-reference / paradox	We the people... State \Leftrightarrow Law
Self-organization	Political process in a modern democracy
Circular logic	Legislative process
Homeostats	Conflicting values
Cause-effect logic	Sentencing logic
Boolean logic	"If... Then..." structure of laws
Recursiveness	jurisdictional processes, organic structure, levels of government
System	Dworkin's definition of "Law as integrity"
Complex Adaptive System	Political activity in a democracy; new rule creation; economic activity in a free market economy

Management Cybernetics	Legal Theory
Emergence	Legal person

I will now tie this list together in the shortest narrative possible.

Over the centuries, jurists trying to answer the question “What is the Law?” have been baffled by hundreds of definitions wanting to prevail.

Today we can ask Google the same question and get thousands of definitions. One such definition says that Law is a “system of rules a society sets to maintain order”.

I want to suggest another approach: Law is **information**. Divine law, human law, or physical law are all information. The Law which is related to the existence of the State is the “**set of recursive instructions needed to create and operate the State.**”

Law and State present to us a first **paradox, one of many**. The State is a man-made organization and self-organizing system at the same time, depending on our vantage point. Something like a business corporation; or an **emergent phenomena**, where the sum of the parts is greater than the whole. Both are correct, says the observer.

Hans Kelsen, the famous jurist-philosopher said that the State and the Law were one and the same thing. Today we know better.

The State is a **viable system** such as has been defined by Stafford Beer: “a system capable of an independent existence”. The VSM maps into the modern democratic state quite easily and has its own **identity**. For instance the USA is a viable system built from thirteen colonies or independent states. Each state in the union turn is divided into a number of counties, cities, suburbs, etc and all of them are viable systems themselves. We are witnessing the idea of **recursion** in action long before Cybernetics appeared.

The State can be created by a Constitution which becomes the supreme law of the land, which provides system **closure**. **Self-reference** manifests itself quite conspicuously in the famous phrase “We, the people...” with which the US Constitution begins.

Self-organizing systems made up of **autonomous agents** looking after for their own self-interest are known as “**complex adaptive systems**” (**CAS**). Examples of these are immunological systems, the world financial system and a sand pile. They do what they do and evolve without any form of centralized authority.

What makes VSM and CAS achieve goals in both cases is the notion of **feedback**. Feedback is produced when the **output** of a system is compared to the **goal** and the

error or difference is used to modify the **input**. **Learning** takes place as these manipulations are memorized and previous situations are identified that have already been solved. Learning is a form of **circular or cybernetic logic**, where results are obtained making constant adjustments towards a goal.

Lawyers are usually not aware that Law involves two different kinds of logic. Most lawyers are familiar with syllogistic or aristotelian logic, also called **Cause-Effect Logic**. For instance, Socrates is mortal because he is a man and given the fact that all men are mortal. This is the reasoning process behind the sentencing in every trial. However, lawyers fail to identify **Circular or Cybernetic Logic** although they have used it for ages. It's non other than the logic that drives the legislative process which depends on successive approximation to regulate society under general conditions of uncertainty.

A very important feature of the VSM structure is that problems with known solutions become operations which work using cause-effect logic.

In contrast, those problems for which we DO NOT have a known solution are explored in the planning system. Exploration uses circular logic and successive approximations. Legislation, as I said, is an example.

Adaptation is a higher form of learning, which involves changing the system's structure. Creating the United States was a way of adaptation for the thirteen original colonies. Constitutional conventions are also adaptive solutions in the american system of government.

Boolean logic make its appearance in the wording of the laws built with "If... then..." statements: an hypothesis and a consequence.

For better or for worse, not every law or all legislation can get by with "IF > a, THEN > b" statements. Judges, for instance, may have to solve the case at hand by using some sort of value or principled system. This strategy proves that the law is familiar with dealing with **homeostats**.

When conflicting values appear in a court case, arguments will go round and round under the auspices of the adversarial system until a fair or just decision of some sort is reached. Justice is therefore the result of a balance between two or more opposing legal values.

Judges are required by law to solve every case before them. In cybernetic language they must show **requisite variety**, a term invented by Ross Ashby. The Law of Requisite Variety simply says that "only variety absorbs variety" which means that the variety of the situation has to be matched by the variety of the solution. I know this sounds funny. It is serious stuff.

A meta-rule called “stare decisis” says that judges have to interpret the law according to precedents set by previous rulings. This is a clever legal strategy to insure that the control variety of the law is generated from the variety of reality itself.

One last connection between Stafford Beer’s VSM and legal persons is that both have exactly the same elements. The following Box shows the relationships.

Viable System Model	<i>Metasystem</i>	System	Relevant Environment
Legal Person	A person’s will	Person	Rights and obligations sphere
Roman Paterfamilias	Father	Family	Household
The State	The Government	The People	The Territory

As an attorney, I feel proud to know that centuries ago our profession arrived at the same conclusions that Management Cybernetics has validated until very recently.

The challenge to start a new governance is overcoming the built-in defenses that all complex systems present and political systems are no exception. I will talk about these later.

The US Constitution was born following many of the VSM organizing principles, although not mentioned explicitly:

1. A common **identity**; such as in the phrase “We the people” and children being taught the pledge of allegiance to the american flag in every school in the country.
2. A **recursive** structure; such as cities, counties, states and a federal government.
3. The **maximum autonomy principle**, such as the sovereignty of the states and a system of explicit powers needed to operate the federal Government.
4. Homeostatic balances interspersed wherever possible; some defined as idealistic goals such as justice, liberty, security, happiness.
5. A **logical closure**; which translates into the Constitution being the supreme law of the land.
6. A **learning** and **adaptation** organ; such as the Federal Congress and Constitutional Reform provisions.
7. A Systems 3-4 homeostat; as in the separation of powers: Executive vs. Legislative.
8. **Anti-oscillatory** devices, such as preference for coordination and private contracts; both as high-variety shock absorbers.
9. Audit and forced compliance systems; such as local and federal justice administration systems, courts and prosecution powers.

The presence of all these principles being incorporated in the Constitution is the reason why I must insist that the modern democratic State fits the Viable System Model in the exact terms as defined by Stafford Beer in the early seventies.

Using the VSM terminology we can at least explain the reasons for the current problems of governance quite easily. The sad truth of the matter is that the State can operate and become viable without the need to guarantee the viability of every one of its citizens. This is a simple fact of life that we see happening all over the so called Third World.

The State takes a life of its own; and no one person can stand in its way. It can take us to war, or it can send us to jail. Democracy as defined by the Greeks does not work in a world of high complexity. We want to find out if we can stop being the sorcerer's apprentice.

In Queretaro, Mexico, 27 years ago, I asked Stafford Beer point blank: Would I find the VSM in the Mexican constitution? He said yes, and here I am today trying to convince others of the importance of this discovery.

Nation States are highly complex entities. They are built by people with very different ideas of what it is, how they are structured, and how they work.

On the one hand you have those that think that government is synonymous with **order** and rationality, and therefore cause-effect logic is the key foundation on which to build controls and accountability.

The other way to see Nation States are as some sort of complex **organisms** with the same basic features as any other living thing. Inputs, outputs, information and feedback coming alive as an integral part of its design. Which of these two is the proper characterization?

The fact is that **both are correct** in the sense that they are complementary to produce our understanding. Use whatever approach works best for the task at hand.

