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TRUE VALUE ACCOUNTING for Triple Bottom Line Management

1. TRUE VALUE ACCOUNTING for better Triple Bottom Line Management

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2. CONTEXT

This slideset is a Work-in-Progress and will be updated from time to time. It is part of a series that aims to enable better metrics for the complex socio-enviro-economic system that we all live in. Metrics are powerful, but they must be the right metrics.

3. INTRODUCTION AND CONTEXT

4. To manage for the Triple Bottom Line ... profit, people and planet ... there has to be a coherent framework for analysis that includes:

- the ORGANIZATION as a whole;
- discrete UNITS of the ORGANIZATION;
- industrial PROCESSES used in transformation;
- natural PROCESSES that sustain everything;
- discrete PRODUCTS flowing through the system;
- PEOPLE and their quality of life;
- PEOPLE as INVESTORS and their wealth; and
- PLACE which is the locus for everything.

5. Data about the last 50 years show there has been growing dysfunction in the systems that drive both the global economy and local society.

6. There has been amazing progress in knowledge, technology, and manufacturing productivity over the past 50 years ... with computational power millions of times more powerful, materials much better, knowledge growing faster and faster, and more and more people having decent education.

7. But in spite of all of this, the state of society ... the state of the world ... is something of a shambles. Progress for some has been wonderful, but not for others. For too many people, there

has been little progress towards a better quality of life in both rich and poor countries. For many people, opportunity is nothing more than a cruel mirage.

8. At the same time, there is dangerous depletion of natural resources and serious degradation of the environment. Consumption has been promoted, while ignoring the impact on natural resources and the environment.

9. This is a system problem, and calls for a system solution ... but what might that be?

10. Conventional approaches to problem solving and policy making do not seem to work. There are many reasons for this. The socio-enviro-economic is very different today than it was 200 years ago and even 50 years ago. This changes everything, but many of the 'ideas' have their origins in past eras and are no longer of much relevance.

11. As a Cambridge trained engineer / economist turned accountant, I see the issue of metrics as being a major component of this dysfunction. Most of the metrics used every day to determine progress and performance in society and the economy are badly designed and cannot work.

12. Corporate profit, stock prices and GDP growth are the dominant metrics, but they no longer correlate to better quality of life and standard of living for the majority of the world's population nor do they provide any incentive to fix existential problems like resource depletion and environmental degradation that will result in climate change and biodiversity collapse.

13. There are many initiatives that are working to address the problems of the environment, society and the economy. These include both legislative and voluntary initiatives to improve reporting by companies related to social responsibility, sustainability, workplace conditions, environmental impact and so forth.

14. Examples of these initiatives are:

- The Global Reporting Initiative (GRI);
- Integrated Reporting (IIRC);
- Impact Reporting and Investment Standards; (IRIS) Sustainability Accounting Standards Board (SASB);
- and others.

15. In general, these initiatives address the issue of reporting by companies, but do not address the broader systemic issues and the conflicting interests of all the relevant stakeholders and the different perspectives they all have.

16. Nor do these initiatives make it possible for relevant information to be accessible by ALL the actors in the socio-enviro-economic system. Without information relevant to PEOPLE and relevant for PLACE, the system will remain dominated by investors, companies and powerful politicians.

17. To a considerable extent the initiatives report on commitment and intention rather than the more important issues of accomplishment. Most of the reporting is not well integrated with the accounting systems. Furthermore, they are not easy to validate independently and reliably.

18. ACHIEVEMENTS OF CAPITALISM

19. Progress ... by almost any measure ... has been amazing over the past (say) 300 years. There has been amazing progress in man's ability to grow food and produce goods. The free laissez

faire market driven capitalist system has enabled a better quality of life for a whole lot of people over this time.

20. The free market capitalist system has performed way better than state driven communist systems, but performance relative to a theoretical best possible has been dismal. The system works relatively well for owners, but less well for those who support themselves as part of the labor force.

