In this brief presentation, I want to highlight two aspects of the current papacy that have received scant attention, both in Catholic circles as well as in the wider popular imagination. First, I hope to show that Pope Francis is essentially a systems thinker rather than a problem-solver. That is to say that he sees complex wholes rather than individual parts, and thereby maps connections between structures that most regard as distinct, if not isolated, from one another. Second, that his prescriptions for reform of the Church and the culture – including our economic and political system – are rooted in, or at any rate reflect, the ancient biblical practice of Jubilee, which was itself a mechanism designed to restore equilibrium to a wobbly social system.

At this point, it’s important to allay any fears that my paper is intended to be a technical discussion. Although modern systems theory is the product of network engineering and other technical fields, its inner logic is evident in structures as natural and comprehensible as a mountain lake or the human family. Indeed, one of the major purposes of systems thinking is to reproduce the essential elements of natural systems – nonlinearity, scalability, sustainability, emergence – in manmade structures, ranging from medical devices and network design to social media and urban planning, all with the goal of achieving resilience.

A Brief Overview of Systems Thinking

So, what is “systems thinking?” The MIT professor Peter Senge, author of The Fifth Discipline: The Art & Practice of The Learning Organization, says that it begins with an awareness that we exist in complex webs of interdependence. “Systems thinking is a discipline for seeing wholes,” Senge writes. “It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static ‘snapshots’ … a sensibility for the subtle interconnectedness that gives living systems their unique character.”

In her book, Systems Thinking: A Primer, the late Donella Meadows, writes that, “Once we see the relationship between structure and behavior, we can begin to understand what makes systems work, what makes them produce poor results, and how to shift them into better behavior patterns. As our world continues to change rapidly and become more complex, systems thinking will help us manage, adapt, and see the wide range of choices we have before us. It is a way of thinking that gives us the freedom to identify root causes of problems and see new opportunities.”
This connection between structure and behavior is also deeply biblical. In the “Vine and Branches” discourse, our Lord reveals the deep, organic system – vine grower, vine, and branches – at the heart of Christian life and connects the resilience of that system to the behavior of its parts:

“Just as a branch cannot bear fruit on its own unless it remains on the vine, so neither can you unless you remain in me. I am the vine, you are the branches. Whoever remains in me and I in him will bear much fruit, because without me you can do nothing. Anyone who does not remain in me will be thrown out like a branch and wither; people will gather them and throw them into a fire and they will be burned.” (John 15:4-6)

In his First Letter to the Corinthians, St. Paul uses the metaphor of the human body, a biological system, which in his treatment represents the Body of Christ: “As a body is one though it has many parts, and all the parts of the body, though many, are one body, so also Christ.” (I Corinthians 12:12) Like Jesus in John’s Gospel, Paul goes on to ground the proper performance of this system on the behavior of its constituent parts:

“Now the body is not a single part, but many. If a foot should say, ‘Because I am not a hand I do not belong to the body,’ it does not for this reason belong any less to the body. Or if an ear should say, ‘Because I am not an eye I do not belong to the body,’ it does not for this reason belong any less to the body. If the whole body were an eye, where would the hearing be? If the whole body were hearing, where would the sense of smell be? But as it is, God placed the parts, each one of them, in the body as he intended.” (I Corinthians 12:14-18)

In addition to making the case for the spiritual unity of Christians, these and other scriptures cohere with the Catholic insistence on the visible unity of the Church. In that sense, the foundational principle of Catholicism is bound up with a whole-systems view of the world. Indeed, the word Catholic itself is taken from the Greek word “katholou,” meaning literally “throughout the whole,” which is translated as “universal.” Thus, the notion of “one Lord, one Faith, one Baptism,” present across the world and at all times, and joined intimately to the One in whom “were created all things in heaven and on earth, the visible and the invisible” (Colossians 1:16) describes a vast, cosmic system of which no part (or person) is merely a disposable appendage.

**Pope Francis as a Systems Thinker**

Our present Holy Father has been criticized in some quarters for lacking the theological erudition of his two immediate predecessors, both of whom would have been considered major 20th Century Catholic theologians even if they hadn’t been elevated to the Chair of St. Peter. But Pope Francis is a trained chemist, perhaps the first scientist-
pope since Sylvester II, who died in 1003 A.D. Chemistry, like other natural sciences, is concerned with the study of natural phenomena, which manifest themselves as whole systems or elements of systems – a chemical reaction, for instance, is a closed system seeking equilibrium – and I’m convinced that this perspective, whether deliberate or intuitive, informs the Holy Father’s point of view. Using *Laudato Si* as my laboratory, I will try to show this.