The Legal Profession

I have mixed feelings about the Law and lawyers. The legal profession is admirable in that it has discovered many of the VSM features and principles on its own, through a slow trial and error process that has taken at least a couple of thousand of years. The Law is experience, but legal profession is ignorant in matters of the laws of control. This is the reason why lawyers and legal procedures are very prone to fall into the complications of systemic blindness.

Let me explain how the disregard for systemic consequences occurs. Once the law defines the system and the law becomes the context for the system, it turns life into a game where the players are justified to play it to the limit, within the rules. But since the

game can have several levels and the system operates under a set of shaky behavioral assumptions, it turns out that playing the game well can really work against the desired goal or general objectives of the system. This is exactly what happens with laws and lawyers because lawyers will play the adversarial game without any ethical consideration regarding the systemic outcome. If a lot of innocent people go to jail or the guilty go free it is not the attorney's problem, but the judge's or the legislator's.

Towards the end of this paper, I will provide you with the three exercises to help you understand the applicability of cybernetics and systems concepts to legal situations.

Case #1 The Great Law of Peace
Case # 2 The Switch, No-Switch Fallacy
Case # 3 The Mexican Mess

The Greeks and Memes

Great men, how I envy them: philosophers, masters of language, creators of dreams that resonate forever; designers of worldly empires. Socrates, Plato, Aristotle, Hobbes, Locke, Machiavelli and Rousseau wrapped their souls with printed words the world refuses to forget. As friends of knowledge they were concerned with things important for centuries to come. The world we live in is highly indebted to them and we still see the world through their eyes.

The truth is we must thank the Greeks and other philosophers of antiquity for searching for the proper words to describe the world and make sense of it. Some words died out and others remained. The greek "*thumos*" is not understood anymore. The word democracy remains but means many different things even to the same person. "Cybernetics" was rescued and redefined precisely by Norbert Wiener for our benefit.

Add to that list a list of the representatives of classical science: Descartes, Bacon and Newton and later, Kant and Einstein, Plank and others. I envy all, but I also pity them. Such great minds, yet so primitive **memes** to work with; how difficult their job must have been.

Memes are packages of information that can be copied from one mind to another. A meme can be a design, or a rule, a recipe, algorithm, or an idea that can be copied and transferred from the mind of one person to the mind of another.

But I pity ourselves even more because if the ancients had too few memes to work with, we are now drowning in a sea of competing memes. We are lost and confused. Today we are the victims of the "**war of the memes**", too many many messages appearing to be valuable information and competing against each other. Ideologies may be dead, but memes proliferate at an alarming rate.

Thanks to the ancient Greeks and their followers, highly evolved memes — that we can label as “knowledge about systems”— have been brewing and mutating from centuries ago and finding their path to the present times.

These memes found the new great thinkers to mutate first and to spread themselves around the globe later. John Von Neumann, Alan Turin, Norbert Wiener and Claude Shannon for instance, have been instrumental in creating the new information technologies. They helped catapulted the Information Age. Others, such as W. Ross Ashby, C. West Churchman, Russell Ackoff and Stafford Beer have created the mutated memes necessary to understand what can be done to repair or undo the complex mess we are in. All of them are the new great thinkers. Three of them died very recently, while awaiting impatiently their turn to reshape the world.

A new beginning is just around the corner, a revolution, I dare say. As a man of lesser depths I am but an evangelist of the new understanding. The first chore of any evangelist peddling this cause is to realize that:

1. We are going head on against the greats of antiquity and their old memes which are still in place in places like Yale and Harvard and Cambridge; so we are also going against the big institutions that have a vested interest in teaching the same old stuff. We must demand to be heard before it is too late!
2. We are relying on our new and more recent great minds and their mutated memes which for many skeptics have yet to prove their worth. Even Machiavelli knew how difficult this was when he said that creators of a new order not only have enemies, but must go against those watching from the sidelines cheering the old order.
3. We are in a war of memes: Old versus new. Not an easy task. We have modern communication technology on our side, at least.

Autopoeisis Gone Rouge

Three lessons from Stafford resonate in my mind:

The first is that our brains are intermediaries between ourselves and the world.

Second: that our brains are natural model builders. We cannot see the world through cybernetic eyes if we do not have the proper concepts.

Third: organizations acquire a purpose of their own, different from the persons who created them. We are like the sorcerer’s apprentice, we can get them started but have a lot of trouble shutting them down.

In his Valladolid Conference my friend Stafford outlined the problem:

- 1- The “systemic attributes of the system are not represented in our descriptions”

2- “We are quite evidently living in an absolute morass of wrong decisions, for which no-one seems to be to blame”. “Excuses are accepted, because decisions are no longer taken by individuals, but by institutions working in committee.”

3- Requiring legal proof of direct intention stands in the way of recognizing culpable ignorance of consequences. Complex systems must be seen as a processes and studying systemic evolution should allow us to foresee predictable consequences.

The point is: the properties of viable systems that make them work, also work to counteract external influences.

Yet we continue to accept the reductionist exploitable earth paradigm. Several inventions have made the Earth “exploitable”. Unknowingly humans created the perfect trap for us to fall into. Here is a list:

One is the invention of the corporation which turns humans into cogs in a machine.

The second is specialization. Specialization brought prosperity.

The third is the assembly line, a consequence of specialization. Workers in an assembly line cannot care less about the product they churn out. Neither do they care about the consequences of using the product considering that workers are not allowed or prepared to see the big picture.

Fourth is the self-contained life through loyalty to the company. Pension plans, life plans, golden parachutes. These **memes** are intrinsically selfish memes. They are meant to be selfish and lead to pathological *autopoeisis*. The search for well-being in a tragedy of the commons environment.

Very few people today feel personally compelled to look for answers. Absolutely nobody feels or can feel sole responsible for the state of affairs.

Fifth: Individualism, the ultimate form of reductionism.

These cultural successes explain why it won't be easy to change the US CONSTITUTION or the rest of the structure of government to bring it to fully comply with viable system principles.

Paradox and Legal Homeostats are Inseparable

We are governed by paradox. Contradictions are inevitable. Governments are built on values which are contradictory:

- Justice leads you one way and security leads you in another.

- Government officials are told to swear allegiance to the Constitution while the rules that are being sworn have built-in mechanisms for change.
- Some constitutions even recognize the right to revolution by the people.
- Law is supposed to rely on syllogistic reasoning and yet nine supreme court justices disagree on what the Constitution says.
- The Law creates the State and the State creates the Law.

Words, we know, are tricky because they are discrete and the fabric of reality is a continuum.

Case #1

Lessons from “The Great Law of Peace”

If we were to choose which of the current forms of government produces the most happiness many would choose the Constitution of the United States. At least many Mexicans think so. Many Europeans think so, too. That is why more people would like to migrate to the USA than to any other country in the world. The USA is without doubt, the biggest dream factory in the world. Canada is not far behind. People like to follow their dreams, and do not mind working long hours to make them come true.

Allow me to borrow the term *attractor* again to say that the USA is not only an awesome political organization: It is also a powerful attractor created by the founding fathers of the United States, 230 years ago. More countries have tried to copy the US Constitution than any other constitutional system.

As a student of the law and as an attorney I was always amazed about the genius of the constitutional design we find so natural.

One puzzling question remained unanswered in my mind for a long time. Where did the founding fathers of the US get their inspiration for the checks and balances of the constitutional design?