21. I worked on a mainframe computer in 1967 with 4K of memory. Almost 50 years later a smart phone has maybe 4G or 40G of memory , that is a million or 10 million times more. Only a tiny bit of the increase in the power of technology is being used to drive the decision making needed to make the complex global socio-enviro-economic system function nearer to its top potential. Why isn't the world a million times better than it was 50 years ago?

22. Capitalism has evolved into a system that has an unhealthy focus on the ownership of financial wealth ... an unhealthy focus on 'me', with not much attention being paid to important issues outside financial wealth and things that are not traded for money.

23. Money is at one and the same time an amount of financial capital and a measure ... a circular computation that has terrible implications. Money does not retain its value, and money is no longer an efficient cost effective way of transacting. Money works well for the money profit dimension of banks, but less so for the rest of the socio-enviro-economic system.

24. The data show that the system of capitalism that served very well for a long time started to become less effective about 50 years ago. In large part, this was because improved labor productivity changed the global economy from one of endemic 'shortage' to 'surplus'.

25. There have been massive improvements in productivity over the past 50 years which has resulted in an abundance of product. At the same time improvements in productivity have reduced the need for labor. This has been good for owners but less good for workers.

26. The same technology that enabled production efficiency has also been an enabler of global logistics which has made it possible for business to outsource production to almost anywhere in the world to make more profit at least cost.

27. THE GENIUS OF DOUBLE ENTRY ACCOUNTING

28. 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. ... just two or three sheets of paper to summarize the performance of a company with hundreds of thousands of employees!

29. Luca Pacioli wrote about double entry accounting in the 15th century, but the method was already at least 200 years old. The double entry method of accounting has stood the test of time and is still at the core of every modern accounting system, which in turn is at the center of modern corporate management information systems.

30. Double entry accounting and the classification of accounts between balance sheet accounts and profit and loss (or transaction) accounts are at the heart of conventional business accounting.

31. Periodic financial reports summarize the balance sheet accounts and the transaction accounts summarize into a balance sheet and profit and loss account. It is a simple process that includes every money transaction of the reporting entity.

32. A key feature of conventional double entry accounting is that 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 ... that is the profit or loss for the period. This is a key feature that enables the reliability of the system.

33. In other words, double entry accounting is an elegant and powerful method for accounting for STATE and accounting for FLOW in an integrated coherent manner.

34. Financial accounting is powerful and at the core of every business management information system. On the other hand, there has been no systemic way for the impact on people (society) and impact on planet (environment) ... the externalities ... to be summarized and reported with the same rigor and efficiency.

35. Though it is widely recognized that there are many important things in life that have value but do not get associated with a money measure, there are no metrics for these things that have anything like the power of conventional accounting. Conventional accounting embraces cost and embraces price but does not embrace the issue of value.

36. Accounting for money transactions results in a company balance sheet that shows assets and liabilities in money terms. This is sometimes referred to as historic cost accounting. The 'book value' of the company is the excess of the assets over the liabilities.

37. In a money centric world, the financial 'value' of the company is a function of the profit performance of the company, and especially the potential of future profit performance. The mathematical computation of value is a net present value (NPV) calculation where future profits are discounted to a present value.

38. Conventional accounting takes into consideration the money transactions between the reporting enterprise and the world beyond the 'reporting envelope' of the enterprise. Revenues and costs are use to compute profit.

39. The reporting company may have subsidiaries. There are accounting rules for consolidating the accounts of subsidiaries into those of the reporting company. These rules eliminate the double counting that might otherwise arise in summary reporting.

40. Conventional financial accounting is rigorous about money transactions, but ignores everything else. Impact on society (people) and the environment (planet) are completely ignored in conventional accounting and financial analysis.

41. Specialized high profile 'business schools' have taught students how to improve the profit performance of companies, but there are no equivalent high profile 'society schools' or 'environmental impact schools' with curricula that train students in the management of issues that will improve the performance of every aspect of society and take care of the environment.