Francis seeks to uncover hidden connections between structures. In *Laudato Si*, he writes, “Authentic human development has a moral character. It presumes full respect for the human person, but it must also be concerned for the world around us and ‘take into account the nature of each being and of its mutual connection in an ordered system.’” (#5; quoting Pope St. John Paul II from *Sollicitudo Rei Socialis*) Later in the first section, Francis promises that his analysis will proceed from “the conviction that everything in the world is connected.” (#16)

In Chapter One, Francis indicts what the writer James Howard Kunstler has called the “techno-grandiosity” of relying on technology alone to solve the problems of pollution and waste. “Technology,” he writes, “which, linked to business interests, is presented as the only way of solving these problems, in fact proves incapable of seeing the mysterious network of relations between things and so sometimes solves one problem only to create others.” (#20) This is a classic justification for and driver of systems thinking: natural science may be deeply whole-systems based, but applied science – technology – tends toward linear, isolated problem solving that often creates as many difficulties as it ameliorates. And that’s especially true when, as Francis notes, profit is involved.

The Holy Father begins his discussion of climate change by describing climate as “a common good, belonging to all and meant for all. At the global level, it is a complex system linked to many of the essential conditions for human life.” (#23) He goes on to connect this complex structure to a broader system that includes water quality, species migration and extinction, and the loss of arable farmland, and even further to urban congestion, drug trafficking, unemployment, poverty, war, and even the social isolation brought about by media and social networks. “Everything is connected,” Francis writes in #91, and again in #117: “Everything is connected.”

Throughout *Laudato Si*, Francis uses the language of systems thinking. Whether by design or accident – and, frankly, it would be more impressive if it were by accident – it is the *lingua franca* of his “integral ecology.” The words “sustainable” or “sustainability” appear twenty times; “system,” thirty-two times; “networks,” seven times; variants of “connect,” twelve times; “resources,” forty-one times; “adapt,” five times; and so on.

In *Laudato Si*, Francis doesn’t merely tick off a series of isolated problems or draw casual causal connections for the sake of rhetorical flourish. Instead, he depicts a whole-system
in a state of disequilibrium. And his analysis, while prophetic and often forceful, avoids condemnation of the human agents who together comprise the constituent parts of that system. For Francis, there is a place in a reformed system – that is, a system restored to equilibrium – for all people. He reserves his harshest critique for behaviors, like the greed exhibited by multinational corporations or the consumptive materialism of Western consumers, as well as the patterns of thinking that drive such behaviors, such as the “technocratic paradigm” and what he terms a “Promethean” anthropocentrism. In this, Francis is writing as a systems thinker par excellence, focusing on the quality of outputs rather than seeking to dismantle and destroy the system itself.

In any system, no matter how complex, there are three essential elements: inputs, processes, and outputs. In a simple coffee maker the inputs are water, electricity (or other form of heat) and, of course, ground coffee beans. The process amounts to heating the water, pumping it over the coffee grounds, where it filters through them and into a heated carafe. The output is your morning cup of Joe.

To one degree or another, all continuous or complex systems feature what are called “feedback loops.” As the name implies, these are outputs fed back into the system as regulatory mechanisms. A positive feedback loop reinforces, and thereby accelerates, the basic process. Systems that have only positive – that is, reinforcing – feedback loops are at risk of exponential growth in their output, putting the entire system at risk. By contrast, a negative feedback loop reverses the action of the process, within limits, in order to bring the system back into balance. Your home thermostat, which regulates the air temperature, or output, of your heating system based on an equilibrium point you select, is a practical example of a negative feedback loop.

Why is this important for our discussion? Because one of the points Pope Francis makes in Laudato Si is that our present global system has been operating for too long with reinforcing feedback loops – the technocratic paradigm, modern anthropocentrism, practical relativism – that now have us hurtling toward ecological and social disaster. Chapter Three of Laudato Si is a masterful depiction of the psychological effect of this reinforcement:

“Neglecting to monitor the harm done to nature and the environmental impact of our decisions is only the most striking sign of a disregard for the message contained in the structures of nature itself. When we fail to acknowledge as part of reality the worth of a poor person, a human embryo, a person with disabilities – to offer just a few examples – it becomes difficult to hear the cry of nature itself; everything is connected. Once the human being declares independence from reality and behaves with absolute dominion, the very foundations of our life begin to crumble, for ‘instead of carrying out his role as a cooperator with
God in the work of creation, man sets himself up in place of God and thus ends up provoking a rebellion on the part of nature.” (#117)

Fortunately for us, the global system also has negative, or balancing, feedback loops. Chief among these, I would assert, is the Vicar of Christ himself. Born in 1936, he is a product or an “output” of the modern world, to be sure; yet he is also the bearer of an ancient moral and theological tradition that contains the necessary corrective for a system now so severely out of balance. That corrective, I believe, is the practice of jubilee.

