Conceptual Overview
of
Community Analytics

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Community Analytics

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Overview

Why? What? When? Where? Who? How?

These are the basic questions to answer about Community Analytics (CA). They are typical journalistic questions ... and the answers are quite simple.

Why?

The prevailing system of metrics ... financial accountancy, market indexes, economic indicators, etc. ... has become deeply flawed at the the organizational level, the capital market level and the macroeconomic level. The flaws have compounded over time with disastrous consequences, and by 2008 the capital markets became paralyzed and the economic system froze like an automobile engine without oil. CA is needed because there has been a complete breakdown in the system used for analysis of organizational performance and the economic performance of society.

For example ... GNP

The measurement of economic growth is one important metric for the capital markets ... but the metric has become quite meaningless. GNP is Gross National Product ... and product would normally be an outcome. In modern GNP speak, however, anything and everything goes into the product ... including profits with no value and costs with no product. It is little wonder that economic incentives encourage unsustainable behavior!

Capital market performance and money wealth have been used as a proxy for socio-economic performance. Profit and stock price growth has been the primary goal of private and corporate enterprise with little attention paid to the impact on society as a whole. Excessive reliance on computer models, simulation and statistics with too little validation is a formula for catastrophe. A good part of economic data is based on small surveys and a lot of statistics. This system gives good results at low cost in a stable environment, but falls apart whenever there are changes, and especially disruptive changes. Modern financial accounting has failed to get money capital allocated efficiently to solve the world's critical issues ... endemic poverty ... poor health ... lack of education ... basic services ... etc.

What gets measured gets done

The system of metrics must measure what is needed so that good decisions get made and resources are allocated in the best possible manner.

Socio-economic performance can be improved materially as soon as bad practices are stopped. Scams, rip-offs, shoddy goods and services, thievery, corruption are bad practices that CA can help stop. Socio-economic performance can be improved when there are good, reliable on time data that decision makers can use. Taken together socio-economic productivity can be improved by an order of magnitude ... with everyone a beneficiary ... and with the planet more sustainable.

A paradigm shift to CA puts the socio-economic performance of everyone on the same playing field and using the same system of keeping score. The progress of 3 billion people who are poor can have the same visibility as the 3 billion who are economically middle class or the economic elite.

Under the CA paradigm, information is used not only to do score-keeping ... but also to guide decisions and the deployment of scarce resources. CA embraces the idea that what gets measured gets done as well as the idea that management information is the least amount of information that gets the best possible decisions made reliably.

Information that makes it possible for 3 billion people to improve their productivity by $300 a year ... about $1 a day ... is an improvement in the 33% to 100% range. This is huge. A similar absolute improvement at the top of the economic pyramid would be hardly noticed. But with unemployment in this demographic increasing exponentially ... it is now time to address the critical metrics of society so that wealth is not accumulated in one segment of the population merely by scamming the other segments of society.

What?

CA has two roles: (1) score-keeping; and, (2) data for management information that facilitates improved performance. CA is a structured system of data collection and analysis to enable a paradigm shift in the way socio-economic performance is measured. CA is score-keeping for the game is life ... and the pursuit of happiness ... and the playing field is the community.

But CA is only score-keeping and statistics ... and is neutral. It is not a rule making authority like the National Basketball Association. It is not a referee that ensures the game is played by the rules. It is not a coach that gets the team ready for a game and calls the plays. It is not a player. It is not a spectator merely getting entertainment. It is not an owner that benefits from the outcome of the game ... or a gambler trying to profit from a wager on the outcome of the game. CA is independent and its score-keeping and data are to be trusted. Score-keeping is more than determining the game winner ... there are also a whole range of performance statistics.

Examples of scoring systems

- Golf: The number of strokes used for the round. Lowest number wins.
- Cricket: Number of runs. Largest number of runs wins.
- Tennis: Numbers of winning points wins a game. Most games won wins a set. Most sets won wins a match. Most matches won wins a tournament.
- Baseball: Number of runs. Largest number of runs wins. The system of runs is quite complicated, but simplifies to number of runs to determine the winner.
- Soccer: Number of goals scored.
- American football: Number of points scored ... with points assigned for different winning actions: touchdowns, conversions, field goals, etc.

CA score-keeping and statistics builds on many of the concepts already developed for corporate accountancy and management information and for economic indicators. Accountancy has great power when used well to organize data for financial and operational analysis ... and with CA the reporting entity becomes the community and not the organization and the critical key stakeholder are the residents of a community rather than the stockholders and management of an organization. CA aims to have no opinion ... its goal is merely to collect data and analyze data so that better decisions can be made about the use of resources for socio-economic progress.

Sporting analogy

CA is score-keeping. It is not the rule making authority like the National Basketball Association. It is not a referee that ensures the game is played by the rules. It is not a coach that gets the team ready for a game and calls the plays. It is not a player. It is not a spectator merely getting entertainment. It is not an owner that benefits from the outcome of the game ... or a gambler trying to profit from a wager on the outcome of the game. CA is independent and its score-keeping is to be trusted.

CA, however, does more than just keeping score. CA also handles statistics. With the CA data and analysis it becomes possible for everyone to know a lot more about socio-economic performance than would be the case without. In sport, the score determines which team wins, but the statistics of the game show which players contributed the most to the result.

CA is grounded in some very old basic concepts of accountancy and measurement ... but also embraces 21st century technical possibilities. In simple ... perhaps simplistic ... terms, CA is like Facebook except that the central focus is a physical community rather than “me”. With CA, the connections are not “my” friends and interests, but the people, organizations and issues that influence or impact the socio-economic performance of the community. CA is structured so that the data about a community is organized in useful ways, rather like the way corporate accounting information is organized into accounts and different datasets that make it easy to understand corporate performance. CA uses some of constructs that make corporate accountancy powerful ... but does not limit itself to just money transactions, but also embraces activities and initiatives that affect socio-economic well-being.

When?

CA is a timely system ... data are collected as quickly as reasonably possible and fast enough so that the data still has high value. The value of data usually diminishes with time. Time matters. The very idea of progress implies something about time. Are things better now than they were? The CA system helps answer this in a simple but quite rigorous way.

Changes over time are a critical measure of progress. The history of change may be studied at leisure ... but the data about changes that are taking place now is most valuable when available in a timely manner. Management information needs timely data in order to be useful.

"When" is a data a element that helps to establish causality. Quite simple time series will often show useful relationships without the need for complex sophisticated analysis. Without paying attention to timing, analysis may suggest causality that is impossible. Without appreciation of changes that naturally occur over time, such as seasonality, simple analysis can easily result in very incorrect conclusions. Changes over time are very helpful to understanding what is going on.

Where conditions change from day to day the data should be collected daily. Where conditions change more slowly, the data can be collected less frequently. The key is to collect data so that the results of data analysis are "in time" for good decisions to be made when they are needed.

Production Reports at Southern States, Inc.

This story illustrates the vital importance of timely information. Most of my career I have been associated with corporate accounting, consulting, planning and the analysis of performance. I have not done many line management assignments ... but in this case some years back I was appointed VP Manufacturing for Southern States Inc, a manufacturing company making air-break switches for the electric utility industry during a reorganization to improve the company's results.

The company had orders, but the factory was a bottleneck ... and we had neither the time nor the money to invest in expanded manufacturing facilities. We had to do better with what we had. For years the factory production report had been written up and distributed every day around 10 am ... informing everyone of the production numbers for the day before ... a fairly standard practice! I changed this to give management a report at 8.30 am (the factory got started at 7.30 am) about the anticipated production for the day ... today, not yesterday! By 9 am the support staff were deployed fixing problems that would improve performance today! The factory always beat its anticipated production ... and the factory production almost doubled without any major capital investment to expand the capacity!

Having datapoints associated with time makes it possible to do time series. Tine series show how things are progressing or regressing. The time interval should be a balance between very frequency and cost and the value of the associated results. Sometimes data needs to be daily, or even more frequent ... sometimes once a year is enough!

Where?

CA is about a place ... any place ... anywhere ... everywhere! The good thing about a place is that it has perpetual existence. A place never moves ... there is a basis for longitudinal comparison that is reliable.