42. It should be noted that private companies and their owners have a very long history of behaving very badly with respect to their employees and the environment. Over the past 200 years, only a very few companies have taken the lead in making the world a better place.

43. MANAGEMENT SYSTEMS

44. Most engineering students learn something about feedback loops. The feedback loops that needed for a better society do not exist within the existing system or are broken. An important

step to having a better society is to have better feedback loops and for this to be possible there have to be better metrics.

45. Relatively early in my career I was appointed VP Manufacturing for company making air-break switches for electricity transmission systems. My first challenge was to resolve a serious capacity constraint. I changed the daily production meeting from 10am the day following production to 8am the day of the production. Instead of talking about what had gone wrong, we talked about what needed to be fixed, and by 9am someone was working on it. The production soared ... some three times what was being achieved before.

46. CAPITALISM

THE CAPITALIST SYSTEM

47. Capitalism was a powerful factor 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. It has proved to be a far better economic system than alternatives like communism.

48. The performance of the capitalist system in the last fifty years has been mixed, albeit better than the communist alternative. Capitalism in practice has been good for owners, but far less good for workers. In many 'rich' countries there are now record levels of inequity, and this is also becoming a problem in 'poor' countries as well.

49. 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.

50. 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.

51. In times past impact on the resources, on the people, on the environment were not a part of the accounting, and the capital changes ... depletion or increase ... in all these areas was simply ignored. Nor did this matter very much. Better business did translate into more need for labor and the scale of economic activity relative to the available natural resources was modest.

52. 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 1900 and grew to around 7.1 billion by 2014, about 4 times. Standard of living is maybe 10 times better ... or more. The stress on resources and the environment is $4 \times 10 = 40$ and that is very dangerous and we have little or no idea what the long terms consequences will be.

53. 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.

54. MULTIPLE CAPITALS

HUMAN CAPITAL, MAN BUILT CAPITAL AND NATURAL CAPITAL

55. We live in a very complex multi-dimension system that comprises PEOPLE, everything that is MAN BUILT and everything that is NATURE. The idea of a SOCIO-ENVIRO-ECONOMIC SYSTEM is a shorthand for this idea.

56. There are three pieces that make up the global socio-enviro-economic system. These are:

- People ... Human Capital ;
- Man built structures and systems ... Man Built Capital; and
- Planet ... Natural Capital ... Nature and natural bounty;

57. Within these three, there are these subdivisions:

- Human Capital
 - Human Capital (HC)
 - Social Capital (SC)
- Man Built Capital
 - Physical Capital (PC)
 - Institutional Capital (IC)
 - Knowledge Capital (KC)
 - Financial Capital (FC)
- Natural Capital
 - Natural Capital (NC)

Human Capital

58. Human Capital

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.

59. 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.

60. Social Capital

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.

Man Built Capital

61. Financial Capital

Financial capital is also man made. Financial capital is 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 financial capital of the company is represented by the (physical) assets of the company less the liabilities.

62. Physical Capital

Physical capital is man built. 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.

63. 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. There are hospitals and there are schools, universities and research apparatus.

64. 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 physical capital has been built using resources and impacting the environment.

65. Institutional Capital

Institutional capital is also man built. There are institutions that have a role in enabling an efficient economy and better 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.

66. There are organizations that specialize in healthcare and organizations that specialize in education and the creation of knowledge. There are utilities that take care of the supply of water and sanitation and utilities that generate and distribute electricity. Institutions are a critical part of the enabling environment for efficient economic activity and for people's quality of life.

67. Knowledge Capital

Knowledge capital is man made. Some might argue that it is mankind's ability to build knowledge capital that has differentiated 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.

68. 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 at 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.

69. 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 in the perception of success.

70. Natural Capital

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.

71. 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 ... no accounting for the depletion of resources, no accounting for the degradation of the environment, no accounting for the good that arises in nature (biodiversity, ecosystem serves, etc). This has to change.

