

Planetary Sustainability and the Socio-Digital Space



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The foundation of the IS discipline (in the late sixties) is built on the proposition that any **artefact** on which we turn an IS **lens** cannot be seen as hardware, software, or human-based in isolation.

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Thank you for this opportunity to question and expand our conceptual frameworks with this important, competent, and critical audience. Most of this talk is a further development of my book.

(The above Creative Commons copyright symbol allows complete to reuse and rework this paper as long as the paper is attributed to the author.) ideas need freedom to fly.

Introduction

Let us embark on an analytical exploration of a concern we all share – the sustainability of our habitat, Planet Earth. We begin by inverting the accepted telescopic lens – Earth moving through space – to focus microscopically on the sustainability of a family of four in the United States.

This exploration will bring us to the Socio-Digital space wherein artifacts unique to that space become, arguably, the most crucial factors in achieving a sustainable human society on our planet.

We will arrive at your assignment. This audience, expert in the Socio-Digital space, has a crucial role in inventing artifacts necessary for the evolution of a sustainable society.

Systems as Lenses

We live on Planet Earth, which is part of the solar system. “System” is how we understand the relationship among the planets and the Sun.

When we define the planets, an organization, an economy, or a rain forest as a system, we are expressing a way of understanding such phenomena. A system is a “point-of-view” or, as semanticists might prefer, a framework for assigning meaning to phenomena. Therefore, every perspective, point-of-view (POV), system, model, theory, or scientific discipline is a **lens**. It is a way of focusing inquiry, a way of seeing or a set of questions.

Every way of seeing is, necessarily, a way of not seeing.

This is what we mean by focus. We see some things clearly at the cost of not seeing what remains out of focus.

Our difficulty is with the word “SYSTEM.” *System* conveys the idea that we can develop a POV that allows us to comprehend the whole. That wonderful dream, unfortunately, cannot be realized.

The “social” lens could be replaced by psychological, sociological, and even anthropological lenses. An economic perspective might be represented by accounting or financial lenses. Each produces a different “truth.”

However, we may try, we must view economic organizational phenomena through multiple lenses. There is no complete systems’ perspective. Nor can there be. That is an inherent limitation of all lenses, whether physical or theoretical. I want to demonstrate the power of multiple lenses to fathom complex phenomena.

Information Systems: *The Socio-Digital Space*

We apply a technological lens to information systems. We call this an IS lens, which confuses our focus. The IS lens is not a technological lens. Technology is a body of knowledge that informs human actions on nature. All technologies are limited by the laws of nature.

Information, as a concept, is almost impossible to define or model in a rigorous, comprehensive, or useful way. All organizations are information systems if only because organizing implies information exchanges. That applies equally to Airbus, to a production of “Macbeth,” improvisational comedy, and effective football teams; none of which are digital systems.

We are better served by the term “digital systems.” Digital systems are governed by the limits of logic. Kurt Gödel demonstrated that no logical system can be perfect and complete. Thus, information systems cannot be perfect or complete.

I want to focus on the *Socio-Digital space*. This is not a system because it is populated by many phenomena with few relationships among them. I am sure we can all imagine that space. Google, Facebook, Carbonite, Amazon, and countless transaction processing systems inhabit that space. Metaphorically, it is imagined as a “cloud.”

We will discover a crucial factor in global sustainability that only exists in the *Socio-Digital* space. Discovery requires application of multiple diverse lenses to the challenges of sustainability.

A Sustainable Human Society on Planet Earth

We will examine what is seen as a well-understood crisis:

The sustainability of the natural environment that is our human habitat.

We are familiar with the issues of global warming, the extinction of species, pollution, and the destruction of the capacities of our Earth to support human society. These are serious issues

and I am not questioning any of these concerns or the policies being advocated worldwide to remedy the observed trends. I am not attacking the environmental community.

Our present view is telescopic:

Planet Earth moving through space mostly covered by oceans within a sheltering atmosphere that supports life.

What becomes visible, *microscopically*, if we focus on the sustainability challenges of a family of four in the United States?

We begin with a moral principle.

We cannot morally obligate a family to act to save the human habitat and protect our natural environment unless they can assure their own survival.

In countries with significant food insecurity, limited health care, and growing homelessness, we cannot ask people to sacrifice to save the habitat. I am speaking about the United States.