A few years ago, I got a direct answer to this question from Gregory Schaaf, a historian and researcher who wrote the book called “The US Constitution and The Great Law of Peace”. The Great Law of Peace is the Iroquois constitution and bible of sorts.

So if we want to recognize an attractor when we see one, we would have to admit that the Iroquois Confederation had a good attractor going where freedom and equality were built into the system, and plenty of consideration for Mother Nature was a way of life. Reports sent to Europe by Jesuit priests in the XVII and XVIII centuries presented these same Indian nations as prime examples of the benefits of living in a “state of nature” and total individual freedom, which in turn inspired the French and English encyclopedic scholars in the XIX century.

The participative democracy I am talking about existed not very far from here, across the Great Lakes and continues alive to this day somewhere in the state of New York.

In the 1700's the world was very backward according to today's standards, but The Great Law of Peace had already created a constitutional order that included a two chamber system, an executive power and an enviable constitutional control in hands of a council made exclusively by women. It was an ideal society in many ways: it had **no taxes, virtually no crime, no jails**, and the warriors themselves were entrusted with the task of defending individuals who had complaints against their tribe. Men hunted, fished and defended their borders. Women owned the land, farmed it, collected food and watched the children. Everybody was content, until the European settlers came.

There has been a great deal of discussion about **whether the founding fathers borrowed ideas from the Iroquois or not**. I think the discussion would make sense if we were convinced that the American System is far superior to the Iroquois which I dare say is hardly the case. The most compelling argument against the influence theory is that the founding fathers did not mention the Iroquois system while they did mention other forms of government, for instance the ones in Europe that they considered emulating.

Perhaps Benjamin Franklin and the founding fathers might have been too embarrassed to mention the Iroquois model as a source of their thinking and put it in writing but that does not mean that they did not envy and cherish the freedom enjoyed by those native Americans which they called savages in front of other white people.

Historically, the Iroquois played a dual role: a direct influence in the structure of the constitutional system and an indirect role as generators of libertarian ideas returning to America after visiting Europe.

The discussion of what a good government is, is best served by **speaking in terms of memes**. The settlers brought their own memes, from Europe. The Iroquois had their Great Law of Peace written in the ideographs of the wampum belts and accessible as oral traditions. We know that the medium is not an issue. It could have been a CD or a DVD, for all we care.

The point is that it was very easy for **freedom-seeking** founding fathers to become infected by the example of the enticing life of the Iroquois. Jefferson himself wrote that "they have less laws" than us. The admiration for the Iroquois spirit of freedom became reflected in the mohawk disguises used during the Boston tea party revolt. Let's face it, savage or not, the indians were admired for their attitude towards personal freedom.

Meme theory says that it is very **easy to catch a meme**; easier than catching smallpox. Memes are copied even more easily if the recipient is eager to accept them. This probably happened to the founding fathers. The Iroquois Law was not copied literally, but many ideas were used.

Given that European settlers infected native Americans with small pox, it is hardly plausible to think that the Iroquois did not infect Europeans with memes of personal

freedom aspirations, considering that it was precisely what brought the European settlers to America in the first place. The Europeans already had the freedom meme in their heads, what they did not have very clear is the constitutional meme. It is an undeniable fact, that the Iroquois had that memetic set in place at least two hundred years prior to the US Constitution.

I am aware that there has been a heated debate about whether the founding fathers were influenced by the Iroquois or not. It is fair to say that written testimony favors the fact that the founding fathers were very knowledgeable of the greek philosophers —who get a lot of coverage as relevant sources for the design of the new nation— and that they hardly mention the Iroquois at all in their writings. There is no problem with recognizing that. After all who would want to say that his ideas came from people that were considered savages? The use of the word “savages” meant that they didn’t have roads, sophisticated weapons, did not dress according to fashion and did not have a written language. Most damaging of all, perhaps, was the fact that they were not Christian.

On the other hand, we cannot deny that the ideas of John Locke and Rousseau also weighed heavily on the minds of the founding fathers. These were the revolutionaries of the XVIII Century. So one must ask: where did these two European writers get their ideas of freedom? Where did they read about the “state of nature” concept that became an important foundation for their main thesis for designing a better form of government? From from accounts about the personal and cultural lifestyle enjoyed by these american indians.

It is a fact that Benjamin Franklin enjoyed entertaining his guests in England with stories about the ways of the American Indians. “Master warriors” and “seekers of peace, liberty and equality”; “worshipers of nature”, he called them. Ben Franklin is also quoted as saying that the **indians wanted nothing from the white men**. White children that were raised by indians would always cherish going back to the “savage” lifestyle but not the other way around. I will call it savage envy after reading a joke that goes: Indian warriors hunted and fished all day long and made love all night. Who says you can improve on that?

The point I want to make is that the “influence debate” as it has been called is really absurd. There are many historical facts to support a high degree of influence. However, the absurdity emerges from the fact that, in my view, the Iroquois system was much better, that is produced much more happiness —to quote Benjamin Franklin— than the american constitutional system created by the founding fathers. So the discussion of whether they copied the Iroquois is almost irrelevant.

The “influence theory” could be restated in these terms: either the founding fathers copied the Iroquois or they were too stupid to miss what was right in front of them. Or even a third, more likely solution. The principals such as Jefferson, Washington and Franklin, perhaps even Madison, were perfectly aware that the Iroquois model of government had its merits but kept that interaction to themselves because: a) it was a

convenient secret; b) they were too embarrassed to admit it that the “savages” had a good thing going; c) were not willing to publicly endorse a system that gave women more rights than men; d) would raise other issues considered inconvenient. In any case, it is a historical fact that Benjamin Franklin was influenced by the Great Law of Peace in his initial idea for independence called the Albany Plan.

What can we safely say about the Iroquois influence on the founding fathers? First of all, the Iroquois “software” existed before the founding fathers set out to create their own government.

These are the facts:

1. The founding fathers spent at least some twenty years looking for the best software to run their new system with.
2. The Iroquois system had been working for at least two hundred years prior to the Declaration of Independence.
3. The resulting software’s innovative features (US Constitution) looks a lot like the Iroquois system.
4. The founding fathers apparently never put down in writing that they were borrowing code from the Iroquois software.

Why is this experience relevant to the issue of modern governance?

The reason, I suggest, is simple: technology has enabled us to test the merits of a more participative democracy that I call the CYBERNETIC STATE. More in tune with the one the Iroquois had, and a more direct democracy in the style of Athenian Greek. The **bureaucratic superstructure** created by the US Constitution, did not follow the **same principles** as the constitution itself. Authoritarianism soon emerged. So did corruption and many other outright threats and negations of good government.

Let me give you homework. Please compare:

The party system and electoral system	vs. The Iroquois
The handling of taxes	vs. The Iroquois
Women rights	vs. The Iroquois
National Defense	vs. The Iroquois
Constitutional Control	vs. The Iroquois
Lifestyle of the authorities	vs. The Iroquois
Criminality	vs. The Iroquois

If we have to **rebuild a system from scratch** and we go to the Iroquois or the Greeks or the founding fathers, all we can get from them are memes or constellation of memes. The Greeks for instance jump **from the individual to the State**, simply because they had not developed any valid recursions in between. The Greeks gathered in the main square to listen to speeches and voted. The Greek city-state was small. The same thing can be said of the Iroquois.