Example: Okehampton in England

I grew up in Okehampton ... a small rural market town in the southwest of England. In 1935 it had a population of around 3,500. In the 1950s the population was something around 4,200. Back in the 11th century when the Doomsday Book was written up after the Norman conquest, Okehampton had a population of around 600 and was an important frontier town. Things changed ... but the place has kept on going.

CA has a focus on community. CA recognizes that there are big differences between places ... and even similar places have a myriad of subtle differences. Focus on the place ... gives clarity at the community level. At the national level, it is, perhaps, possible to understand something about the "state" of the national economy, but rather little about how and why the economy is in this state.

It is possible to do management by walking around at the community level ... and there is no need to rely on sophisticated survey techniques and statistics that have been popularized in academia and research institutes and provide surprisingly unreliable management information. Community level data start to tell

something or real importance ... and it becomes possible to see what are the factors that have resulted in the state of the community. If something in the data is surprising ... data at the community level helps to pin-point what caused this and why and how this came about.

Some communities are too big and complex to be easy to understand ... in which case the neighborhood may be a better level for detailed data. Common sense applies. In some cases it may be appropriate to get data at the block level. In high density urban settings, the block may still be quite a large population, and the economic activities quite complex.

Community is a place ... and all communities should “add up” to a larger place, that my be a district, or a state, or a country. In this perspective of community there is no spatial overlap. Within a community there may also be neighborhoods ... and within neighborhoods also blocks.

Community may also be based on a group interest ... an affinity group. This may overlap the community defined by geographic area. A note of caution ... the “roll-up” or aggregation of affinity groups is complex and should be done carefully and rarely used as a national or global aggregate.

When and where example: Malaria ... Vector Control

The mosquito has a short life span ... but the malaria population grows fast when conditions are favorable. Killing mosquito larva is an effective way to limit the mosquito population, but larvacides are expensive. The cost of source control is minimized without reducing effectiveness when larvaciding is done in the right place and at the right time.

Killing adult mosquitoes can be done using ultra low volume (ULV) spraying ... but it is most cost effective when spraying is done only where and when it is needed. Data that shows the stage of larva development ... and the size and location of emerging mosquito populations collected today ... determines what should be done and where in the next 24 hours. The is a spatial element and a time element. Today's data determines what we do tomorrow!

Who?

CA is for everyone ... and CA is facilitated by everyone. CA may be implemented through an organization or not ... but the data still reflects a community perspective, and the data are neutral and aim to merely reflect community reality.

While the family is one of the key units of society ... and within the family the well-being and happiness of every individual is important, for the development and management of public policy, the community ... or neighborhood or block ... is easier to use as an indicator of progress and the effectiveness of interventions. There are some datasets that are best compiled using the family as the unit because this is the best place to identify impact ... as for example, the case of public health, where interventions are undertaken in the community as a whole, and the impact is best observed within the individual families.

There is a critical need for the data to be credible and for this there has to be a component of independence, but it is still possible for those with an interest in the outcome to be a part of the process of data accumulation, but they must never be the sole source of data. The data may be contributed by anyone ... and data may be validated by anyone. The data may be used by anyone who is working to improve community progress. There is a “weighting” of the data based on the credibility of the contributors ... and access to data is also controlled to reduce the use of the data for inappropriate purposes.

CA is best when the results are independent of the participants ... when the data are neutral. So while anyone may contribute to the CA dataflows, there is a set of internal checks to ensure that the data and analysis are NEUTRAL, objective and independent.

How?

CA is both a comprehensive framework and a modular framework. As a comprehensive system, everything is included. As a modular system, important matters can be addressed with limited resources and high impact benefit realized at a modest cost.

While there are many initiatives to improve the reporting of organizations, and an established framework of macro-economic indicators ... there are few initiatives that address socio-economic performance from the perspective of the community.

CA becomes possible because of many low cost ways there are now for collecting and storing data, and for its analysis. The structure of social networks is supported by an IT infrastructure that could also be used for CA data. Social networks make it possible for people to interact in ways previously impossible ... CA and social network infrastructure makes it possible for everything of any relevance to a community to be on the record and in place where it may be used usefully.

There was a time when data collection was a very costly exercise, but much less so in recent years with better and better technology. Modern web based IT and cellular phone based text messages make it possible to have data collection that is timely and very low cost. Massive amounts of data can be stored and mined for critical information rapidly and at low cost. Cost effective technologies are being used to the greatest extent possible to make CA not only effective but also affordable.

Core Concepts

Thermodynamics, Economics and Accountancy
Getting Beyond Financial Metrics
Transparency and Accountability
Cost … Price … Value
Derivatives of Cost, Price and Value
Organized Data
Logical Framework
Progress and Productivity
Feedback … Reporting … Facilitating Change
And a Whole Lot More

Core Concepts

Thermodynamics, Economics and Accountancy

Technology is rarely talked about as the underlying driver of socio-economic progress ... but it can be argued that this is, in fact, the single most important factor ... that it is technology that is giving us opportunities that have never before been possible, and it is technology that provides the constraints to what progress is possible. In ancient times, the great civilizations were all associated with some development of understanding of technology ... the Egyptians, the Greeks, the Romans, the Vikings. In more recent times the agricultural revolution, the industrial revolution and now the knowledge revolution.

Modern engineering thermodynamics provides a good framework for thinking about social performance. There are engineering balances that are fundamental ... work and energy .. efficiency. These ideas translate very well into the performance of society. CA is grounded in some very old basic concepts of thermodynamics and accountancy and measurement.

CA also embraces 21st century technical possibilities. In simple ... perhaps simplistic ... terms, CA is like Facebook except that the central focus is a physical community rather than "me". With CA, the connections are not "my" friends and interests, but the people, organizations and issues that influence or impact the socio-economic performance of the community. CA is structured so that the data about a community is organized in useful ways, rather like the way corporate accounting information is organized into accounts and different datasets that make it easy to understand corporate performance. CA uses some of constructs that make corporate accountancy powerful ... but does not limit itself to just money transactions, but also embraces activities and initiatives that affect socio-economic well-being.

Getting Beyond Financial Metrics

The analysis of the global economy has been driven for a very long time by metrics that were keyed around financial ideas. The most important measure of all was financial profit ... as well as wealth, the ownership of things that money could buy!

An economic analysis system based on production ... the communist system ... eventually failed because the allocation of resources under this system was inefficient. Relative to this system the money metrics and market based optimization of profit system did much better ... but is also deeply flawed. The system serves to allocate resources so that there is a maximization of profit, but at the expense of value.

Dr. Muhammad Yunus

Dr. Muhammad Yunus has made the observation that metrics that only have the money dimension are inadequate. There needs to be a system of analysis that takes into account the full range of social values ... not just those that get denominated in money terms!

CA is built around the idea that there is a need for information that will guide decision makers along the lines described by Dr. Yunus. The logic of a financial accounting system is a good starting point ... and with CA is enhanced to include not only money transactions, but also transactions that reflect the consumption of value and the creation of value. Corporate financial reporting is very efficient ... making it possible for a huge organization like, for example, General Electric, to report in three pages the activities and results of perhaps 300,000 people. This is done using a Balance Sheet, a Profit and Loss Account and a Statement of Cash Flow. The principles of accounting make financial reports informative without being long with a lot of disorganized detail.

It should be noted, however, that the principles of accountancy have been systematically diluted over the past forty years by lawmakers, regulators and rule making bodies at the behest of special interests. The result is that modern financial reports rarely represent what is true and fair as they did in older simpler times. This, more than any other single factor, explains the abysmal state of financial reporting in modern corporate organizations ... when excellence in management information is perfectly possible.

Transparency and Accountability

Transparency and accountability are important ... but impossible to have without an appropriate structure for data acquisition and analysis. CA provides such a structure. CA has ambitious aims ... to make it possible for the public to hold decision makers accountable.

CA has a structure that allows it to work even when major socio-economic actors are not participating in any way. While the non-participation of these actors makes data acquisition more difficult ... it is not impossible ... and it is even more important.