Nations across the globe compete for jobs to improve economic performance exactly when preserving the environment requires less work. Work is our primary impact on Earth. Reducing our ecological footprint requires less work and fewer jobs. These are conflicting objectives.

Family Economics: The Monetary Lens

Let's examine a median family of four, the Smiths, in the year 2010 in the state of Oregon in the US. The Smiths earned \$70,000 a year and their net income, after deductions, was \$52,000. That income sustained the family for one year. Where did that income go? Let's focus only on interest.

Americans buy their homes by taking out mortgages. The Smiths will pay about 35 percent of their take-home pay as interest on their mortgage and car loans. Their federal, state, and local taxes include interest bringing that up to 40%. I have not included student loans or local taxes.

If we assume the Smiths are frugal savers, they will have about \$25,000 to spend on their remaining living expenses. Bernard Lietaer estimates that 30 percent of supply chain costs are embedded interest. This should not surprise us. Peter Druckerⁱ noted in 1946 that the largest part of all transactions is the money obligations of the past.

Thus, if the Smiths are careful, at least 50 percent of their take home pay is expended as interest. For most Americans, that estimate will be much higher.

The microscopic view is quite revealing. Americans can meet all their needs at a high standard of living with only 20 hours of work a week. The rest of their work income is spent on interest.

We learn that although we earn our money by working, it is not our money: we rent that money. For every hour's wages we earn, we must work another hour to pay for the privilege of using the money we were paid for the first hour.

Extrapolating to the larger economy, we learn that America's needs can be met with a very short work week. By my estimate, a ten-hour week would support a plentiful life style for allⁱⁱ.

The bad news is that all the work expended to pay interest creates value that must be wasted to maintain scarcity in the face of plenty. Thus, human consumption is not what drives environmental degradation. The largest component of our ecological footprint is the waste necessitated by scarcity.

Our Economic System

To summarize these findings:

We live in a world of plenty that must be experienced as scarcity for the economy to function.

Why? Is the reason *capitalism* or *market society*? Perhaps we need *socialism*. These are simplistic answers that do not offer solutions. We need better lenses.

Clouded Lenses: Cataracts:

Like the human eye, our lenses can become cloudy. Terms such as *information*, *market society*, *capitalism*, *socialism*, and *economic efficiency* lose their analytical effectiveness. Indeed, most of our constructs become cloudy as they accrue multiple meanings that obscure what they signify. They become substitutes for inquiry.

We apply conventional labels to support our preconceptions and pass them off as explanations. We should not confuse such labels with analyses or diagnoses.

Capitalism?

We live in a world of plenty that must be experienced as scarcity for the economy to function.

How can we parse this assertion? I suggest two different lenses.

Productive Capitalism has succeeded in meeting humanity's needs for goods and services with ever-decreasing hours of work. The evidence is clear. We expend enormous amounts just to create demand. The leading edge firms – Google, Facebook, and Amazon – do not produce goods at all, and Apple produces means of communication and cultural consumption.

Financial Capitalism creates money out of nothing and charges all of us for its use. The creation of money is the exclusive entitlement of the financial industry. Financial capitalism must have scarcity to preserve the value of money, thus, money is always the governing constraint on economic activity. The universal concern is *Who will we pay?*

Who will pay?

“Nearly 800 million people worldwide suffer from hunger. But, according to the Food and Agriculture Organization of the United Nations, we squander enough food to feed every one of them more than twice over.”

Elizabeth Royte

Amartya Sen demonstrated that the famines of the twentieth century were economic. While plenty of food existed, people could not afford to buy it.ⁱⁱⁱ

The *Guardian*, in 2003^{iv}, gathered a basket of fresh foods from a supermarket in Great Britain and computed the total miles traveled by the food in the basket. The food had traveled, collectively, 100,943 miles.

The problem of human hunger is not agricultural; it is economic or **Who will pay?**

My county has 330,000 residences of which 27,000 are empty. It also has a growing problem of homelessness. No one knows how to solve the problem of homelessness. Simply put: **Who will pay?**

These are not market failures. This is exactly how markets are supposed to work. It is called “economic efficiency.”

Social Security; Pensions

People are living longer and working fewer years. The efforts of fewer workers will have to pay for the needs of an ever-growing population of retirees. This is a world-wide problem.