The problem we have now is the sheer size of our societies, the huge number of people. And yet despite the variety, we still want to get away with very simplistic rules such as one person one vote. Is this really the way to proceed after the digital revolution? I do not think so.

My suggestions include rethinking the following:

Given that “only variety can absorb variety” how do we cut down the variety of the currently failed governance system? Think about:

1. Representation. Choose only the best people for the job is the goal. Today the system’s demand for loyalty says otherwise. You choose the more capable of winning elections. The final purpose is derailed.
2. Elections. Precincts, gerrymandering, campaign funds, selling future influence conspire against a transparent system.
3. Party system. The solution has been the party system: federal, state, city, precinct. Here the “ideologies” are meme complexes so complicated and evolving that nobody really understands. Liberal, conservative, libertarian, what do they really mean? Who cares, the problem is that once people embrace them, the whole system has nowhere to go. Two parties or even three or ten are not enough to solve disagreements. The fewer the more adversarial. The greater the number the harder to reach agreements and the likelier that a small minority can gain a swing vote. This does not work. The distortions are enormous.
4. Access to Congress. All the chopping down of variety is reintroduced into this “sovereign body” that is —by definition— accountable to no one. Then you give this Congress all the tax money and ask them to spend it wisely. Ideologies, representation and electoral choices suffer.

Something the US Constitution missed that was present in the Great Law of Peace was the important **role of women in the Iroquois system**.

Another missing article in the US Constitution is one equivalent to that of the Great Law of Peace that says: in everything you do think about the consequences for the next seven generations. We would have very good use for that commitment to nature.

Within a week of reading his book, I went to New Mexico to meet the Gregory Schaaf in person. He shared his findings to me. His sworn testimony led the 100th Congress of the United States to officially recognize the contribution of the American Indians to the Constitution. So for those who still insist that there was no Iroquois influence on the US Constitution, they may want to “google” the fact that it has become the official truth approved by a joint session of the 100th Congress of the United States.

CASE # 2

TO SWITCH OR NOT TO SWITCH

Laws and lawyers are proud and very dependent of using syllogistic reasoning. However, syllogistic reasoning can induce errors and blind spots. I will try to show this with an example about how apparently logical reasoning can lead to a faulty or defective conclusion.

Example: Win a car.

A TV Host shows three doors to his TV Guest and explains that a car is behind one of the doors and that a goat is behind each of the two other doors. The guest chooses one door hoping to win the car. Following the rules of the game and knowing where the car is, the TV Host opens a door and reveals a goat. The door chosen by the guest and another door continue closed. Now, the TV Guest is asked if he wants to change doors or stick to his original choice.

The purpose of this THEORETICAL mathematical game is to challenge the viewer to give the best solution and say why it is so. The possible answers are:

- a) Do not switch
- b) Always switch
- c) It does not make a difference

In this game the TV Host always knows which door has the car and must always open a door with a goat and give the Guest the choice to switch his selection to the other unopened door.

The USUAL chain of reasoning to support the “Don’t switch” answer is simple and direct: (The problem discards any trick on part of the TV Host).

1. It is a undeniable FACT that regardless of which door the TV Guest chooses on the first chance, the TV host will always open another door and show one of the two goats.
2. Therefore, (this word is a logical connector) the TV Guest always ends up facing two closed doors, the one he chose originally and the other remaining one.
3. Therefore, (logically) of the two remaining doors, one will have the goat and the other will have the car. In probability terms, the number of possible outcomes is two and the remaining choice is one.
4. Therefore, this means that there is a 50-50 chance for getting the car or the goat.
5. Conclusion: switching or not switching does not make any difference. Answer a) and c) above are both correct.

Now a little further elaboration: Everybody agrees that the TV Guest had a $1/3$ chance of choosing the car on the first try because he had three doors to choose from. There is no problem here. However, as soon as the TV Host opens a door and shows a goat, most people think that the TV guest's chances are automatically pumped up to 50%. When the TV Host cancels one choice, two doors remain closed with equal probabilities. No matter how many times this game is played, in the end there are always two closed doors to choose from given a opportunity to switch or not to switch.

This answer follows a perfect chain of logical reasoning. In a way, people think, the game has been re-scrambled. Given a final choice between two doors, the probability is 50/50 and there is no valid reason for changing the original choice. The TV Host's action benefits the TV Guest's chances by improving the probability from one third to one half. Not switching is just as valid as switching. Nothing can be gained.

There it is. A perfectly logical answer. Right? Wrong!

Information theory says the TV host pumped information into the solution and the TV Guest should take advantage of that. However, the TV Guest is his own worst enemy because his past mental associations about how logic and probabilities work together, renders him the solutions a) or c) where switching or not switching yield the exact same expected value.

The true situation, whether the TV Guest figures it out or not, is that opening a door after he has made the choice does not add $1/6$ to the probable value of his original choice. What it really does is that it adds a $1/3$ probability to the other closed door. The score is $1/3$ for the first choice versus $2/3$ for switching all the time. Therefore, the optimal solution is b), that is ALWAYS SWITCH. Switching may still mean given up the car, but playing the probabilities right requires taking the other door because the original probability of the first choice was $1/3$ and remains the same after the TV Host opens the door with a goat. The added information does not benefit the TV Guest unless he switches his choice. This is the **definitive correct answer**.

Correct? Of course, BUT some are still not convinced.

There are three ways to solve the problem with absolute certainty. One is to work out a series of mathematical equations. After this is done, the resulting probability of switching and winning the car is $2/3$ instead of the original $1/3$.

The second way to solve this conundrum is to run a simulation where a computer with a random generator plays the game thousands of times. If the players sticks to the original choice there is no doubt that the computer will show that he won't improve his original $1/3$ chance of choosing the car. It will show that if he switches, the probability will be $2/3$.

The third approach is change logic for an intuitive approach using a thought experiment. Suppose we start the game with one thousand doors. There is no doubt that the chance

of choosing the one that hides the car is 1/1000, very slim. Now the TV host opens 998 doors all of them showing goats and leaves one door unopened. Now, would you switch? Most people see the obvious answer quite easily.

What happens is that the TV Host is pumping information every time he makes a deliberate choice excluding the one with the car. Discarding hundreds of doors with goats behind them pumps a lot of information into the solution, because as cyberneticians know, the information is linked to the probability of the event. If an event has a probability of 1/1000 this information is worth about 10 bits. The TV host could also chop the remaining doors into two portions and discard the one that does not contain the car. He would cut in half the number of doors successively, until two doors remain, one with the car and one with the last goat. Now, would you see the convenience of switching doors and benefit from the TV Host's information? The exact reasoning applies to the example where only three doors are in play.

How does this example apply to Law, lawyers, judges, legislators and the legal system? Let me explain.

In spite of the fact that the solution to the car and goats problem is known, there are many people that will insist that the solution is not correct and that the true solution is the 50/50 residual choice. This means that it is not impossible or it may even be probable and likely that the legal system could be a victim of "logical" but defective thinking.

Stafford Beer, in his Culpablist Error paper clearly states that legal and ethical systems appear to be blind to systemic consequences. I want to show to you how the car and goats example helps us become suspicious of the way legal systems have been solving the problem of catching criminals. The approach has been erroneous. The excuse is the protection of individual rights but let's not jump into conclusions until I paint the whole picture. Thanks for your patience.

