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Short Introduction to MDIA and 7D-Capitalism

Introduction

Experience over the last 40 years suggests that there is serious dysfunction in the systems of global society and the economy. There is some amazing progress in areas like technology, but there has been far less progress for society, for most people and their quality of life. There is a dangerous amount of degradation of the environment. Progress for some has been wonderful, but not for others. Opportunity has become a cruel mirage. This is a system problem, and calls for a system solution ... but what might that be?

The Genius of Conventional Accounting

Few people are aware of the genius of conventional double entry accounting. Developed more than 400 years ago, the concept of double entry makes it relatively easy to account for the assets of an enterprise and to understand the transactions that have taken place. First used by investors funding merchant adventurers in the 15th century, the system has stood the test of time, and is still a core characteristic of every modern accounting system.

Double entry accounting and the classification of accounts between balance sheet accounts and profit and loss (or transaction) accounts is at the heart of conventional business accounting. Periodic reports are summaries of the balance sheet accounts ... the balance sheet ... and the transaction accounts ... the profit and loss account.

The change in the balance sheet from the beginning of the period to the end of the period is the same as the net total of the transactions ... the profit or loss for the period.

With conventional accounting the financial performance of a very very large organization can be summarized with just a few numbers ... the balance sheet and the profit and loss accounts. ... two or three sheets of paper to summarize the performance of a company with hundreds of thousands of employees!

The Achievements of Conventional Capitalism

Progress ... by almost any measure ... has been quite amazing over the past (say) 300 years. There has been amazing progress in man's ability to grow food and produce goods. A free laissez faire market driven capitalist system has done quite well in improving the quality of life and standard of living for a lot of people over this time.

The free market capitalist system has performed better than state driven communist systems. From observations around the world, this seems to be very clear. Nevertheless, capitalism has not performed very well relative to what should and could have been possible with a better

appreciation of how society and the economy functions and better systems for making important decisions about priorities and the allocation of resources.

Knowledge at the beginning of the 21st century is maybe a million times more powerful than knowledge that existed just 50 years ago. It is staggering how little of this knowledge is being used to drive decisions needed to make the enviro-socio-economic system function more nearly at its top potential.

Capitalism has evolved into a system that has an unhealthy focus on the ownership of financial wealth ... an unhealthy focus on 'me', without paying much attention to anything outside financial wealth and the things that money can buy. Financial capital is at one and the same time an amount of money and a measure ... a circular computation that has terrible implications.

The data suggests that capitalism that served quite well for a very long time started to become less effective about 50 years ago. In part, this was because the global economy went from being a 'shortage' economy to a 'surplus' economy. In this new environment, productivity made it possible to make more profit while using less labor ... and for a variety of reasons, labor lost its bargaining power ... a little at first, and eventually almost all of it.

Inadequate Metrics

While capitalism and conventional accountancy has been reasonably successful in enabling the agricultural revolution and the industrial revolution and improving quality of life and standard of living for many over a period of several hundred years, the system is doing less well in the last fifty years. Part of this is a result of inadequate metrics that exclude many of the things that are important because they are not measured in terms of money.

The performance of business is optimized around profit and stock value, and conventional accounting is well suited to support this goal. Conventional accounting ignores the impact economic activity has on people and planet ... on the impact economic activity has on society and on the depletion of resources and the degradation of the environment.

For the economy at the macro level, Gross Domestic Product (GDP) was introduced in the 1930s to measure the level of economic activity in the country. It measures economic flows, but it is used as a proxy for the state of the economy in a very crude way. In simple terms, it assumes that the more the GDP, the better the economy and the better off people are. In reality, this correlation is very weak ... but paradoxically, the bigger the GDP the easier it is for the performance of business to look good. More there is of GDP growth, the easier it is to have corporate profit growth and higher stock prices.

Most engineering students learn something about feedback loops. The feedback loops that are needed for a better society do not exist within the existing system. The first step to having better feedback loops is to have better metrics.

New Dimensions of Capitalism for the 21st Century

The idea of equating progress to an increase in capital ... financial capital ... can be applied in a broader sense to everything ... to every dimension of capital.

Financial wealth has come from somewhere. It has come from the use of all sorts of resources in all sorts of ways to produce goods and services that people needed and wanted to improve their

quality of life and standard of living. All of this could be accounted for by 'accounting for the money' associated with all of these transactions.

In times past impact on the resources, on the people, on the environment were not a part of the accounting, and the capital depletion in all these areas was simply ignored. To put this in perspective, in just over a hundred years the level of economic activity on the planet has increased more than 40 fold ... the population was 1.7 billion in 2000 and in 2014 is around 7.1 billion. Standard of living is maybe 10 times better ... or more. This puts stress on resources and the environment that is dangerous. We have not idea what consequences there will be.

For the 21st century we should not be ignoring the other dimensions of capital. They should be accounted for with as much rigor as there is for financial capital and the associated money transactions.