72. MULTIPLE PERSPECTIVES

73. Managing in a complex system is a challenge ... The best practice is to drive decision making with the best / quickest data about progress and performance and at the most granular level ... which is the essence of the MDIA data architecture.

74. Multiple Perspectives The conventional perspectives about the economy and society are these:

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

75. PERSPECTIVE of the ORGANIZATION

76. These perspectives work for the owners of physical and financial assets, for investors in corporate organizations and corporate executives, as well as providing the political class with talking points. However, there are other perspectives that are essential to enable an efficient society and economy that optimizes for everything and has people as a top priority and planet at the center.

77. The singular focus on business performance as the driver of good results at the macro level has 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 system ... as a whole.

78. The Organization Perspective

In the prevailing system of socio-economic analysis there is an assumption that what is good for an organization is good for society. This had some validity in the past, but no more. In many ways higher performance by an organization results in lower performance for people and the

environment. This is not captured in conventional accounting but knowledge about this and metrics are required for the optimization of the whole socio-enviro-economic system.

79. PERSPECTIVE of the PRODUCT

80. The Product Perspective In the end the economy is driven by the decisions of people who have needs and wants and are consumers. They buy products ... that is goods and services ... that they need and want. In turn companies produce these things, and so on back through the supply chain. Companies know this and invest heavily in the advertising of their products and the building of their brands.

81. Society does not have any equivalent to convince consumers to act in the interest of themselves, of society and the environment. The only interest behind advertising and influencing the consuming public are the product manufacturers and marketers. This asymmetry is dangerous and has to be changed.

82. A big step will be to have multi dimension metrics about products. The buy or not to buy decision by a consumer should be guided by a clear information of what goes into that product through its whole life cycle.

83. 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, and especially during the buy or not to buy decision time.

84. Business informs consumers all the time with their advertising and brand promotion ... but independent objective information about the life cycle of the product and its impact on society and the environment is missing.

85. PERSPECTIVE of the PLACE (City, Region)

aa

86. PERSPECTIVE of the PLACE (Country)

aa

87. PERSPECTIVE of the PLACE (Planet)

aa

88. Another big step will be to have better information about place. The reality is people live, work and play in a place ... or places. Places are for ever and progress or deterioration of a place can be observed relatively easily.

89. Better metrics about places will make it possible to track progress and performance of a place in much 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 metrics about the place.

90. The planet perspective is 'big picture' and important to understand, but action for change has to come where action can be tangible. Pollution has an impact on the planet, but pollution has to be addressed where it is created in a place, but use of a product, by an individual person or group or by an organization.

91. The resources of the planet and the energy of the sun are big enough to support a huge people population if ... and only if ... knowledge and technology are used in a very smart way to deliver quality of life.

92. Everything happens in a place. Impact accounting has a special relevance in a place. The place is always there. Bad actors can be identified and held accountable. Trends can be observed over time.

93. Money profit accounting ... There is no money profit accounting for place. There is merely an assumption that economic activity is good for the place, no matter what.

94. Impact accounting ... The place is the best way to organize impact accounting about everything. It is where the idea of PLANET has some reality. There can be accountability for all actors in the socio- enviro-economic system and impact on the environment observed.

95. Most governments around the world are short of money There is a revenue problem with too low taxes, too many loopholes and simply failure to pay taxes. There is also an expenditure problem with government performance extremely inefficient.

96. PERSPECTIVE of the PERSON (an OWNER)

aa

97. PERSPECTIVE of the PERSON (a WORKER)

aa

98. 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.

99. There is a whole lot of life that is good and valuable, but never expressed in terms of money and money transactions. People have passion, energy and ideas that are of enormous potential ... but ignored in policy formulation that gets driven by the conventional metrics around organizational performance and GDP growth.

100. In the end, progress and performance should be evaluated based on the impact an economic activity has on people (society) together with the long term impact on the environment (planet).