**Equilibrium as Jubilee**

Chapters Four, Five and Six of *Laudato Si* are essentially a call for restoring equilibrium between humanity and the earth (ecology), between human beings themselves (justice), and between God and man (worship). In making this appeal, Pope Francis isn’t drawing so much on modern systems thinking as he is – again, either intentionally or by default – on the ancient biblical practice of “jubilee.” In fact, I believe that jubilee is the hermeneutic key to understanding the Franciscan papacy.

As the people of Israel were preparing to enter the Promised Land, the Lord spoke to Moses on Mount Sinai and directed that every fiftieth year should be a year of jubilee: “On the Day of Atonement you shall sound the trumpet throughout all your land. And you shall consecrate the fiftieth year, and proclaim liberty throughout the land to all its inhabitants. It shall be a jubilee for you, when each of you shall return to his property and each of you shall return to his clan. That fiftieth year shall be a jubilee for you; in it you shall neither sow nor reap what grows of itself nor gather the grapes from the undressed vines.” (Leviticus 25: 9-11)

Ultimately, the jubilee year was about restoring social and religious equilibrium in a social system. As a year of relief from debts, bondage, and familial estrangement, it restored justice, the right ordering of the relationships between people. As a year of letting the fields rest from sowing and reaping, it restored the relationship of the people to the land. And, beginning on the Day of Atonement, it restored the relationship of Israel with the God who had brought them safely into Canaan.

The year of grand jubilee was echoed by a minor sabbatical “jubilee” declared every seven years. The function of this jubilee was also the restoration of equilibrium: “For six years you may sow your land and gather in its produce. But the seventh year you shall let the land lie untilled and unharvested, that the poor among you may eat of it and the beasts of the field may eat what the poor leave ...” (Exodus 23:10-11) and, “At the end of every seven-year period you shall have a relaxation of debts, which shall be observed as follows. Every creditor shall relax his claim on what he has loaned his neighbor; he
must not press his neighbor, his kinsman, because a relaxation in honor of the LORD has been proclaimed.” (Deuteronomy 15:1-2)

To be sure, the biblical evidence suggests that the people of Israel were less than faithful in observing both the minor and major jubilee years. Down through the centuries, the prophets routinely chastised Israel and her leaders for failing to observe the prescriptions of the Lord, including the practice of jubilee. It is against that backdrop that Isaiah puts these words on the lips of his prophesied Messiah, words Jesus himself would announce in the synagogue at Nazareth: “The Spirit of the Lord GOD is upon me, because the Lord has anointed me to bring good tidings to the afflicted; he has sent me to bind up the brokenhearted, to proclaim liberty to the captives, and the opening of the prison to those who are bound; to proclaim the year of the Lords favor.” (Isaiah 61:1-2)

Pope Francis, it seems to me, is calling our system back to equilibrium by means of jubilee. He knows that only by restoring right relationships between humanity and the earth, God and man, and human beings themselves will the global system, now so out of control, be restored to balance. The practice of jubilee is at the heart of the Holy Father’s “integral ecology,” and it is not intended just for the mighty and powerful of the world, those who command nations, far-flung businesses, institutions or social movements. It is also intended for each of us in a profoundly personal way.

How is this done? First, by seeking a restoration of proper order and right priorities in our families, workplaces, and communities. Are we living an integral ecology? Do we participate in sinful structures that harm the earth, including other species, and contribute to the acceleration of ecological disaster? Do we worship God rightly; that is, by having no other Gods before Him, whether ideologies, parties, nation-states, or the idols of our own pleasure, power and prestige? Do we practice reconciliation and justice in our very personal lives? Have we made the corporal and spiritual works of mercy – those magnificent steps toward restoration – the centerpiece of our Christian lives?

“Human beings,” the Holy Father writes, “while capable of the worst, are also capable of rising above themselves, choosing again what is good, and making a new start, despite their mental and social conditioning. We are able to take an honest look at ourselves, to acknowledge our deep dissatisfaction, and to embark on new paths to authentic freedom. No system can completely suppress our openness to what is good, true and beautiful, or our God-given ability to respond to his grace at work deep in our hearts. I appeal to everyone throughout the world not to forget this dignity that is ours. No one has the right to take it from us.” (#205)
Systems Thinking and the Practice of Jubilee in *Laudato Si*

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