Simply put ... it may be possible for an economic actor to hide how it operates internally, but it is impossible for any substantial economic actor to hide from the impact of its activities. Inappropriate activities with anti-social outcomes are only sustainable when there is no visibility for these activities and outcomes!

The concept of double entry described later creates a very powerful tool for financial control. Either there is the money that can be counted or there is the product or service that has been bought. The money value representation of the one equals the other. When money buys less than it should ... this can be identified. In a good system of accounting, the double entry characteristic can be used to ensure that nothing is stolen without more than one person knowing about it!

Cost ... Price ... Value

Three key numbers: cost, price and value

Cost, price and value are very important numbers about any economic activity. Though modern society is founded on economic activity, there is a surprising lack of information about cost and value though there are massive datasets about prices. ... that is what a buyer pays for a product or services, and what prices stocks and other financial interests are trading at, what prices commodities are trading at, etc. There is by contrast almost no data about costs ... and even less organized data about value.

Cost

Money cost is what gets paid for someone to have a good or service. Money cost is also the use of resources to create a good or service ... the aggregation of all the elements of cost that go into creating something. Elements of cost are things like: labor; materials; operating expenses, admin and overhead expenses, depreciation and financial costs. In most good organizations, cost accounting is detailed ... and often very informative ... but also maybe overwhelming. Standard costs and variance analysis are methods that help clarify cost data and identify variations that need explanation.

Price

Price is what is being paid for the item ... price is the money received when an item is sold. For a buyer, the price is a cost ... something of a conundrum that confuses analysis!

And price may be value ... but usually is not. The price is merely what an item is traded at ... and may or may not have anything to do with value. Many factors influence price ... and where price is determined by market forces, there are many factor that influence the behavior of prices in a market.

Value

Value is subjective ... and more difficult to quantify. Value is arguably far more important than money cost and money price. The challenge with value accounting is how to have numerical values that are an integral part of the system. The CA solution to this is to have elements of value, just as there are elements of cost, and to have standard values that reflect the perception of value that people have. From this it becomes possible to have standard value profiles for a community ... and from this to create reports that reflect the consumption and creation of these values. The difficulty with using value in metrics is that value is subjective and therefore not easy to quantify ... but value is much more at the core of socio-economic performance and quality of life than anything else.

Derivatives of Cost, Price and Value

Profit ... derivative of money cost and money price

The simple definition of profit is based on money cost and money price. In financial accounting and reporting to corporate stakeholders, profit is the key measure that drives everything.

But profit is more complex in modern financial accounting. Money profit is no longer just the delta between price and profit but might be something else. The accounts may not simply record assets at their cost but on some other basis ... including “mark to market”! This is a wonderful device for taking into

account unrealized profit ... simply by recording their value in the balance sheet at a price that the assets could be sold for based on the present market. Fifty years ago, a practice like this would have been banned absolutely based on the prevailing accounting principles ... but lobbying and legislation has overturned old principles and replaced them with laws and rules that are convenient ... in a rising market ... and very dangerous at any other time! Convenience is not a good principle of accounting.

Profit is at the center of the capitalist economic construct ... and is a useful metric as it relates money revenue with money costs, and serves as a useful and practical proxy for performance and productivity. But profit is is not a good proxy for socio-economic performance and the way quality of life in a community changes ... nor the sustainability of the community. In fact, thoughtless optimizing or maximizing of profit is a fairly certain way of creating an unsustainable future.

Value adding ... derivative of value and cost

If, rather than just money, the metric of performance is value adding ... that is the increment of value from an activity, then there is a very much better measure of progress and performance. Value ... that is value to society ... is almost totally excluded from modern financial and economic metrics. The reasons are many including (1) it has a subjective dimension that makes valuation difficult; and, (2) it has a devastating impact on the norms of financial valuation of corporate activity.

Cash flow ... derivative of money cost and money inflows

Cash flow is a metric that relates to sustainability in a world where money is the medium of exchange. Cash is used to pay bills. Money inflows may come from revenues which are a function of price, or they come from financing or some change in the balance sheet like sale of assets. Activities that result in a persistent cash deficit will fail in due course, simply because the money runs out. The timing of the demise of the activities may be delayed by borrowing ... but that also will fail in due course.

Sustainability

Activities that have value adding positive and cash flow being positive are sustainable ... and desirable. Activities that are cash flow positive and profitable are money sustainable but maybe not socio-economically sustainable ... and these activities have come to dominate rich developed economies in the post World War II period. By ignoring critical issues of value destruction society had the impression of wealth being created ... but much was mere puffery and the balloons were bound to break. But worse, society built the appearance of wealth while setting the stage for potentially catastrophic global disasters in the future.

Organized Data

Data organization - accounts

Accounts are a way of getting a lot of transactions ... that is debits and credits ... organized so that they can easily be understood. All of the cash transactions are recorded in one account ... the cash account. All of the goods received and goods delivered are recorded in one account ... the stock or inventory account. So with other similar transactions ... similar transactions all together in one account.

CA goes beyond the corporate system of accounting so that there is a similar rigor for recording social value as the corporate system has around recording revenue and profit.

Data organization - account codes

Account codes are important in accountancy ... they make organizing a lot of data much easier and especially, account codes facilitate easy rapid analysis. The logic of account codes makes it possible for there to be “roll up” and “drill down” that are easy and make sense. The structure of the account codes in themselves tell a story about the organization!

Data neutrality

Data must be independent and neutral in order for any of the analysis and conclusions to be credible. The value of CA is enhanced by having the data and analysis independent and neutral. In fact, independence in collecting and processing the data is essential for credibility.

It is essential that data are credible. This may best be achieved by some level of independence in data collection, as well as independent checks. It is possible for those with an interest in the outcome to be a part of the process of data accumulation, but they must never be the sole source of data. The data may be contributed by anyone ... and data may be validated by anyone. The data may be used by anyone who is working to improve community progress. While anyone may contribute to the CA dataflows, there are internal checks to ensure that the data and analysis remain objective and independent.

Scientists face the problem of measurement that changes what is being measured ... this and more apply in the area of socio-economic measurement. If people can they will manipulate the data so that they look good ... this is human nature ... but it makes a nonsense of the data and any subsequent analysis. Good corporate accountancy addresses this problem seriously with independent accounting teams and systems that cannot be manipulated by the operating staff. Good corporate accountancy goes further with systems of internal check to ensure the data remain untainted ... and on top of this there are both internal and external audit functions. CA facilitates multiple independent flows of data that enables a range of cross checks and validation.

Logical Framework

The double entry concept

CA has been developed from the corporate system of financial accountancy that has been used for a long time used in modern corporate organizations ... and in turn evolving from a system of accounting developed several hundred years to enable merchant adventurers to keep accounts and report to their investors. Double entry is a simple technique that requires both action and response to be recorded ... when money is paid out, it is expected that value comes in ... when some good is delivered, it is expected that money is paid in for the good.

Financial balance sheet

Corporate accountancy uses the balance sheet to describe the state of the organization. The balance sheet describes the financial state of the organization at a given point of time. The balance sheet provides a listing of assets, a listing of liabilities, and shows the difference between the two.

Changes in the balance sheet over time are a result of activities in the time period. The net change from one period to the next in the balance sheet is the same as the net of revenue and cost or profit in the activity report. The net change in the balance sheet from the beginning of the period to the end of the period is the same as the net result reported in the activity statement.

The assets and liabilities of a balance sheet are accounted for at their cost ... reflecting the double entry of cash used equals asset acquired ... and liability acquired will be satisfied by cash paid. The listing of assets and liabilities can be in summary or detailed.

Activity reporting

The activity report ... the profit and loss account ... describes the operations of the organization for a specified period of time and the relationship of revenue to cost and therefore profit. There are innumerable formats for activity reports ... and many different names. They may be prepared with a lot of detail or be very much summarized. To a great extent the public and external stakeholders get summary reports and internal managers and staff work with reports at the appropriate leve3l of detail.

The data contained in activity reports that is usually hidden from external view would serve very well to improve transparency ... but few corporate organizations embrace this.