Let’s be clear. We do not lack any of the resources required to meet the needs of retirees. The reason so many millions of adults are attending universities or are retired is quite simple. We do not need their work. We live in a world of plenty. The only issue is: **Who will pay?**

Jobs

The universal answer is more jobs. Every community on the planet is competing for well-paying jobs to earn the money to pay for the resources they need to survive.

So economic growth is a dominant pressure the world over, while ecological concerns all suggest that we limit economic activity.

At exactly the period when jobs are disappearing at a frantic rate and sustainability demands we reduce our ecological footprint, the **Who will pay?** lens calls for more jobs.

Maybe we are asking the wrong questions. Let's try a different lens.

What is Money?

Bernard Lietaer^v informs us that 98 percent of all money is debt-money. It is *fiat money* because governments declare it as money and they accept it as payment of taxes.

The fact that almost all money is debt-money immediately clarifies some of our questions.

Who will pay? is poorly formulated.

It should be ***Who will assume debt to pay?***

We can now understand why we cannot feed the hungry or house the homeless. No one can afford to assume the required debt obligations. That would not be economically efficient.

Paying off all the debt would simply reduce the money supply to close to zero. All economic activity would collapse.

Actually, it is impossible to pay off all debts. By definition, there can never be enough money to pay off all debts with interest. So, money will always be scarce simply because this is how debt-money is defined and created.

We cannot work ourselves out of debt because the money supply is not tied to productivity or value creation in the workplace.

All these characteristics of money are relevant to our concerns. One, in particular, is immediately cogent to our microscopic lens of family sustainability. It becomes clear why families are not sustainable.

If some families, or nations, are paying their debts with interest, other families, or nations, are necessarily losing some of the principle they are obligated to repay.

The monetary system is designed so there must be losers.

The Greek people are designated losers, as are the hungry and homeless in the United States. When our economic system functions as designed, losers will always exist. Thus, Catalonians fight with the rest of Spain and Northern Italy complains of subsidizing the south. The system cannot function without losers. All must compete so they do not become the loser.

We live in a world of plenty with the resources and capacity to meet all of humanity's needs at a fine standard of living in an economic system that requires large parts of this humanity to be hungry losers.

This is a requirement of financial capitalism. Nothing in productive capitalism requires losers.

Let us focus our monetary lens more precisely.

How is debt-money created?

Debt-money exists in the Socio-Digital space. I want to focus this lens to make clear the nature of the reality we are discussing. Semantically, debt-money enjoys a level of concreteness and, therefore, enormous power that deserves critical examination.

I refinanced my home mortgage in Puyallup, Washington, early this year. The amount was over \$300,000. Once my wife and I were qualified for the loan, a check was sent by the lender to an escrow company.

That check served as information, as an accounting of an action by the lender, and as a potential means of exchange. *It was not money.* It lacked the defining requirement for it to become money.

Three days after we signed the documents, they became binding and the escrow company issues checks to the transaction parties and the money starts moving among banks and accounts at a high velocity. Debt-money was created on that day.

What is real, in any concrete sense, after that day? The house located on a piece of land is real. The document we signed obligating us to repay the loan with interest is real. Nothing else is real.

Nor did money move among multiple accounts at high velocity. The imagined transactions between banks did not take place. Rather, at midnight, each bank calculated their balances with every other bank and computed amounts to be transferred. Those are the only actual bank transfers between banks.

Debt-money only exists in the *Socio-Digital* space. Not the digital space? Digital space lacks a crucial component of the reality of debt-money. *We must believe it is real.*

Banks broker between two sets of beliefs: savers believe they can always withdraw their savings; borrowers believe they must pay their debts. If either belief collapses, the bank fails.

That is why the Greeks had to suffer a crisis a few years ago. If Greek debts were forgiven, where would it stop? How long before Spain, Portugal, or Italy lineup for debt relief? The belief system that supports debt-money creation would collapse.

This is not new. John Maynard Keynes^{vi} noted that all the European countries fighting in World War I were, essentially, bankrupt by 1915. The war was continued only by debt-money financing. Financial capitalism displaced productive capitalism as the primary force in the economy.

Keynes noted the shift to:

The symbol economy of money and credit.

What does that mean?