101. People

Money profit accounting ... There is money profit accounting for person. To a great extent money and wealth have become proxies for success. Impact accounting ... With impact accounting for the person, there is more clarity about the performance of the person and their role in making society and the world a better place.

102. PURPOSE

103. The Purpose of Economic Activity

The purpose of all economic activity is to enable a better quality of life and standard of living. For a very long time a 'better' quality of life has been assumed to be a result of being more wealthy, and the metrics of performance in the modern economy have this as a foundational element. Quality of life is much more nuanced than this, and effective metrics are going to have to take this into consideration.

104. Quantification of Human Capital – Life Units A unit of measure for quality of life may be driven by reference to the value of life itself. There is life, and there is quality of life. The value of life should not be directly related to a money unit, but be defined independently from money. The unit could be defined as 1 life = 1 million life units. Everything to do with quality of life is associated to this unit.

105. BETTER METRICS AND QUANTIFICATION

106. Poor performance was aggravated by measures like Gross Domestic Product (GDP) at the macro level which was introduced in the 1930s to help understand the Great Depression and subsequently the economic impact of war.

107. GDP only measures economic flows, but it is used as a proxy for the state of the economy, assuming in a very crude way 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.

108. Accounting for the 21st Century Accounting for the 21st Century must include metrics that are relate to the environment, society, and the total economy rather than merely being for the organization. This is accounting for every part of this amazing and complex system that is the environment, the society and the economy.

109. The initiative for development of 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.

110. 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 enable analysis that embraces not only the impact profit has on financial capital, but how economic activity impacts all the other capitals.

111. 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.

112. Quantification ... Measures Beyond Money

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

113. 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.

114. 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.

115. 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.

117. Money Money is an important metric ... but seriously flawed in many ways. It is too entrenched to be changed very much in the short run ... but it must be complemented with other units of measure (UOM).

118. UOM for Life and Quality of Life A key characteristic of this UOM must be that a life has value no matter who the person is. It is too entrenched to be changed very much in the short run ... but it must be complemented with other units of measure (UOM).

119. QUANTIFICATION OF NATURAL CAPITAL

120. Quantification of Natural Capital Natural Capital – Resource Depletion and Environmental Degradation There need to be several units of measure within natural capital (NC) because of the many roles that natural capital plays in the success of everything. It would be good if these could be summarized or consolidated into a single unit of measure of natural capital as a whole, but this requires more understanding of natural capital values than there is at the present.

121. Quantification of Natural Capital Natural Capital – Resource Depletion and Environmental Degradation Water

The value of water should be related not so much to a money price, but as much to the value of life and the value of water to nature.

122. The cost of water varies depending on the abundance of water and whether or not water is renewable in the place where it is used. The cost of water must include the cost of release of polluted water into the environment.

123. The unit of measure for water could be that 1 liter of net water consumption = 1 water unit. 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).

124. Quantification of Natural Capital Natural Capital – Resource Depletion and Environmental Degradation Land

The value of land should be related to a land value unit, and adjusted to reflect all the various uses there are for land, and not just those that are priced into money units as a result of trade. There is value in land when used for eco-services (forests for carbon, wetlands for fisheries, wildland for bio-diversity, natural land for water purification, etc). The unit of measure of land could be that 1 hectare of land = 1000 land units.

125. The value of land should be related to a land value unit, and adjusted to reflect all the various uses there are for land, and not just those that are priced into money units as a result of trade. There is value in land when used for eco-services (forests for carbon, wetlands for fisheries, wildland for bio-diversity, natural land for water purification, etc). The unit of measure of land could be that 1 hectare of land = 1000 land units.

126. Land use is constrained by a limited and fixed amount of land, and the value will change depending on the use being made of the land. Land may be used for urban development, suburban communities, rural agriculture, industrial use, tourism and various forms of ecoservice and habitat for bio-diversity.

127. Many things associated with land and land use could be related to the idea that 1 hectare of undeveloped natural land equals 1000 (say)

128. Quantification of Natural Capital Natural Capital – Resource Depletion and Environmental Degradation Mining and fossil fuel extraction.