Integration of balance sheet and activity reporting

This integration of balance sheet and activity statement comes about because of the double entry characteristic ... and provides a powerful way of understanding a lot about an organization without needing to know everything about an organization ... or community.

This concept underlies the ideas of balance sheet, operating statement and the relationship they have to each other ... specifically that the the net change in balance sheet value between two dates equals the income from the operating statement between these two dates. Corporate accountancy uses both balance sheet and an activity report to describe the organizations performance. The balance sheet describes the financial state of the organization at a given point of time and the activity report ... the profit and loss account ... describes the results of operations of the organization for a specified period of time.

The net change in the balance sheet from the beginning of the period to the end of the period is the same as the net result reported in the activity statement.

Cash flow statement

A cash flow statement is similar to an activity statement but has a focus only on those transactions that have a cash impact. For example, some accounting costs, such as depreciation related items, do not have a cash element. In the logical framework, changes in the balance sheet, activity reporting and cash flow are all different views of the same comprehensive set of data.

State of the community

The state of the community is a similar construct around value as the financial balance sheet of a corporate organization is around money denominated assets and liabilities. The community has many assets ... many asset classes ... and liabilities or constraints. In CA a value is attributed to all these assets and a negative value attributed to the liabilities and constraints.

The asset classes include everything of value to the community ... tangible and intangible ... money denominated or not. People are valuable ... human capital if you will. Natural resources are valuable ... and their use and depletion is important and must not be ignored in the metrics. Knowledge is important ... as is organization, governance, security, spirituality and happiness. The CA goal is for everything that contributes and makes up quality of life to be taken into account.

Change of state from time one to another time two is the main CA metric of progress. Corporate progress is the net change between two balance sheets ... in CA progress is the net change between two states of the community.

Value change activities

Value change activities ... socio-economic activities ... are the activities that are going on in society. It is these activities that change the community state from state one to state two ... value adding activities improve the state of the community and the quality of life ... value destruction activities produce a deterioration in the state of the community and quality of life. It is possible to know whether there is progress or not merely by looking at the change of state of the community, but it is understanding the value change activities that makes it possible to understand how the community is performing.

Incomplete records

In financial accounting, a meaningful report can be prepared from incomplete records because the balance sheet and the operating statement are related. This same idea is available in the CA logical framework so that performance can be measured reliably and usefully merely by the comparison of the community state from one period to the next, and some modest information about the activities that might be the cause. By using change in state to identify what changes are important, it is possible to focus attention on issues that should be addressed as a priority. By analysis of the state of the community it is possible to identify what issues are an absolute priority for the community.

Progress and Productivity

Keeping score ... who wins?

The system of measuring financial performance and economic performance does not have the easy clarity of keeping score in sport.

Who wins?

In almost any sport there is a scorekeeper ... and it is very clear who is the winner. In soccer, the number of goals scored, in rugby and American football, the number of points scored, in baseball and cricket, the number of runs scored, in tennis a system of points, games and sets! ... and so on.

But the system of measuring financial and economic performance does not work in this way. There is a fundamental disconnect between what the key measures should be and what they actually are. In the most simplistic way, it can be said that the financial and social measures are all about money ... and not much else. Economists may recognize externalities ... but they ignore them in their mainstream measures.

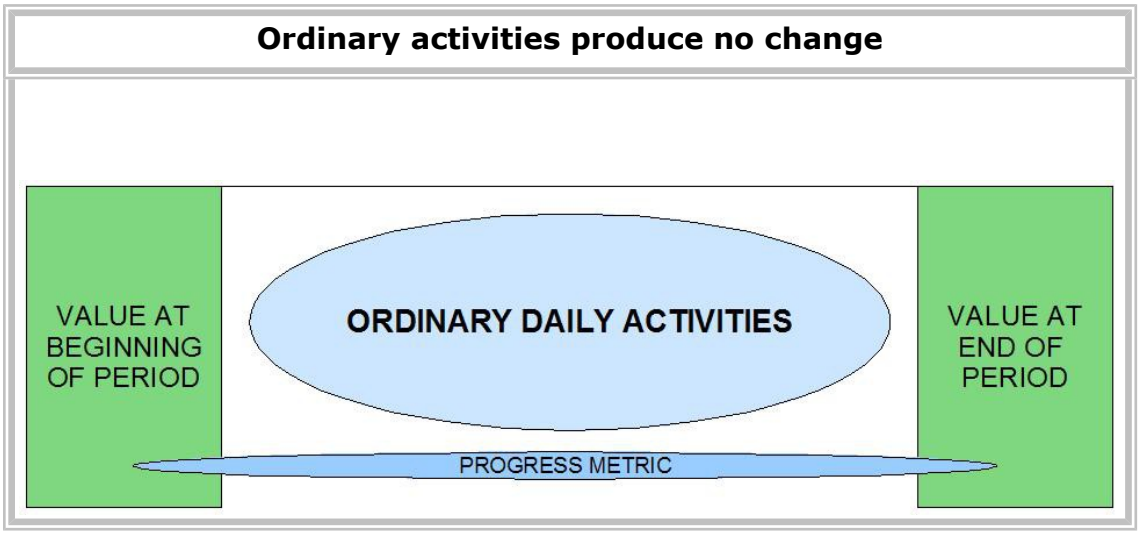
The CA approach, on the other hand, makes value the measure ... which might be a money metric or something else. Performance is better when there is more value being created for a given amount of resource use ... and resource use includes the idea of consumption or destruction of value as well as simply the use of money related resources.

Change in State ... Measure of Progress

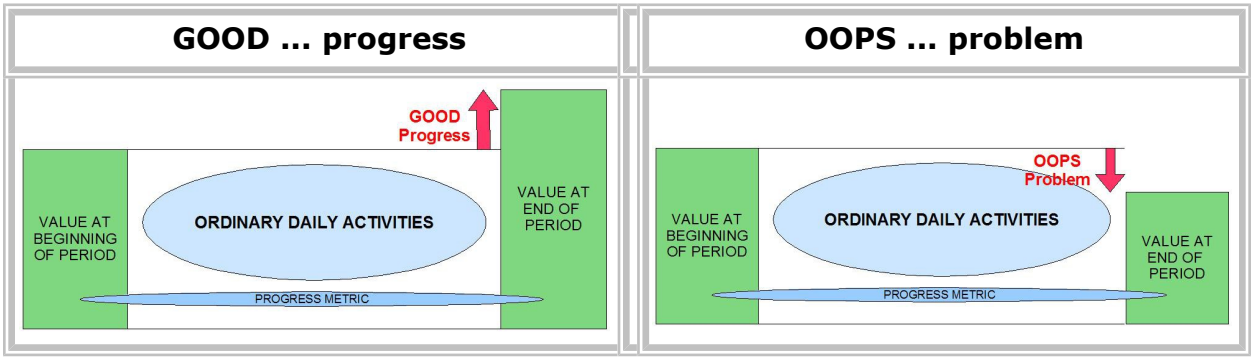
CA draws on the experience of financial reporting. CA reporting aims to be clear and relevant, and does this by reporting in a modular manner around issues that are material for the community. The first level of CA reporting is the comparative balance sheet. How do key matters of the community change from period to period, that is year to year, or month to month, or at even more frequent intervals.

CA has a community focus treating the community as the reporting entity. The rules for consolidating accounts apply as all the subsidiary units doing economic activities in the community are brought into account. CA includes transactions that reflect value as well as the normal money transactions.

CA is more accountancy than a statistical construct. The data are as simple as possible ... the transactions as small as possible, as many as possible and as clear as possible. Some of the value of CA derives from how CA can do accounting for community progress. In the following graphic ... the value of the community at the beginning of the period is the same as it is at the end of the period ... the community has gone about its business for the period, the time has gone by, but nothing has changed.



Data about the daily activities is not needed in the CA system in order to be very clear about progress ... whether it is progress or problem. All that is needed is data about the value changes that have taken place from the beginning of the period to the end of the period as shown below.



The reason for numbers ... to keep score

Numbers are a very efficient shorthand. Almost all scoring systems use numbers.