The legal system faces a paradoxical situation. Stafford Beer told us that "Designing Freedom" is an oxymoron: to protect individual liberties society must make laws that limit our freedom.

Getting a SEARCH WARRANT poses a similar problem to our car and goats example: choosing the correct door among many. Except that in this case, there are thousands of law-abiding citizens (LAC) behind thousands of doors and only one dirty criminal (DC) behind one of the doors. Now, the legal system is in the same position of the TV Guest. The rules of the game require the legal system not to harass the LAC in the search for the DC.

Illegal drugs are reaching the streets, where is it hidden? The Law is facing many closed doors and does not know where the DC is hiding.

How has the legal system solved the problem of looking behind closed doors up until now? It has done so through the decisions of many judges and many decades, a clearly memetic selection process. Law evolved the rules regarding the issuance of a search warrant. The ruling meme is called “**probable cause**”. Here is a definition I have found that explains what probable cause is: “Information enough so that there is a reasonable belief that a crime has been committed. Police must have **probable cause** before arresting a suspect or performing a search. This is the same standard needed to get a search warrant.” Another definition: “evidence of a crime or contraband would be found in a search.”

Please consider these examples on how the Law (Court decisions) raises the bar for police to act because we will need to have them in mind later.

- In *Georgia v. Randolph*, 126 S. Ct. 1515 (2006) the Supreme Court ruled, thus replacing *United States v. Matlock*, when officers are presented with a situation wherein two parties, each having authority to grant consent to search premises they share, but one objects over the other's consent, the officers must adhere to the wishes of the non-consenting party. Wow!!!!
- *New Jersey v. T. L. O.* (1985) set a special precedent for searches of students at school. The Court ruled that school officials act as state officers when conducting searches, and do not require probable cause to search students' belongings, only reasonable suspicion.

As can be seen, these two court decisions take individualism to the extreme. There is absolutely **no sense of system** in the first case and very little of it in the schools. The same extreme is taken when families are protected by law from declaring against their own members. **What these rules do is exactly the opposite of what the Law needs to support to the values of the system it defends. Take note please that this was Stafford Beer's definition of corruption.** The law is corrupt because it does not support the values of individual security or society's well-being either.

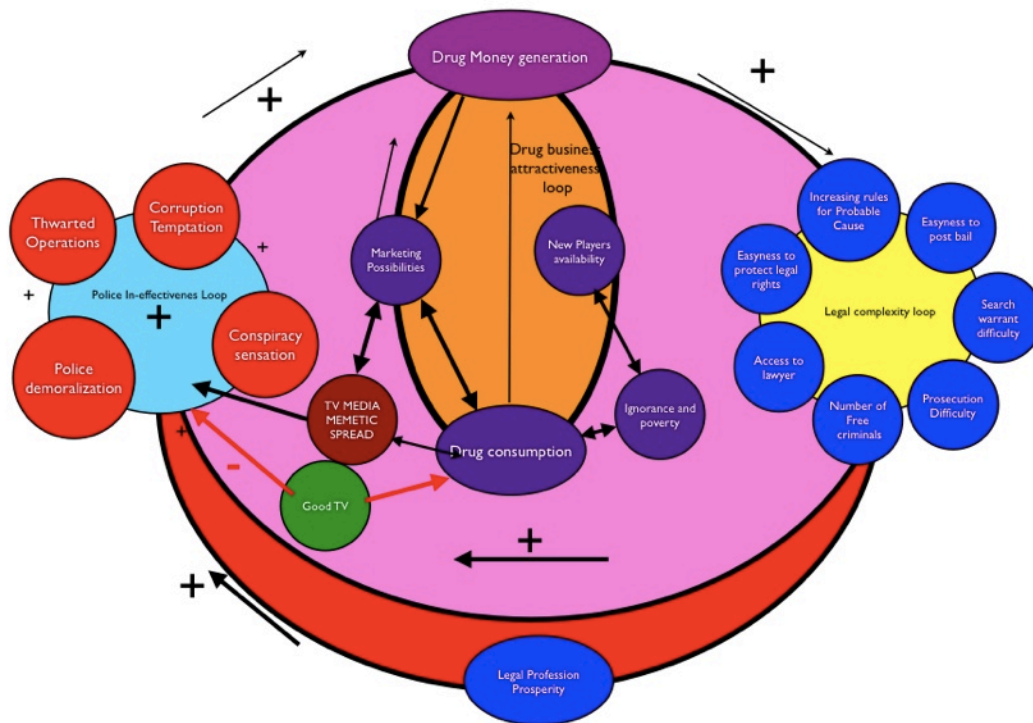
Probable cause rules require meeting dozens of legal criteria. A judge may require audio and video recordings, testimony of snitches or undercover cops, unusual activities observed by detectives, copies of the 100 dollar bills used to buy cocaine found on the possession of a dealer, etc.

But let me continue with the demonstration of systemic blindness which leads to systemic failure, using the TV contest and with many doors example:

When the law assumes that every closed door has a LACs behind it, the probability of a DC behind a particular door is **assumed to be zero**. This is the system's default setting. In order to reach the “probable cause” state for a particular house, the judge, who is far removed from the scene, has to depend and trust the prosecutor asking for the search warrant. The prosecutor in turn depends and has to trust the chief of police. The chief must trust the detective in charge of the investigation. The detective depends on the undercover cop, and so on. **Every recursion level introduces fragility at each link of**

the chain, because formal criminal procedures have to be followed exactly or they will be turned down on appeal. Many rules have evolved to distrust the causal chain and every recursion level makes the search warrant more and more difficult to obtain.

If we make a map of the system this is what we get: (I will describe it later.)



As I said every step the information advances requires complying with a series of safeguards. **If there is a 5% chance that there is an invalidating mistake, then if need twenty steps are needed, the probability reaches almost certainty that the warrant will never be issued.** So where does the police system stand? In shame. It is not that they are not good at capturing criminals, it is that they are ineffective because the Law inadvertently chose not to switch decisions as in the Car-goats example. The Law has tons of dispersed information about the illegal activities, but the law does not give itself a chance to get it together in the most efficient manner.

This “Game” —if we can call it one— is further complicated or messed up by the fact that there is empirical evidence to substantiate that it has been in the judges and lawyers self-interest to make the criminal justice system more and more complex. The

reason is simple. Let me put it this way: as the number of rules of legal system increases, the whole system becomes more complex and therefore the computational capacity of judges and lawyers to solve the problem needs to grow accordingly. This regulatory mismatch can only be solved, according to Ashby's Law, by increasing the variety of the regulator, e.i. judges and lawyers and prosecutors and policemen.

Knowing what we know from the Car-goat example, what was the key hidden feature of the system that the TV guest failed to grasp? It was the pumping of information done by the TV Host, as he opened a door and discarded a goat. In the first example this was not so obvious but it became absolutely obvious in the 1000 door example.

In the legal game, the judge who issues the order is like a contestant, but the person least closer to the situation. So now we must answer the question: how can we inject information into the system BEFORE the judge has to try to match the variety of the situation? Before I mention one or two answers, let me help you by using a well known control example: the thermostat.

The cybernetic reason why a thermostat works so well, automatically and transparently, is because the "variety" of the outside temperature which has a rather large range is perfectly and instantly matched by the thermometer a key part of the thermostat. As the cold blows harder, the temperature descends proportionately and so does the reading of the thermometer. The thermostat links the thermometer reading inside the room DIRECTLY to an automatic switch that turns the heater ON or OFF. Correct?