The use of minerals and fossil fuels in economic transactions puts a price on the resource, but the loss of this resource must also be accounted for in the loss of natural capital. The value of the resource does not need to be quantified when it remains in situ, but when it is depleted the value could be accounted for based on the value the mineral or energy contributes to economic performance. The unit for this can be money ... the same as for Financial Capital.

129. Quantification of Natural Capital Natural Capital – Resource Depletion and Environmental Degradation Greenhouse gas emissions.

Environmental degradation includes the impact of greenhouse gas emissions on the atmosphere and the equilibrium of the weather. A unit of measure could be based on the idea that one metric ton of carbon dioxide emissions = 1000, and everything to do with air pollution gets related to this unit. 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).

130. A unit of measure could be based on the idea that one metric ton of carbon dioxide emissions = 1000, and everything to do with air pollution gets related to this unit. 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).

131. QUANTIFICATION OF MAN BUILT CAPITAL

132. Quantification of Man Built Capital Quantification of Financial Capital – Money Units

The money measure needs to be better understood. It is common to use a reference currency like the US dollar, but local currency also matters, and there may be funding currency as well. Besides the US\$, other reference currencies might be the Euro, Japanese Yen or Chinese Yuan

133. Quantification of Man Built Capital Quantification of Physical Capital – Money Units

Physical capital includes products, the goods and services needed for people to have a decent quality of life, it includes buildings and infrastructure. Physical capital needs to be measured both in static and in dynamic terms, and in terms of money units and in terms of various impact units. Of special note are products that flow through the enviro-socio-economic system delivering impact in the form of quality of life and impact on everything else as they go through the life cycle.

134. Quantification of Man Built Capital Quantification of Institutional Capital

Institution capital has impact. There are money costs to support institutional capital and impact costs when institutional capital is inadequate. There is both a static and a dynamic dimension.

135. Quantification of Man Built Capital Quantification of Knowledge Capital

Knowledge capital is the enabler of a high performance socio-enviro-economic system. Knowledge may be thought to behave somewhat like energy ... potential energy, kinetic energy,

heat energy and so on. Knowledge has money costs to support research and all sorts of impacts when knowledge is used, bot good and bad. There is both a static and a dynamic dimension.

136. Quantification of Man Built Capital Quantification of Social Capital

Social capital is the group version of individual human capital. Social capital has impact on individual human capital and individual human capital has impact on social capital. There is both a static and a dynamic dimension.

137. OPTIMIZING FOR THE TRIPLE BOTTOM LINE PROFIT, PEOPLE AND PLANET

138. To manage for profit AND impact we need to apply this framework for analysis for the:

- ORGANIZATION as a whole;
- discrete UNITS of the ORGANIZATION;
- PROCESSES used in transformation;
- PRODUCTS through their life cycle;
- PEOPLE and their quality of life;
- PLACE and how place impacts Human Capital and interacts with Natural Capital.

139. It is optimizing for ALL of these things that will result in the best possible socio-enviro-economic system performance and the best Triple Bottom Line results.

140. Companies, corporate organizations, are the most efficient way to implement transformation. Applied technology, systems thinking and cost accounting are very highly developed and the results amazing.

141. In a typical business setting:

- Profits are maximized.
- Company valuations are high.
- Products are abundant.
- Society has more employment but also more unemployment.
- Environment is being degraded and there is resource depletion.

142. Everything a company does has an impact not only on the profit of the enterprise but also on society (people) and the natural world / environment (planet)

143. GETTING FROM FINANCIAL ACCOUNTS TO INTEGRATED REPORTING

144. Material Costs

Money profit accounting ... material costs are a cost to the business and earnings are reduced by high material costs. Supply chain and outsourcing reduce costs and improve profit. Impact accounting ... The impacts as materials flow through the supply chain must be brought into account as the material is transformed, and then carried forward in the new products.