Examples of scoring systems

- Golf: The number of strokes used for the round. Lowest number wins.
- Cricket: Number of runs. Largest number of runs wins.
- Tennis: Numbers of winning points wins a game. Most games won wins a set. Most sets won wins a match. Most matches won wins a tournament.
- Baseball: Number of runs. Largest number of runs wins. The system of runs is quite complicated, but simplifies to number of runs to determine the winner.
- Soccer: Number of goals scored.
- American football: Number of points scored ... with points assigned for different winning actions: touchdowns, conversions, field goals, etc.

Measuring performance

CA has its origins in technical engineering measurement, economic measurement and corporate accountancy. A key feature is simple but powerful organization of data so that they are useful without creating unmanageable data overload.

It is rare to find people in charge wanting to have objective independent measurement. Far too many measures make it possible for responsible managers to avoid accountability.

Development aid

Over 60 years there has been more than $1 trillion disbursed for development. This should have produced great progress ... but what has actually been achieved? Far, far less! Yet monitoring and evaluations mostly show that projects have achieved budgeted objectives. Please ... what is going on?

Performance is more than just a number ... it is a number in a specific situation.

Speed

I am traveling at 6 miles an hour. If I am in a car this is slow. If I am walking or running it is fast!

The progress of science and technology has been spectacular over the last century ... but too much of this has been used in ways that have done damage rather than good. Military engineering has adopted new great science faster than civilian engineering ... with predictable results. The application of science has followed financial profit and rarely social value.

Social progress ... peace and prosperity

Science and technology ... knowledge about these things has improved exponentially over the past 50 years along a trajectory driven by, inter alia, Moore's Law. But for much of middle class society times are tougher. Why? Performance of leadership ... of public policy and its practice ... has been poor.

Cost efficiency

Cost efficiency is a measure that relates how much an activity did cost with how much much it should have cost?

How much something should cost is determined by reference to experience, technical factors and prices. It is possible to calculate how much something should cost if the elements of the activity are understood. If experience in other situations is known, this may inform how much something should cost in another situation. What something should cost may be expressed as a standard cost.

Cost effectiveness

Cost effectiveness is a measure that relates how much impact or value was achieved with the use of resources ... it is a measure of productivity.

Understanding performance

It is not enough just to know the performance ... but also the how and why of this performance. Socio-economic performance can be improved in just the same way that a team sport is improved.

Who played well?

In sport the fans want to know more than just the score! They want to know how the game was played, and who were the players that helped give the winning team the victory. The coash wants to know the details ... so that the game can be played better next time!

The understanding of performance has helped the corporate world improve their productivity performance way beyond what was expected ... and the productivity improvement translated into more profit and more stockholder value. The metrics were all that the corporate stakeholders needed ... but the metrics were inadequate for society at large. What is the social advantage arising from a job in one country versus a job in another country ... who to whom does this advantage accrue. The data are not particularly sophisticated, but the understanding of what the data are showing maybe very important, complex, and multi-faceted.

Feedback ... Reporting ... Facilitating Change

Analytical and reporting efficiency

There are many ways to measure and report performance ... no one way is the “right” way ... but some are better than others. The key concepts of reporting in accountancy are very efficient. The principles of accounting make corporate financial reports informative without being extremely long and full of disorganized detail.

Powerful ... not voluminous

Corporate financial reporting is very efficient ... making it possible for a huge organization like, for example, General Electric, to report in a very few pages the activities and results of perhaps 300,000 people. This is done using a Balance Sheet, a Profit and Loss Account and a Statement of Cash Flow.

Management information

The purpose of management information is to improve decision making.

"Management information is the least amount of information that enables a good decision to be made reliably and in a timely way."

Accounting provides data that are a good starting point for management information. Relating operational key data with accounting information makes it possible to address issues that are important and will make a difference.

And a Whole Lot More

Metrics ... what gets measured gets done

Metrics are very important ... because what gets measured gets done. This is more powerful than the measures themselves might suggest, in part because of the deep complexity of people both individually and as a group. CA measures ... CA considers the measures to be important ... and things get done!

"What gets measured gets done"

Materiality

Materiality is a very simple concept. Put focus on things that are important. By having a focus on material items, reporting can avoid getting overloaded with detail that matter little. Using materiality in reporting does not mean lesser matters are ignored ... everything is in the purview of the data acquisition ... and monitored. Materiality is based on a full range of data ... it is not a supposition unsupported by data.

Roll up and drill down

Community is a place ... and all communities should "add up" to a larger place, that my be a district, or a state, or a country. In this perspective of community there is no spatial overlap. Within a community there may also be neighborhoods ... and within neighborhoods also blocks.

Community may also be based on a group interest ... an affinity group. This may overlap the community defined by geographic area. A note of caution ... the "roll-up" or aggregation of affinity groups is complex and should be done carefully and rarely used as a national or global aggregate.

Accounting creativity

Accounting creativity has no place in the logical framework of accountancy ... but such creativity has been given a place by allowing basic accounting principles to be subverted by laws, rules and regulations that are convenient but not principled.

Wrong ... any way you look at it!

Law, rules and regulations that allow important liabilities to be left off the balance sheet of a corporate entity are just plain wrong ... though law makers can make such reporting legal. Companies like General Motors were allowed to report in this manner for years ... but in the end real reality caught up with the legal fiction. Banks and financial organizations were allowed to report unrealized profits on their asset portfolio using a "mark to market" construct ... but it caught up with them when the real world market stumbled and the real value of their assets turned out to be a fraction of the reported balance sheet values. This reporting is wrong ... any way you look at it!

Rebuilding accounting integrity

The principles of accountancy have, over the past forty years been systematically diluted by lawmakers, regulators and rule making bodies at the behest of special interests so that modern financial reports have less reliability now for representing what is true and fair than in the past. This, more than any other single factor, explains the abysmal state of financial reporting in modern corporate organizations. The integrity of accounting ... and audit ... has not been served well by the profession.

Modularity
CA starts with the assumption that there are already a lot of ongoing economic activities. There is a need to start keeping score in a meaningful way as soon as possible. One way to do this is to keep track of just some part of the economic activity in the community ... preferably some part that is important. Things that are not changing fast may be taken into consideration later.

> **Caveat**
>
> To use the sporting analogy ... the game is already going on. How do you make some useful contribution as a scorekeeper when the game has already started? One way is to find out what has already happened and start off with the score as others are reporting it ... and then to keep score on a continuing basis from that point on. This seems reasonable.

The KISS principle
Keep it short and simple ... KISS ... is a useful idea to keep in mind. The best data are data that can be easily collected, easily understood, easily checked, reliable ... and useful. CA is committed to the idea that CA data must have this characteristic ... but that the data should also be useful for more complex analysis as well as having a local community use.

Inclusive
CA has the view that all economic aspects should be included in the CA framework ... a stark contrast to some corporate accounting that has taken the view that some economic transactions should be kept off the balance sheet. Anything and everything that has an impact on quality of life, standard of living, pursuit of happiness, etc. should be taken into consideration. The CA embrace of both value and money revenue is the core of CA's approach. Value is included rather than being merely a sidebar as it is in modern corporate accountancy.