A Three Component System with Seven Capitals

The big picture is that there are three segments making up the global enviro-socio-economic system. These are:

- Nature and natural bounty;
- Man made structures and constructs; and
- People.

Within these three components of the system there are seven (7) capitals:

- Nature and natural bounty:
 - Natural Capital (NC)
- Manmade structures and constructs:
 - Physical Capital (PC)
 - Institutional Capital (IC)
 - Knowledge Capital (KC)
 - Financial Capital (FC)
- People
 - Social Capital (SC)
 - Human Capital (HC)

Natural Capital (NC)

There are many components to natural capital. There is the sun. There is life ... whether this is human life or all the other life forms from single cell organisms to all sorts of fish and animals and to plants in all their varieties. There are minerals and there are fossil fuels that represent millions if not billions of years of sun energy capture. There is land and water and atmosphere. There are ecosystems and biodiversity. Nature works in many mysterious ways that we know nothing about, but are essential to the good health of people and the planet. We now know something about the important services that the natural world provides which enable a natural environment in which animals, including humans can thrive. We do damage to natural capital at our peril. Despite this, there is no accounting for the impact economic activity has on natural capital. This has to change.

Physical Capital (PC)

Physical capital is man made. Some of the physical capital is owned by people, some is owned by companies and some is owned in the commons by the state. There are factories, machinery

and equipment, jigs and dyes, vehicles, furniture fixtures and fittings that are assets of companies and on their balance sheets. There are roads and bridges, airports, seaports and water systems and sewer systems that have been built by government and are maintained by government or others. There is working capital, and specifically inventory of product, that is mainly owned by private sector organizations. There are products that are consumed by people to satisfy their needs and their wants. There are houses owned or occupied by people. There are commercial buildings. There are city transit systems. There are parks, theaters for cultural events and stadiums for sports events. Money is in part a piece of physical capital in the sense that physical money (or its virtual equivalent) is needed to make transactions efficiently. Everything in the physical capital has been built using resources and impacting the environment.

Institutional Capital (IC)

Institutional capital is man made. There are institutions like government that have the potential to enable a better economy and society. There are laws, rules and regulations that are man made and part of an enabling environment. There are a variety of organizations that enable efficient economic activities, and provide all sorts of services that make for a better society. There are security services, there are police and courts and prisons. There are religious organizations and a variety of organizations for recreation, the arts and sports. Institutions are a critical part of the enabling environment for business and for people's quality of life.

Knowledge Capital (KC)

Knowledge capital is man made. Some might argue that it is mankind's ability to build knowledge capital that differentiates mankind from the other animals. Knowledge has grown at an amazing pace for the past 200 years, and continues to accelerate. The technical limit to knowledge capital is the ability of the human brain to process information and understand. There is a prevailing system constraint associated with money not being available to deploy and pay for the available brains. There are other issues with knowledge. One is that some knowledge is hidden and/or controlled by knowledge ownership otherwise referred to as intellectual property (IP) which is used or not used depending on the profit potential of the owner's option. Another issue is that knowledge has the potential to be used for bad rather than good. In many cases the use of knowledge results in change with some being winners and others being losers.

Financial Capital (FC)

Financial capital is man made. Financial capital is also the only capital that really does not exist per se, but is a function of the ownership and deployment of the other capitals. This is clear from a company balance sheet where the 'capital' of the company is represented by the (physical) assets of the company less the liabilities. Similarly an individual's wealth (financial capital) may be represented by ownership interest in various assets ... house, car, personal property, stocks and bonds, insurance policies, etc ... less liabilities. Financial capital presently is the dominant component of the perception of success.

Social Capital (SC)

Social capital is not the same as human capital, but is closely related. It is about community and friends and the good that emerges from a group of people. Social capital feeds into human capital and vice versa. Social capital is what people as a whole contribute to a community or place. Social capital is influenced by the institutional capital that exists in a place, especially things like religious organizations, cultural organizations, sports organizations and the security services that keep violence at bay.

Human Capital (HC)

Human capital is about an individual. An individual's wealth (financial capital) as described above is a part of an individual's human capital, but only a part. Human capital in the present has been achieved by an individual's history ... such things as parenting, nutritious food, good healthcare, good education, good surroundings, role models and so forth. Skills and experience are accumulated over time. There is a historic cost to getting these things, but the value accumulation is reflected in the present. Past earnings that are not spent but saved, factor into the human capital of the present. Society or community also feeds into an individual's human capital. A society that has no violence and is supportive of an individual adds to human capital. A society where there is a future full of opportunity is also part of the state of human capital in the present. The present value of the future depends on what the future looks like, but also depends on what the individual has done in the past to be in a position to take advantage of the future.