145. Energy Costs

Money profit accounting ... energy costs are a cost to the business and earnings are reduced by high energy costs. Impact accounting ... There are very substantial environmental costs associated with energy from carbon based fuels. There is also the cost of resource depletion. Energy impacts in the supply chain should be accounted for.

146. Employees and Payroll

Money profit accounting ... payroll is a cost to the business and earnings are reduced by higher payroll and benefit costs. Higher wages might mean higher productivity and be good for profit. Impact accounting ... There is a direct benefit to the employees and their families with higher wages, but in addition there is a multiplier effect in the community as this money is spent.

147. Advertising and Public Relations

Money profit accounting ... these costs are justified because successful advertising and PR increases revenues and profit. Impact accounting ... With impact accounting, the indirect impact of increased sales on society and the environment may be brought in to account. For some people more is better. For the more wealthy the impact of more is almost totally related to more damage to environment.

148. Workplace conditions

Money profit accounting ... low cost, low safety working conditions might result in short term profit maximization ... but the risks are high especially if the cost of reputational damage is included. Impact accounting ... The impact of poor workplace conditions should be accounted for throughout the supply chain and brought into the true cost of the product.

149. Use of physical assets

Money profit accounting ... this is usually accounted for by a depreciation charge which reduces profit and provides for deterioration of the physical asset. Impact accounting ... There is not only the physical plant owned by the company but also the public infrastructure that is being used which should be brought into account.

150. Payment of taxes

Money profit accounting ... taxation reduces business earnings available to the owners. Impact accounting ... There is a benefit to Institutional Capital (i.e. Government) because they have revenues to pay for government programs.

151. Pro-Good expenditures

Money profit accounting ... pro-good expenditures reduce business earnings available to owners. In many situations they are done to reduce taxes. Impact accounting ... There may be a reputational benefit that feeds back to the company. These expenditures can be of great benefit to individuals and society and should be brought into account.

152. Process

Money profit accounting ... The process used in transformation is a determinant of cost and therefore has an impact on profit. Impact accounting ... Good performance in processes enables lower impact on resource depletion and environmental degradation. This is important.

153. Product design

Money profit accounting ... Good product design can enable higher prices and reduce costs. This is good for profit. Impact accounting ... Good product design can also reduce negative impact throughout the supply chain, use and post use waste chain. This is important.

154. BUILDING ON LIFE CYCLE ANALYSIS METHODOLOGY

155. Life Cycle Assessment for Profit

Many business initiatives are 'profitable'. Applying some of the concepts of life cycle assessment (LCA) to profit will clarify what profit is good for society and the environment and what profit is anti-social and doing damage to the environment.

156. LCA for Profit example: The oil industry

In Saudi Arabia is very profitable ... low cost oil and relatively high international prices. The 'profit flow' has enabled expenditures that have built most everything in modern Saudi Arabia and funded important social initiatives like education. A very positive LCA outcome

157. Another LCA for Profit example: Addictive drugs are very profitable.

There is a strong demand for the products of the illegal drug trade and profits are high. Some of this 'profit flow' is used to ensure that addiction continues and to ensure that the authorities lose in their attempts to control and eliminate the trade. A very negative LCA outcome

158. Customer

Money profit accounting ... The customer buys product which creates revenue which is a component of profit. More sales made to customers the better Impact accounting ... People need some goods to satisfy needs. Quality of life is not merely about more 'stuff'. Some customers are short of both money and the things they need, but many customers with money have excess stuff and are simply adding to WASTE

159. Informed customer in control

Money profit accounting ... Advertising is used to inform the customer in a manner that is totally related to selling the company's products. The more the better. Good for profit. Impact accounting ... When customers are well informed about products and the IMPACT that products have on their own quality of life and on everything else, it is customers that will be in control and make the difference.

160. CONCLUDING THOUGHT

Many initiatives are going forward to improve access to key data. True Value Accounting (TVA) complements many of these initiatives. More detail about TVA are available on the website: TrueValueMetrics website.