Facilitating Progress

The Management Cycle
About Data ... Metadata
Data Acquisition and Transmission
Data Organization, Storage and Access
Objective Analysis
Responsible Reporting
Feedback
Technology

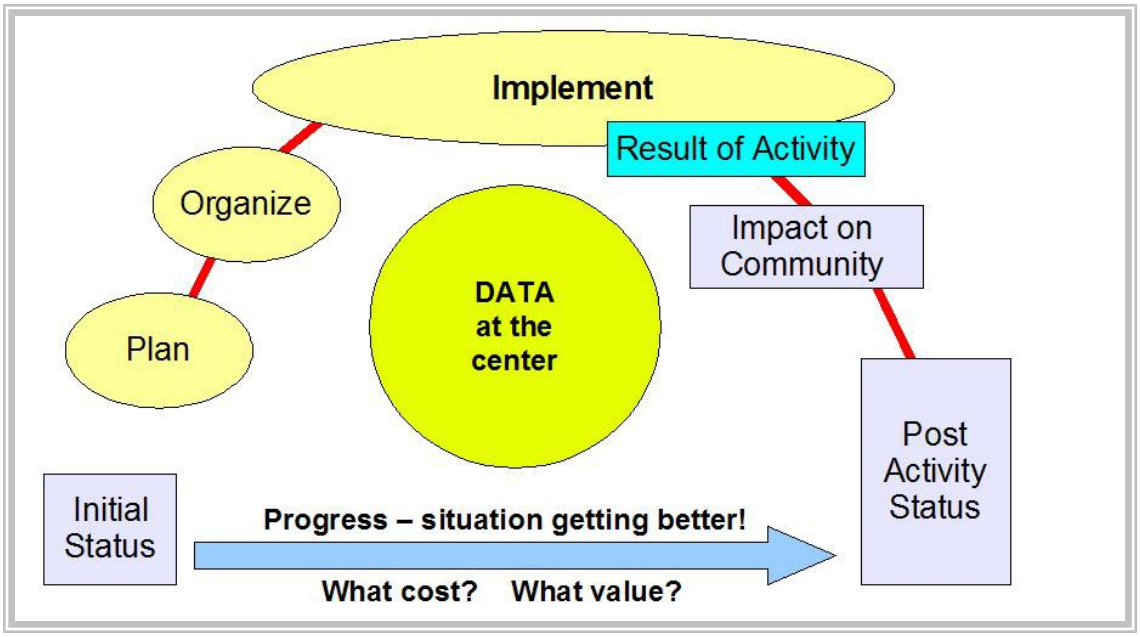
Facilitating Progress

The Management Cycle

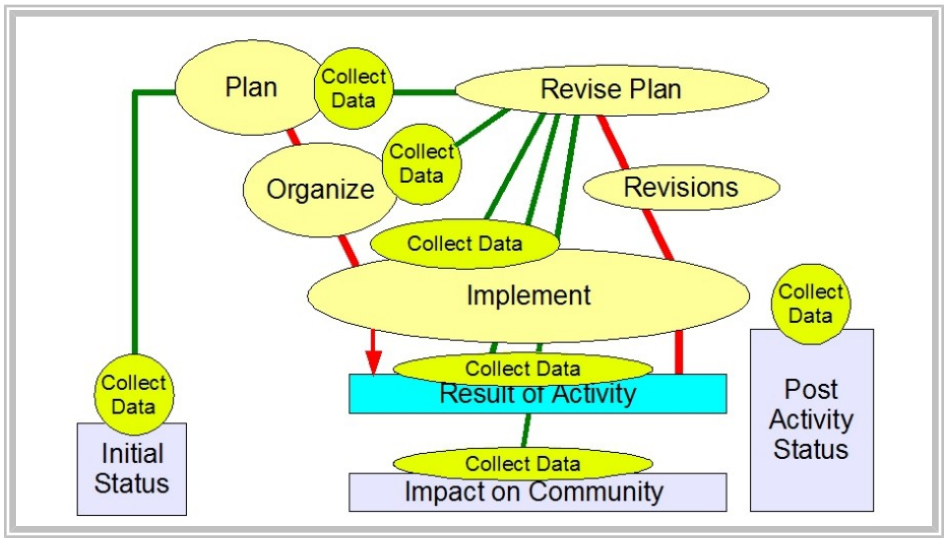
The basic management cycle is very simple ... but often absent. CA has data at the center of the management process. Data are needed to develop management information which is central to the process ... to know what is being achieved, and how it can be improved.

> **"Management information is the least amount of information that enables a good decision to be made in a timely way."**

This is a simple representation of the CA perspective of the management cycle.



The management cycle has three elements ... repeated over and over again: (1) Collect data, do analysis; (2) plan and organize; and (3) implement ... and measure and analyze. These are reflected in the following schematic. Everything has a data component.



About Data ... Metadata

Data ... the basis for everything!

Ubiquitous

Data are everywhere. The more we learn about life ... about almost anything ... we learn that there is a data component that makes life work. The brain is all about data ...

When the post industrial age was named the information age some decades ago ... perhaps around 1970 ... there was little appreciation of what role information ... data ... played in the functioning of everything.

Compared to what is possible modern institutional management uses data systems that can best be described as stone age, or at best, medieval. The purpose of data is to make it possible to manage well ... for operations to be efficient and effective, and for knowledge to be accumulated. For this data are needed about what is going on ... timely ... accurate ... relevant.

Data are the raw material for management information and the development of knowledge. Data have no purpose unless they are used in some productive way, unless they are part of an integrated system

Organized

Intellectual property

The recognition that data have value has been important in making it possible to collect data, process data, and manage with data ... but the downside of this has been that data and related analysis has been managed as intellectual property (IP) ... and this property then being exploited for its value to its owner rather than being used for public good.

The issue of the "public right to know" is not central to much debate ... and this has made it possible for public sector performance to be very low efficiency and nobody any the wiser. What a corporate organization tells the public is only a tiny amount of what the company knows ... and is carefully presented to send a message that is designed for the stakeholders, and not much related to the underlying data and knowledge.

The rule seems to be that only data that are required by law to be accessible to the pubic are going to be accessible ... everything else is going to be secret. More than anything else, this means that society will progress way more slowly than it would where data and analysis were being used to the optimum.

The argument that the value of IP produces an incentive to use data and innovate has some merit ... but so also does the argument that professionals and scientists are not only motivated by money, but also see value in discovery as a value beyond just its money value.

Public access

The CA methodology is to have data and analysis as much as possible openly accessible. Data and analysis that might be useful for decision making are made openly accessible as rapidly as possible. The CA approach that makes data and analysis easily accessible contrasts with the widespread practice of treating data about public matters as a proprietary private property.

Data and analysis that might put people "at risk" are not openly accessible.

Permanent data and transient data

Data may be characterized as either permanent data and transient data. Permanent data changes slowly, while transient data is changing all the time. For example the name of the town and its location are permanent data, while the current weather is changing all the time and is transient data. Transient data sometimes changes very rapidly ... for example data about economic transactions, while the results or impact changes more slowly.

In accountancy, the operating statement reflects the aggregation of transaction data, and the balance sheet an aggregation of items that change as a result of the transactions. This is reflected in the accounting constructs of balance sheet and operating statement, with the balance sheet representing the more permanent data and the operating statement the more transient data.

This is not, of course, very rigorous, since in a good accounting system both the balance sheet and the operating statement are the result of summing all the individual transactions.

In practical terms this translates into an ability to verify balance sheet reports more easily than one can verify transient operating statement transactions. This is a vital matter, because fraud and corruption can easily take place within the activities of an organization and the funding of these activities, but it can easily be detected if there is meaningful oversight of the results and the balance sheet that puts result on the record.

What data are needed

CA is a system that has community ... a place ... as the core of data collection and analysis. All the data are linked to time and place. Every fact that is going to be important in decision making about the community is needed. Broadly this breaks down in the following sections:

1. Information about the area;
2. Information about issues to be addressed;
3. Information about interventions; and
4. Information about the results ... the impact on the issues being addressed.

The general theme about information needed for decision making is that it should make it possible to calculate cost efficiency and cost effectiveness. This translates into a need to collect data that will make it possible to produce reports showing these matters. CA is a modular system. Part of the system uses data that are all about the place. Some of the data are about the specific sector or program. There is both permanent information and information that changes very quickly. For those engaged in day to day operations, the data needs to be available quickly, while for some scientific analysis the data are needed in time series over a long period of time.

Spatial information

Spatial information ... maps ... are a critical part of the information needed for planning and the management of operations. In real estate the saying goes that the three most important features of a property are location, location and location!

Everything has a spatial characteristic, and from a cost effectiveness and performance perspective, spatial information is important and central to the way CA records data and does analysis.