Multiple Perspectives

The conventional views of the economy and society are these:

1. Organizational performance, corporate profits and stock market prices
2. Macro economics at the country level, with some drill down to more local issues

This is satisfactory for the owners of corporate organizations and corporate executives, and provides the political class with talking points. It is not enough to enable an efficient society and economy that optimizes for everything and has people and planet at the center. The singular focus on business performance as the driver of good results at the macro level needs to be supplemented by multiple perspectives so that everyone may be involved in making better decisions for themselves and for the environment, society and the economy as a whole.

In the end the economy is driven by the decisions of people who have needs and wants and are consumers. They buy the products ... goods and services ... they need and want. In turn companies produce these things, and so on back through the supply chain. Companies understand this and invest heavily in the advertising of their products and the building of their brands. Society does not have any equivalent to convince consumers to act in the interest of themselves and society. The only interest behind advertising and influencing the consuming public are the product manufacturers and marketers. The asymmetry is dangerous for society and has to be changed.

A big step will be to have better accounting about products. The buy or not to buy decision by a consumer about a consumer should be guided by a clear accounting of what goes into that product through its whole life cycle. There has been a lot of work on life cycle assessment but this work remains academic and is not deployed in a systematic way to inform every consumer all the time. Business informs consumers all the time with their advertising and brand promotion ... but the independent objective accounting about the product and its life cycle impact is missing.

Another big step will be to have better accounting about place. The reality is people live, work and play in a place ... or places. Places are for ever and progress or deterioration can be observed relatively easily. Better accounting about places will make it possible to track the performance of a place rather in the same way that analysts are able to track to performance of a company over time. At the moment, the relationship between progress and performance in a place is not at all clear, but it should be and could be with better analytical accounting about the place.

Finally, there should be a better way for people to account to themselves for their progress and performance. The idea that being wealthy is the only goal in life, is such a diminution of what people want and are capable of ... and misses completely the value of what people can contribute to society. There is a whole lot of life that is good and valuable, but never expressed in terms of money and money transactions.

Measures Beyond Money ... Quantification

Money had its origins in being a measure of the price in an economic transaction. It facilitated trade and was very much more efficient than barter. How money became a store of value is a long story, and how money became a key component in money wealth creation an even longer story. Money has its uses, but it is a very poor unit of measure for almost everything that is important in the world we live in. The size of a money unit has no definition at all ... it is determined by a market that is also impossible to describe and replete with 'invisible hands' that may or may not control everything.

The value of a product ... goods or service ... is not the amount that it can be bought or sold for. That is a price. The value is what a product contributes ... to a person directly and to society in general and also taking into account the impact there is on natural capital.

What this means is that there is a need for several units of measure and related quantification along the following lines:

1. The money measure needs to be better understood. There is usually a local currency, maybe a separate funding currency, and there are several reference currencies like the US\$, the Euro, Japanese Yen or Chinese Yuan
2. There needs to be a unit of measure for everything that impacts human capital (HC). The base for such a unit might be something that links to the value of life itself.
3. There needs to be several units of measure within natural capital (NC) that can be consolidated into a single unit of measure of natural capital as a whole. Many things associated with atmospheric pollution could be related to a ton of carbon dioxide emissions where 1 ton of CO₂e equals 1,000 (say). Many things associated with water and water pollution could be related to the idea that 1 liter of fresh water has a value of 1 (say). Many things associated with land and land use could be related to the idea that 1 hectare of undeveloped natural land equals 1000 (say)

Getting these ideas fleshed out into a clear, simple but comprehensive structure is a big job and a work-in-progress. Many organizations are making progress with this, but there is no broad universal framework to use the work efficiently.

Upgrading Accounting to Suit the 21st Century ... Introducing MDIA

A big problem with conventional accounting is that it ignores everything that does not get transacted with money. Though it is widely recognized that there are many important things that are part of life that have value but do not get associated with a money measure, conventional accounting does nothing to bring them into account.

Another big problem is that conventional accounting has a focus on the organization and its performance ... and that is it. Conventional accounting does not take into consideration any of the impacts beyond the 'reporting envelope' associated with the enterprise. The reporting envelope may include subsidiaries of the company, for example, but the reporting envelope

excludes everything else. Impact on people and planet are externalities, and not part of the accounting.

The TVM initiative to develop Multi Dimension Impact Accounting (MDIA) addresses these problems. The goal is for MDIA to be an easy to use tool that will expand the capabilities of conventional accounting so that the impact of economic activity on everything is brought into account. Conventional accounting has a focus on the single dimension of money, while MDIA accounts for not only money transactions, but also the impact of economic activity on everything else ... hence multi dimension and impact accounting.

MDIA will incorporate multiple units of measure ... and use standard values for the accounting. Standard values are something like standard costs in cost accounting.

MDIA aims to be a tool that can be used in many different situations. The same data and data architecture works for a person, for a product, for a place and for the profit and impact of an economic activity or an organization.

The logic is relatively simple ... but as usual, the devil is in the detail.

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