161. REMINDER

This slideset is A WORK-IN-PROGRESS. It will be upgraded periodically. It is part of a series of more than 100 slidesets. Navigation to these is available here:
<http://www.truevaluemetrics.org/DBadmin/DBtxt001.php?vv1=N1-Slidesets-p3> More about the True Value Metrics initiative is at: <http://www.truevaluemetrics.org/DBadmin/DBtxt001.php?vv1=list0100-MainNav> FEEDBACK is welcome. Please email to Peter Burgess ... peterbnyc@gmail.com ... with a catchy phrase in the subject line so that it gets attention, and please identify the specific slideset(s) or webpage involved.

162. THANK YOU

Some links and contact information: Email Peter Burgess ... peterbnyc@gmail.com Peter Burgess LinkedIn profile <https://www.linkedin.com/in/peterburgess1> Link to

TrueValueMetrics.org website <http://www.truevaluemetrics.org/> Link to navigation to other resources: <http://www.truevaluemetrics.org/DBadmin/DBtxt001.php?vv1=list0100-MainNav#1>



Peter Burgess

SHORT INTRODUCTION TO 7-D CAPITALISM AND MDIA

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?

There has been amazing progress in technology over the past 50 years ... computation is millions of times more powerful, materials are better, knowledge is growing faster and faster, more and more people have decent education. But in spite of all of this, the state of society ... the state of the world is something of a shambles.

The system is not working very well, and the conventional approaches to problem solving and policy making do not seem to work. As an engineer / economist turned accountant, I see the issue of metrics as being a major component of the dysfunction. Most of the metrics used every day to determine progress and performance of society and the economy are badly designed and cannot work, Corporate profit, stock prices and GDP growth are the dominant metrics, and they do not correlate to better quality of life and standard of living for the majority of the world's population nor do they provide incentive to sort out the problems of resource depletion and environmental degradation.

As a starting point, I would like to see better metrics being used ... metrics that suit society and the economy in the 21st century.

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 at the core 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.

Capitalism and the associated metrics are more about business performance than about the performance of society. There are 'business schools' that teach about how to improve the performance of the company, but no 'society schools' to improve the performance of society.

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 no 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 built structures and systems; and
- People.

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

- Nature and natural bounty:
 - Natural Capital (NC)
- Man built structures and systems:
 - 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 built. 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 physical capital has been built using resources and impacting the environment.

Institutional Capital (IC)

Institutional capital is also man built. 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 perspectives about 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

These perspectives work the owners of physical and financial assets, for investors in corporate organizations and corporate executives, as well as providing the political class with talking points. There are other perspectives that are essential 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 has 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, of society and the environment. The only interest behind advertising and influencing the consuming public are the product manufacturers and marketers. This asymmetry is dangerous and has to be changed.

The Product Perspective

A big step will be to have better accounting about products. The buy or not to buy decision by 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 and its impact on society and the environment is missing.

The Place Perspective

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.

The Person Perspective

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.

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.

Conventional accounting embraces cost and embraces price. Accounting does not address the issue of value. Financial analysis has devised ways to incorporate value into financial analysis and capital markets also work with an appreciation of value, but the underlying accounting does not have a value dimension. A better system should have a value dimension as well as the cost and price dimensions.

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 enable analysis that embraces not only the impact profit has on financial capital, but how economic activity impacts all the other capitals.

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.

Follow up

All of this is a work-in-progress. I would like to get feedback from anyone and everyone to help move this initiative forward. While I have some clear concepts about much of this architecture, there are many details that I do not know enough about and need help. So, please feel free to contact me. If you email, please put something relevant and catchy in the subject line.

Peter Burgess – TrueValueMetrics ... Multi Dimension Impact Accounting

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Link to PDF: <http://www.truevaluemetrics.org/DBpdfs/MDIA/TVM-Short-Introduction-to-7D-Capitalism-and-MDIA-141008.pdf>

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