Imagine that the thermostat did not exist. To control the temperature you would need to sit a person next to the ON-OFF switch. But then, instead of being able to turn ON the heater he would have to ask permission to his boss, who is in another building. And then the boss would need permission in writing from another boss, and so on. You get the picture. The building would be intolerably cold a long time and once it got hot it would waste tons of energy before it was turned off. Oscillation would prevail. In contrast, the thermostat provides real time control of the temperature and reacts almost instantly to changes in room temperature for whatever reason. Followers of Ashby and Beer call the thermostat solution a perfect REQUISITE VARIETY solution. The command chain can also have requisite variety but delays are enough to send the system out of the desired control.

Ok, back to the search warrant conundrum. What does the Law REALLY WANT? **The Law wants REQUISITE VARIETY.** The Law wants as much real time control as possible, in spite of having to monitor 1000 doors belonging to houses... any of which can go astray any minute.

It is very weird, sad and perhaps funny to some, to observe that the probability of a "door" flipping to the criminal side is a function of many things. Among them are the following variables: (Got to the graph if you need to.)

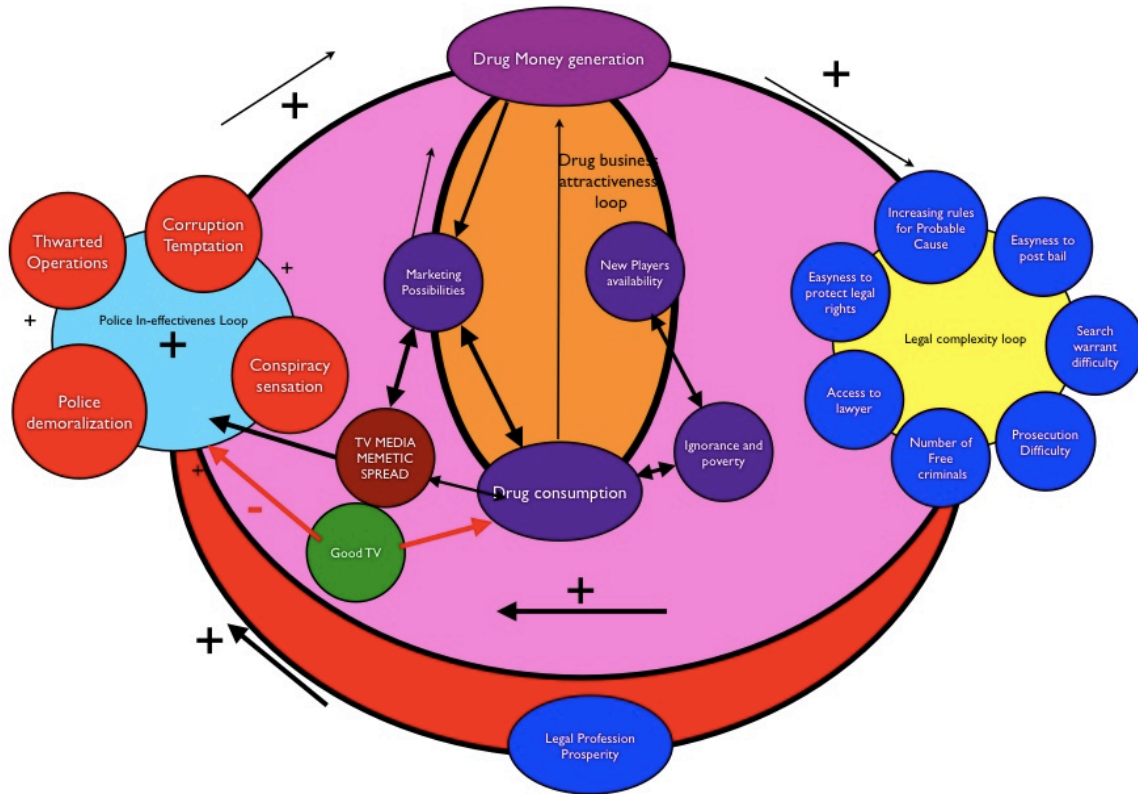
A) The high amount of money that can be made from dealing drugs

- B) How easy it is to be protected by “freedom rights” and search warrant complications.
- C) How easy it is to get out of jail because of an “illegal” search.
- D) How relatively inexpensive it is to hire a lawyer that will fill the paperwork and get bail while a trial is decided and a hearing date set.
- E) How easy it is for greedy/ignorant/needy people to disregard the moral and ethical questions involved in drug dealing.
- F) How easy it is for a Kingpin or drug boss to take decisions of life and death and territory claims when he is sitting many organizational levels above the action in the street.
- G) How frustrating it is for decent **police officers to possess good information about who is committing what crimes on the streets** without getting a chance to reach the prosecution process.
- H) How easy and yet demoralizing it is for policemen to interpret all the information available and convince themselves that there is a plot “ a conspiracy” at some level to hamper their work.
- I) How tempting it is for some police to enter a corruption mode.

Those of us who have learned about emergent complex systems, know perfectly well that **there is no need of a conspiracy to create a complex system. A system will do things that the individual components do not intend at all or even cannot possibly understand. We are familiar with the emergent qualities of ant communities that build ant hills as a systemic product of the application of a few simple rules of behavior.** Not many lawyers, apparently, are familiar with the fact that a few simple rules can create a whole lot of complexity if the conditions are right, if the interconnections and information loops are exactly right.

Well, back to our example. We do not need many rules to make a mess of a situation. Small reductionist steps can involuntarily create a monstrous system as the American Legal System (ALS) with 2 million people in jail and perhaps 4 million more who merit being in jail and are free from lack of processing capacity. The truth is that if the purpose of this system is what it does, then we must conclude that this system is structured to generate criminals. The ALS creates a huge “attractor” for criminals because the right memes —to do exactly that— are being mass produced and fly off constantly in every direction. Television has a lot to do with that, but can easily abscond from its ethical duties because it can invoke the first amendment as a defense.

Going back to our list above. Not only is the **each item a meme generator** but there are many others **memes in the culture soup which are ingested daily and help create many positive feedback loops linking desire and frustration.** All this is done in the name of freedom and I must say in detriment of happiness and security. Let’s see how this works using our feedback model.



My conclusion: If the law were smarter, and did not require all the stupid proofs of policemen, it would be much easier to create a drug free environment. If that is what we, as a society, want.

This is a big if, of course. There will be others who think that society does not exist, or it does not care, or that it behaves in ways that proves that drugs are welcome even if the official rules or the law say otherwise. This cynical approach to the Law says that the Law will say one thing, but a higher order system says that laws are a cover for the real system. So the “real system” wants to make business and does not care if certain minorities fall or are attracted to drug dealing in a consistent way.

Here are two options that answer the question: Pick one.

Solution number:

1. The ideal is a **drug-free society** and this is the reason why laws criminalize drug dealing. If the drug dealing goes on and the law does not fulfill it is because:

Legislators are stupid, corrupt, incompetent and make stupid laws.
Good laws are difficult to make
Laws are ok, but enforcers are corrupt,

2. The ideal is a **maximum freedom society**, where using drugs is a private choice and private problem.

Laws are society's alibi for respectability/ a cover
Enforcers know they are playing a game that can't be won and do not care.