Spatial characteristics of IMM

Mosquito and malaria control have strong spatial characteristics that have a very large impact on performance. Accordingly spatial information and mapping are a very important part of cost effective high performance integrated malaria management and include:

1. Where are people that are host to the malaria parasite located: where do these people live, where do they work, where do they congregate together, where do they travel to,
2. Where are the sources of mosquitoes,
3. Where do the mosquitoes travel and other details of their behavior including when they travel and how they behave relative to homes, people and animals,
4. Where are infected mosquitoes located,
5. What mosquito and malaria control interventions have been done: when and where.

Satellite imagery makes it possible to accelerate learning about any location, limited, of course, to those locations where satellite imagery is available.

Time Series Information

In addition to mapping that shows the simple spatial dimension of the data, there also needs to be an ability to understand the changes that occur over time about a specific place and a specific characteristic of the data.

Time series information is also critical in the measurement of progress. The goal is to have progress, and to do this as fast as possible, and in ways that are cost effective and with a minimum of undesirable side effects. All of this is best done in a data environment where there is good time series information.

Account codes ... analytical codes

The power of relational analysis is maximized by the design of the analytical codes. This is the key to easy analysis, and relatively easy to do for a relational database. Frequently, however, it is ignored and easy analysis then becomes impossible.

Multiple use of data

The most cost effective data are data that are used in many different ways. There should ideally be one pool of data, and this one pool should be used in different ways for the specific analysis needed. Essentially the analysis is another view of the data.

In the IMM context local data is first used to help with local operational decisions, then is used within an operational management and oversight module that addresses cost effectiveness and performance issues, and finally is used for scientific research to help have a better understanding of the underlying science and more fundamental problems that might be emerging.

A lot of good data is far better than a little perfect data

A key concept for success in the context of integrated malaria management is to have data that have meaning. The goal is not to have perfect data, but to have useful data that facilitates good decision making and helps in achieving a cost effective reduction in the burden of malaria.

Data Acquisition and Transmission

Cost effectiveness of data collection

Data collection always has a cost ... but does not always have a value. Good cost effectiveness of data collection requires as low a cost to do the work as possible and only collecting data that are going to be useful.

Data collection is optimized when the data are collected using techniques that are appropriate to the type of data. It is valuable to get good permanent data. By getting high quality in the permanent data, everything becomes very much easier and the information rapidly gains credibility. With high quality permanent data, transient data becomes easier to collect and can be related to data of substance.

Where the data are being collected for use in a relational analytical environment, the permanent data are all accessible to any transaction related to this permanent data. To use some practical examples:

1. All the information about a community is permanent, or at least permanent at a balance sheet date. All the activities in the community can be related to this community and analysis done about activities and results relative to this community.
2. Information about a specific location can be related whether it is the house and its construction, the people living in the house, the bednets being used in the house, the IRS that has been done, the malaria that they used to have, and the malaria that they now have.

Local people collecting local information

In order for data collection to be cost effective, local people have to be collecting local information, and they must be doing it using low cost techniques.

No one data collection approach is likely to be universally optimum. So much depends on the training and experience of the people in the community, and the practical issues of access to information technology and communications infrastructure.

A hybrid system involving both manual forms and electronic systems will usually be the way forward.

> Data that are used are almost always right ... data that are collected and never used are most often wrong and useless

Recording the data is also very basic. Write the key information down, preferably in ink and in a book, not a loose piece of paper.

Data collection workbooks

In addition to the interesting data that describes the transaction or activity and the cost also add in the key information needed for reference purposes later on. This includes things like:

1. Where?
2. When ... data and time?

These books have been used in accountancy for a very long time. They are referred to as “day books” or “journals” and are also referred to as “books of original entry”.

Data from these books can be copied to an electronic database from time to time and made part of a cost analysis framework. Some “research” will have to be done along the way to make sense of all the information, and to make it complete. Most of the data are known, the challenge is to get all the data together in a single framework so that the information is meaningful for analysis.

Handling sensitive information ... cost accounting

Some information is quite sensitive, such as pay rates and benefit packages, and the like. Though they are sensitive, they are also important to understand since the cost of activities is very much a function of the cost of people.

Cost information ... cost accounting is often a missing link. There is a dire lack of good cost accounting. Even though computer based accounting systems are commonplace, they are rarely being used to develop data that may be the foundation for cost analysis and reporting, and in many cases may not be able to provide cost data that are useful.

Where cost data are collected, they are rarely accessible to the general public and are kept within an organization, and even then quite often not easily accessible. Cost information is treated as if it is very valuable ... which it is! However, cost information should be reasonably accessible.

There are two problems that have to be addressed: (1) how to collect cost information where there is access to the operations and the accounting; and, (2) how to get useful cost information where an organization controls the operations and does not provide access to the operations and the accounting.

Data collection optimization

Data collection can be optimized ... but the techniques used for data collection rarely result in an optimized outcome.

Unless the basic question "Why are the data being collected?" is answered correctly ... the methodology used for data collection is likely to be wrong. In the CA framework the reason for data collection is simply that CA aims to generate useful management information ... and management information is defined as the least amount of information that will ensure that the best possible decisions will be made. In this CA framework, the data that are collected my well be a subset of data around a specific issue that has already been identified as important.

If the question is answered along the lines that the data are needed so that a research report can be prepared that is a requirement for an academic certification ... then the data will be collected using a very different methodology.

Collecting data about the fishing fleet

A group of experienced scientists were asked to collect data about the structure of the fishing fleet. They designed a survey and statistical method to make their inquiries and did a perfectly random set of interviews three times a week for six months. At the end of this time they had nearly nothing of value.

I was faced with the problem of time and money used and no useful data. I am an accountant that does not particularly like statistical data. Every fishing boat has a license. To get a license the fishing boat must be registered ... and to get registered a form has to be filled in, and is filed somewhere! I found the filing cabinets and now had details of every fishing boat ever registered ... date of registration, size, type of construction, date of construction, engine make and horsepower, fishing gear type, refrigeration equipment or not, etc., etc.. After a day of data entry typing there was a respectable database. After a few days of checking at the fishing port we were able to verify much of the data in the database ... and now had complete and good data about the fishing fleet.

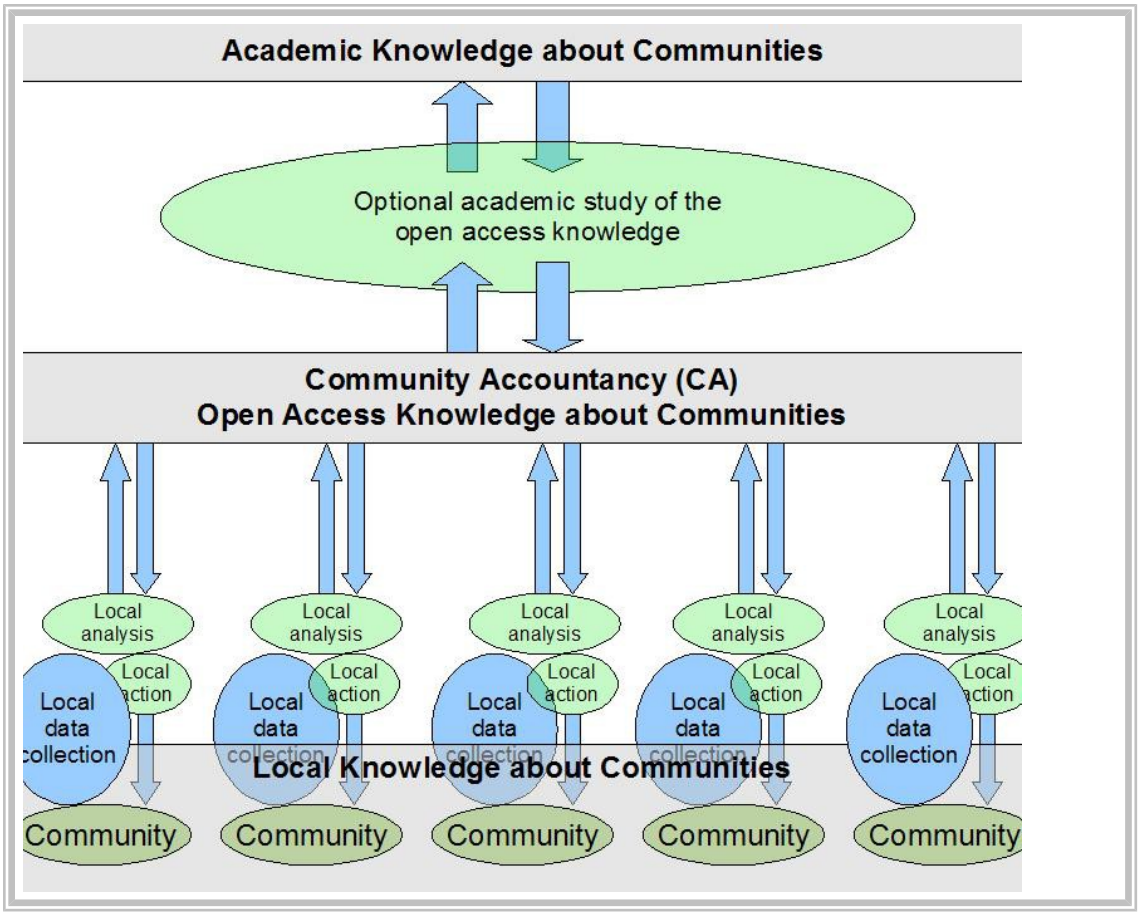
This cost effective data collection was obtained by building on data that was already available ... but unused because it was in another department!