Economics is a symbolic system. It is critically dependent on our assigning reality to money that does not have concrete existence. Economics might best be understood as a religion.

How shall we name the *Economic Deity*?

Actually, it already has a name.

Realism

Reality. We are all commanded to be *realistic*.

Reality dictates that millions of American children go to school hungry within a few miles of enormous food surpluses.

Reality dictates that humanity in the hundreds of millions live in dismal food insecurity worldwide, while agricultural surpluses rot in the fields.

Reality insists that the *Guardian's* 2003 food basket with an accumulated mileage of 100,000 miles is economic efficiency in locales where fallow farmlands are within walking distance.

Reality dictated that 4100 Seattle school children would experience homelessness last year and that 500,000 Americans experience homelessness on any given night.

Reality suggests that if only African or Asian villages had access to bank credit, they could lift themselves out of poverty. Apparently, there is a shortage of debt.

Reality demands that the Greek people pay debts on loans they never borrowed. Europe cured an earlier debt crisis by converting Greek business loans into sovereign debt, so the Greek people would be so obligated.

Reality insists that those debts could not be forgiven, even though an earlier *Reality* saw fit to forgive massive German debts in 1953.

Reality insists that the United States of America, which has sent people to the moon, cannot afford health care.

Reality insists that the Greeks, the Catalonians, the Scottish, the Flemish, or any of the many peoples that inhabit Europe cannot have even a minor level of control over their local economies.

Reality is hopeless.

Why are we surprised by Brexit? Why is the emergence of a virulent tribalism across the globe a surprise?

Why do we imagine that all the policies advocated to protect nature, the human habitat, and sustainability can succeed? Do any of these policies confront *Reality*?

We live in a world of plenty that MUST be experienced as scarcity for the economy to function.

Socialism: A Hope?

Marxism glorified labor. Would Marxists have driven productivity so intensely that we can afford a work week of 10 to 20 hours? Would Socialists eliminate jobs?

Our social democratic programs are, essentially, pain killers designed to mitigate the worst outcomes of financial capitalism. They are social safety nets. They will not be allowed to work. *Ask the Greeks.*

There is hope. The underlying structure of productive capitalism is strong. Marx's dictum that the ongoing development of the means of production drives history has resulted in a society that can deliver plenty.

Bus Tokens

Bernard Lietaer discusses a Brazilian town that had accumulated mountains of garbage. The mayor saw poor children scrambling over freshly dumped garbage seeking anything they could sell for a bit of money. The mayor decided to pay them bus tokens to recycle all the garbage. Within a few years, the garbage was gone and a large number of bus tokens were circulating in the town as money.

What happened in that town?

First, the market could not remove the garbage. No one was going to spend debt-money to do work that brought no return.

The mayor drew on a money substitute he could supply with no debt: *bus tokens*. A side effect was the circulation of a complementary means of exchange throughout the community.

A great amount of work was enabled in that town at much lower cost that was possible with debt-money burdened by a surcharge of 100 percent interest. *This is the power of a local complementary means of exchange.*

The Assignment

I believe the challenges of sustainability at all levels – families, communities, nations, and the whole Earth – demand innovation in the Socio-Digital space. We must invent an alternative to the debt-money system.

Debt-money is a system, probably the most tightly connected system on our planet. Debt-money is responsible for the largest part of our ecological footprint.

The people in this room, representing disciplines focused on the Socio-Digital space, can be the source of the necessary innovations required to achieve a sustainable human society and a sustainable habitat. That is your assignment.

In honor of that Brazilian experiment, let's call such means of exchange *Token Money* as distinct from *Real Money*. Both can occupy the *Socio-Digital space*.

Your assignment is to invent locally controlled digital token-money systems that communities can use to mobilize available underutilized local resources to meet local needs. Given that Token Money can be created in the Socio-Digital space, it can be a domain of rich invention and experimentation

Some Tentative Recommendations

Labels

Token is a generic term for a local means of exchange. Every language has multiple slang terms for money. Each community should assign its own label for its Token Money. Uniquely labeled local Token Money has powerful semantic potential for a community.

We can imagine Scottish, Welsh, Basque, Catalanian, Flemish, and many other available labels. Note this does not mean all Basques use the same term or token money. The level of experimentation is a local community.