My conclusion, based on experience dealing with corrupt police forces in Mexico is the following:

Police work in a modern society is a high variety problem, which means that in order to achieve REQUISITE VARIETY the only option is for policemen to have tons of discretionary power, at least as much as the judge, and therefore, policemen ought to have the best education possible, and be paid much much more than they are paid right now. This shuts off the risk of opening the corruption circuit and the protection of known criminals which sends the whole system into what it does right now.

Ordinary citizens —the neighbors of a “crack house”— should have the power to call police to conduct a search. Individual “liberties” would in the end be better served after this system is stabilized, that is after the new rules become well known.

The output of the new system would be that drug dealing would stop being an attractor to which the most vulnerable members of society are attracted. The way things are know, the SYSTEM is designed to generate thousands of criminals every year. Those that defend the “civil liberties” of the poor end up doing them the greatest disservice. This is the counter-intuitiveness of highly complex systems in action. Having said this, I rest my case.

Now, in my next case let me show you how things went from bad to worse to unbelievably terrible.

CASE #3

THE MEXICAN MESS

Russell Ackoff described a complex systems gone wrong as being a **mess**. I want to talk briefly about the Mexican mess.

If we are to meet the governance challenge, we have to think straight, and today that means we have to think systems. You cannot think systems without practice. You have to know what complex systems look like, what good they do and what they destroy. You have to live them, to suffer them, to combat them, to respect them.

To start with, you have to know the big difference between a Complex Adaptive System and a Viable System. You have to see your country as one of those terrible systems and realize that the many things you do not like that are happening are the product of a system that has been left to act and evolve on its own.

This is not to say that crime and pollution and many other undesirable things are not the product of individual choices and that laws should take care of that, but rather to understand that it is the laws that supposedly can fix these things that create systems with blind spots and systems with emergent properties that we are not aware of that generate the mess in the first place. The complexity of the laws, the counterintuitive nature of many rules interacting in unforeseen ways generates many of the problems.

Searching for the causes of the insecurity in my home town, it turns out that Chiefs of Police refrain from using modern technology to control the activities of patrol policemen. The result of this omission is documented: widespread corruption.

Recently I found out the reason behind this refusal: making individual patrolmen accountable makes the chiefs accountable also. The lack of "system" provides the perfect opportunity for the chiefs to sell themselves to the drug dealing cartels.

If the system is provided with strong connections, mistakes and errors will shine. No system, no accountability.

I feel I must give you a graphical idea how low a human can go. On the other side of the United States, in Mexico, where I live, drug dealers have "the Santa Muerte" (blessed death) as their patron saint, simply because it is said to make you invisible, so no one can harm you. "The Santa Muerte" gets the help of rampant police corruption, of course. I ask you: are you yourselves not playing dead. Are you not playing to be invisible to be left alone in your comfort zones? What happens when decent knowledgeable people disappear? Let me describe to you what happens when the tide of decency is overturned into .

People are being kidnapped by the hundreds each year; thousands of businesses are being extorted; dozens of people have been decapitated like its no big deal. A gruesome discovery by police found that a "pozolero" (pozole soup cook) had dissolved hundreds of persons in acid filled tanks. The government is trying to win a war, but for every "capo" (drug dealer leader) it kills, half a dozen or more scrimmage to take his place. Evolution by selective pressures is breeding ever more dangerous criminal monsters. Tens of thousands make up the iceberg of desperation, in spite of the millions who have managed to sneak into the United States. The ones that stay behind are very willing to bet their lives every day to get what they want.

Mexico is supposedly a modern state. We have a constitution and a government. The problem is that it does not work. The problem is that the ones in charge cannot understand the problem because as Stafford Beer used to say, they lack the language to describe the problem.

Mexico has a political system that subsidizes ideological confrontation with hundreds of millions of dollars every year. Political parties survive without having to raise a penny from their members or the public. The State is providing them with very generous pocket money funds. Suddenly Mexican citizens realize that there is no way of turning back. We are stuck. The same guys that approve the subsidies in Congress are the direct recipients of the subsidies. There is a lot of talk about change, because as I said, we subsidize political confrontation. But that is it. Not much gets done because the money goes into the wrong side of the equation and makes the problem larger!

What is the missing language? **The language of management cybernetics.** Complex systems are evasive and counterintuitive. Missing one little homeostat in a model can completely reverse the diagnosis of what is going on. Using the traditional language of politics, or law, or economics or sociology will most certainly not do the trick. Spreading management cybernetics is urgent business for business and for government too if we are to start doing the right thing.

The Mexican society needs to act more intelligently. Intelligence is a capacity for observing patterns and making matches with some sort of model in your head. For me, intelligence can also be the capacity to show requisite variety, that is the capacity to map a system in such a way that it produces the regulation of the system. Stafford used to say that control is proportional to the amount of information that the system has about itself. When we design legal systems, we must make sure that the structure has requisite variety, potentially the capacity to achieve self-regulation as it operates to regulate the behavior of people. This we are failing to do.

We are here to talk about governance in a resilient world. Well, Mexico's political system turned out to be very resilient to change pressures. In 2000 the PRI party was beaten and then nothing happened. Other parties copied the old priista (member of the PRI Party) memes on how to preserve power. Stafford Beer's diagnosis of the Mexican mess in 1983 was right on the mark. Twenty seven years later we are now rolling off a cliff. Twenty two thousand killed in the drug wars in the past 4 years. The mexican political system has used massive subsidies to become ultra-stable and fire proof. Everybody complains but nothing gets done. Sad to say, as the last elections proved, electoral fraud is again a big problem. The electoral laws reformed in the last 20 years ago have been circumvented. And according to government policy we, the citizens, should not speak badly about the state our country is in. Sorry.

The rest of Latin America is not doing much better. Add Africa, the Middle East. There is plenty of manure to spread around.

Well, sadly, the same case can be made for the refusal of business to redesign organizational structures. So, in the name of freedom, corporations are seen in no hurry to share the information they produce into realtime "economic" systems. Laws are standing in the sidelines.

To do the right thing I urge every one of you connect directly to these problems. Offer help. Organize an intellectual guerrilla warfare on the system. Help kill the dragon. Ideally, become a full fledged revolutionary. Aim for the heart of the problem: ignorance and useless models.

I come here in a revolutionary mode, I hope you too.

Cybernetics as a form of “religion”.

Religions and government create their own emotional base of support, by indoctrinating children. Children are taught to revere religion and government in exactly the same way. So when you want to propose change you are going against firmly established beliefs.

Beliefs are a default setting to get by the lack of knowledge. Science is supposedly objective. However, cybernetics recognizes the inevitable subjectivity of any observer. We see with our brains, not with our eyes. Our perceptions are controlled by our expectations.

The cybernetic paradigm, this newer way of making science is capable of connecting science, religion and government. In a sense can be a re-ligion (from latin *re*, again, *ligare*, to tie) with nature, something that reestablishes human links to nature and those things that are transcendent too.

New founding fathers

Meeting the governance challenge implies applying cybernetic ideas to our own effort: how can the attractor idea help? How to disperse idea? How to infect others with this meme, how to teach others, how to penetrate the conservative educational system, how to convince politicians that what they do can be done in a better way?