Smart Money

Token Money would exist only as data in a local community trust. Exchanges between members of the trust are via debit cards or phone apps. Smart token money never leaves the trust.

Voluntary

No one is required to use Token Money in exchanges. This is an extreme market test. Either experiments succeed or they fail. We will all learn rapidly.

Remember, Token Money is not worth anything. *There is no downside risk.*

Community Trust

Residents of a community can all have accounts in the trust. Economic organizations, government, employers, or businesses can only have accounts if they are willing to accept payment in the local Token Money.

The trust is not a governmental institution. It can be a private corporation without owners. It cannot be bought or sold.

“Real Money” exchanges with Token Money”

Euros, dollars, and pounds can always be exchanged for Token Money. However, Token Money cannot be converted into debt-money. It is not fungible.

This rule is necessary to prevent businesses from paying their expenses in Token Money and exporting debt-money from the community.

Why would anyone prefer Token Money to debt-money? If local markets evolve, Token Money will command more value because it does not include embedded interest costs.

Token Money Creation

This is an area for experimentation. Token Money may be created to pay for work that the local debt-money economy cannot fund otherwise.

Members might start with a small initial account representing, maybe, 50 hours of work.

Any request to exchange debt-money euros or dollars would generate new Token Money. The debt-money would, thereby, be retained by the community.

Token Money Value and Purpose

In the United States, I would peg the value of Token Money to an amount of food required to feed a family of four for a week. It takes 128 minutes of work to produce that food. Allowing for lower local efficiency, four hours of work for Token Money would feed a family of four for a week.

In the United States, I would start in less populous counties with underutilized agricultural capacity. The challenge would be to eliminate food insecurity across the county.

These suggestions are just food for thought. My book has more radical proposals, but I do not have time to develop them credibly in this talk.

Success?

Success has several dimensions. First, if communities succeed in mobilizing local resources to meet local needs, the *Who will pay?* question may become moot. Stringent EU requirements for debt-service do not apply to non-debt Token Money systems.

Local exchanges, interactions, and dependencies will expand the role of local communities in the lives of neighbors. Token Money might restore a large measure of local control over matters presently remotely controlled by Brussels or Washington, DC. Political tribalism could be displaced by thriving local communities.

Economic Efficiency

One last lens.

If Token Money systems infringe on a large part of economic activity, could we lose all the efficiencies gained through globalization? Productivity will fall; costs will rise; standards of living will fall. *You all know the mantra.*

What is economic efficiency? *Efficiency* is output over input. If economic efficiency is measured by valuing the outputs and inputs in dollars or euros, we get the efficiency of debt-money. *Economic efficiency* is the efficiency of debt-money utilization, no more.

The food produced using Token Money can be valued by applying euro prices in local markets. If no euro costs are incurred in Token Money production, efficiency is infinite. If we factor in euro fuel costs, efficiencies could still be several times as great as euro efficiencies. *How can that be?* We are utilizing resources that have no debt-euro market value.

Conclusion

I believe I have demonstrated the utility of applying multiple lenses to the sustainability challenges facing our society and communities. We have discovered the central importance of the Socio-Digital space.

This audience can have a profound role in inventing a sustainable, thriving, and hopeful human society that can both meet the needs of humanity and maintain our natural habitat. Arguably, the creation of local Token Money systems can be the largest component of world-wide efforts to achieve ecological sustainability.

That is your assignment.

Reality, as it now functions, is hopeless. The absence of hope has stirred a latent tribalism across Europe and United States. My agenda is hope.

Hope is the projection of intentionality on a horizon of possibilities.

My purpose has been to expand that horizon of possibilities.

Thank you.

ⁱ Drucker, Peter “Keynes: Economics as a Magical System” in Peter F. Drucker *The Ecological Vision* Transaction Publishers: New Brunswick, NJ, 1993

ⁱⁱ Berniker, Eli *Only a Ten Hour Week: Architecture for a Sustainable Society of Plenty* 2017

ⁱⁱⁱ Amartya Sen. *Wikipedia*.

^{iv} *Guardian*, 2003.

^v Lietaer, Bernard. “*The Money Fix*,” *YouTube*.

^{vi} Drucker, Peter “Keynes: Economics as a Magical System” in Peter F. Drucker *The Ecological Vision* Transaction Publishers: New Brunswick, NJ, 1993