Without popular acceptance no idea can live long. Ideas are memes that require hosts. The hosts create the contagion effect. Polish the idea, examine the potential, provide living examples, saturate the air with a feeling of belonging.

So, we have the need for change on the one hand and the resistance to change on the other. Hope offset by fear and ignorance. How high is the threshold for change? How much effort or resources are needed to really change the structure of government?

Accosting the Governance Challenge

Government is associated with many painful experiences. Government has many negative aspects. Taxes, police repression, corruption are considered inevitable aspects of government. The bigger the worse. The sense of helplessness provided by

bureaucrats. Plus the self-reinforcing reelection advantage, the lack of transparency, and the snail pace progression towards any kind of real change.

In the meantime, we seem perplexed by the exponential threats: populations explosions, pollution of air, water, cities, seas and rivers; exhaustion of resource depletion, expectations, high scale rule thrashing such as terrorism, criminality, and Tarantino-style violence.

Fortunately knowledge and networking are also growing, perhaps even much faster. But changes in the minds of

Those most likely persons to at least understand the nature of the problems and the exponential threats are taking the easy and comfortable road. After all, living the good life is what maximizing freedom was all about. The result is the most pampered civilization or culture of consumerism and waste ever known to man. Personified by the gold-plated attractor: The USA.

I would suggest you look into what is happening in Mexico right now as a possible future up ahead for more developed societies too.

How do you tell a bunch of pampered people that the party is over?

We have two choices: cybernetics or religious indoctrination Ayatola style. We can bet on spreading the knowledge memes, something that has to be done really fast. Or we can bet on the negation of knowledge and override tender brains with programs for emotional control. We can teach and take this world to a higher level of organization or we can brainwash brains before they develop. I will talk only about the first.

As molecular biology shows, when it comes to building commands, very small differences account for very large differences.

This brings us to discoveries in the world of neuroscience. **The new testament says: the blind shall see and the deaf will hear.** We have reached the point where we are able to do just that. We know that it takes a macaque monkey three weeks to develop a network of neurons that will literally incorporate a new map of his ability to catch objects within his new reach. The point is that our brain maps everything about our world. Distances, surroundings, metaphors, everything because it works with differences and there is no difference generated if there nothing there to compare with. To see something you generate a primitive image and a few milliseconds of circular back and forth image until "you got it."

Society, as a whole, works the same way. It will only see or appreciate what it is previously trained to see. Just imagine. It can "see" flying saucers but cannot see the benefits of cybernetic thinking, because it has yet to have a collective image of cybernetics. Given that cybernetics is presumed dead, even people with 20/20 vision cannot see.

This is the challenge we have. To convey these new images. To create a new network of collective experience.

However we should also propose that Congresses and Parliaments reorganize. The assumptions that underly the design are popular and state representation. At the time that design was adopted, it took weeks for a stagecoach to go from New York to Philadelphia. These and other obsolete design assumptions are still in place and still making it impossible for the collective brain to see what is relevant and how to fix problems.

Members of parliament or representatives to Congress are the neurons in charge of networking to create these images. But the forces of chaos and disorder have their allies in another assumption: that legislative confrontation is inherently good, that confrontation of ideas breeds illumination and this is just not so.

Modern techniques of co-intelligence, such as **syntegration** and others, requires a systematic back and forth alternation between opening our minds to new possibilities and closing in on those that work. It is similar to the exploration and exploitation incorporated into the structure of the Viable System Model, the S3-S4 homeostat thanks to Stafford Beer's genius.

So we must peddle our knowledge and spread our memes. We need a new design and what I propose molds together the Beer's VSM and James G. Miller's living system.

Given the recursiveness of the model, these are the basis for a redesign of congresses and parliaments. This proposal gives us a model on with which to redesign governance.

Every function which is common to all living things must be mapped by the VSM. So we get: energy, extraction, infrastructure, transformation, transportation, distribution, services and recycling and restoring. These are the basic energy rich operations and each of them is a legitimate viable system while being part of the greater whole.

The rest of the model is the equivalent of the brain functions where much less energy is needed because energy is spent on communications. This is the brain of the nation-state: we have computers, telecommunications, information processing, papers, radio, TV, entertainment, etc. All I can say is that all of it fits nicely into the VSM model and makes a lot of sense.

Somehow, you have to be very familiar with the VSM to even grasp the general idea clearly. It takes a bit of training in cybernetics to realize that we live in a world of amplifiers and filters and homeostats, of vicious circles and virtuous loops. There are attractors —big and small— everywhere you look. This conference is one of them, ideas converging on a small group. Ideas evolving, being released to take a life of their own inside the participating minds.

Government is a public affair, and if it is public it should be transparent, and if it is totally transparent it should not be painful at all. When a member of the Iroquois tribe went astray, he would be invited to sit in the middle of the assembly and the tribe would let him know what he did wrong. Then they would ask him to convince them that he now saw why he was wrong and that he would never do that again. They sat there until they became convinced of the individual's sincerity. When that failed, he would be declared "invisible" and would most likely die of hunger or killed by enemy tribes.

We must redesign freedom, and this is a chore for cybernetics. It won't be easy, but it is worth a try. Should we for instance, do nothing when movies and TV spread the drug memes?

Shifting from the chaotic congress model which we have now, to the preordained syntegrational congress model should not be a painful experience. It will not be the result of an armed revolution because the big revolution of knowledge generation and diffusion already took place at the Macy Foundation meetings 63 years ago. All we need is the followthrough.

What if we let those born in 1984 or younger design a national government? Maybe they do not feel the need, maybe they can't see. Maybe they have bypassed political participation, but the experiment is worth the effort. We have not given up. We need to connect to ourselves to our emotional energy of our youth, not our old age intellectual vanity. This is the challenge for those of us who were fortunate enough to collect some pearls from Stafford's thinking.

Conclusion

We are standing on the shoulders of giants, but I, for one, don't like what I see. Maybe, you don't either.

The tower of learning, adaptation and evolution all point in that same direction: we are perplexed by complexity. We are the hunter gatherers with some new genes from the agricultural revolution, but basically the same bodies, living in a totally strange world, of overpopulation, lack of water, pollution, terrorism, and such.

When the war of the memes is over, the cybernetic paradigm will prevail and a new more intelligent way to govern ourselves will arise.

Socrates was sentenced to death for wanting Greek society to generate philosophers instead of soldiers. To break away from reading the mesmerizing heroic accounts of the Iliad and the Odyssey and think about designing the perfect citizen, the perfect city and the perfect government. To breed citizens instead of warriors. Socrates died; Plato and Aristotle, took the message and stopped rocking the boat.

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The question is alive since the days of Socrates? He asked: who should govern? The guardians or the philosophers? After deep thought say that the answer is: both. To make sure that viability is preserved we need philosophers and soldiers.

Some in this world are the soldiers, the men that worry about honor, the ones that others cling to in times of despair and danger. A viable system without borders is impossible. The genes will always be there to start the quest for free energy, a self-organizing threat to the existence of the unprotected.

The rest are the thinkers, the non-violent, many hardwired in varying degrees to have religious experiences. Transcendental values should serve as the organizing principles for a fair and just society. The resulting tasks would then be carried out with religious fervor.

I hope I have shown that Law is not the area of lawyers alone anymore.

I am here defending the territory of Cybernetics and Systems Science because no cause-effect science is capable of asking the right questions, much less solving today's problems. Thank you.

THE END.