Dataflows

A functional planning and operational framework needs a dataflow system and management information. Without these, it is as dysfunctional as a human being without a nervous system.

The complex institution framework for malaria control is operating with very limited performance metrics. There are pieces, but not a complete framework. Most of the analysis data are derived from very small surveys and statistical manipulation, with very little of cost accounting, and even less of cost effectiveness analysis.

The following describes in simple terms how CA data about community is collected and used. Data are most cost effective when one set of data are capable of being used in many different ways ... in this case at both the local level and the academic or scientific level.



The key goal of data collection is to have data that are useful and help improve performance.

Local data collection ... local analysis ... local action is the cycle that improves performance most directly and most quickly.

Having the data also used at a “higher” level facilitates oversight and the sort of monitoring that can be used to identify the need for corrective action by the analysis of much larger sets of data. At a higher level there can be analysis that identifies “best practice” and issues that are impossible to identify with local analysis alone.

Data flows

Technology

Data already exists

Data for score-keeping

Data for local action

Data for global connections

Mobile data collection

Distributed data stores

Consolidated data stores

Data mining and analysis

Macroeconomic measures

Corporate performance measures

Data Organization, Storage and Access

Organization

Data are essential to transparency and accountability but data that are needed are rarely easily accessible. Data are needed for the effective management of performance ... but it is not at all clear that the essential data are collected ... and to the extent that they exist, they are not easily accessible.

Laws and regulations

Because data are important for the administration of society, it is normal for there to be laws and regulations that give guidance about how data must be stored and be accessible to interested parties. In general these laws and regulations do not help very much with the issue of transparency and accountability as a part of day to day ordinary life. The issue of socio-economic performance and the impact on society is not part of the data landscape.

The corporate organization is increasingly aware that data storage is a cost in the best of times, and may be a catastrophic cost if the law and regulations are called into effect for access to these data.

Technology

Data storage has moved way beyond just paper ... everything can be digital ... everything can be organized so that there may be easy analysis and the data be valuable ... especially for society as a whole.

The cost effectiveness of technology is only going to be fully realized if the data architecture is sound and logical. This is the core of what CA can do.

Storage

The details of the storage architecture will change from time to time ... but the general theme is that data should be accessible easily for those who need the data to make good decisions.

Data in the hands of a data collection person	These data are needed so that the work of data collection can be as efficient as possible ... including some immediate feedback about changes that might be locally important.
Data at the community level	These data may be analyzed very quickly to provide the information needed at the local level to determine what are the issues and how they might best be addressed.
Data at the national oversight level	These data are a component of the data needed for good governance and oversight.
Data for national level research	These data are a part of a research process that has the potential to help with both learning and teaching in the country
Data for global research	These data are a part of a research process that has the potential to advance learning on a global basis. Modern computational technology such as available at the US National Center for Supercomputing Applications (NCSA) makes it possible to process very large datasets and learn from these data.

Access

Multiple use

The multiple use of data is a key to making data cost effective and valuable. The basic data architecture used by CA maximizes use of data. This has the secondary effect of making the data more reliable, because data that are used are always more reliable than data that merely sit and do nothing!

Objective Analysis

Purpose

The purpose of analysis is to understand the data. The purpose of reporting is to make it possible for others to share this understanding.

For CA data are neutral ... they do not represent opinions. Data flows into a store and all data are analyzed so that conclusions can be drawn. For CA the goal is reliable management information so that good decisions may be made.

CA is built on the concepts of accountancy, and accountancy is, at its core, a system for recording economic transactions in an organized manner. In the corporate form, all the economic transactions are put into the record ... ALL ... and the analysis proceeds from there. In accounting there is no statistical component to the recording of transactions.

In accounting great care is taken to prepare reports based on all the relevant transactions and not just a subset that may or may not reflect all the data. This is a very different approach to surveys and statistical studies done for research. Financial reports are not research ... they are merely all the data summarized according to the basic principles of accountancy.

Analysis must have clarity

CA analysis has a community focus. The frequency of CA analysis depends on the natural frequency of the subject matter and the objective of the analysis. CA reporting aims to make the result of analysis easily accessible, convenient and timely. The purpose of CA reporting is to facilitate decision making that improves the quality of life of a community.

One of the first steps is to be assured that the data are what they purport to be. Data should be easily verified ... and data that cannot be verified should be treated with the utmost caution.

> Sadly, this is no longer universally true because accounting principles have been superseded by various laws, rules and regulations that allow various forms of reporting of financial results that are in conflict with the underlying principles of accountancy but suit various stakeholders in the process.

CA builds on accounting principles, applying them to a reporting unit that is the community and incorporating the double entry of both money and value.

There are many tools available for analysis and reporting included techniques like (1) aggregation analysis; (2) time series analysis; (3) value chain analysis; (4) various forms of cost analysis; and, (5) various way of looking at impact and cost effectiveness.

Analysis of aggregated activities

Accounting has good concepts for how different activities should be aggregated so that there is a minimum of double counting and distortion ... this is consolidation accounting, and it is very useful when rigorously applied in the analysis of community performance.

Cost analysis and cost efficiency

Cost accounting is a subset of accounting that informs about how much it has cost to do something. This is not difficult to do when there are trained staff and there is a good accounting system. It is painfully tedious and difficult when the record keeping is simplistic and critical data not available. This is a reflection of management competence and priorities.

With cost analysis it is possible to move on to evaluate whether or not the operations are efficient. One way of doing this is to compare what is being achieved with what should be achieved.

Impact and cost effectiveness.

In theory, the reason for doing the work is to get a result. The result has a value ... a social value which should be given a value. In the case of health interventions the impact should be more good health ... and good health has value. It is not easy to quantify this, but CA avoids this problem by assigning standard values to most of the outcomes of community activities.

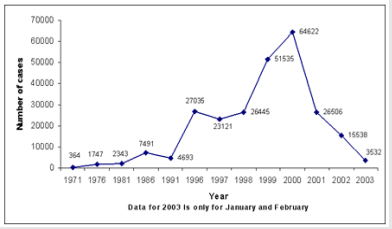
Value chain analysis

Value chain analysis is used to identify the winners and losers in various parts of the economic structure, and makes it possible to understand the systemic flaws in the way the economy operates.

Value chain analysis is used to show cost and profit distribution across multiple areas and organizations as in the petroleum industry, or across time as in the case of education and the student's subsequent career.

CA makes use of the idea of value chain analysis. What appears as a success, may have negative impact on other parts of a value chain.

Value chain example



In

Value chain analysis is used to identify the winners and losers in various parts of the economic structure, and makes it possible to understand the systemic flaws in the way the economy operates. Value chain analysis is used to show cost and profit distribution across multiple areas and organizations as in the petroleum industry, or across time as in the case of education and the student's subsequent career. Value chain from raw material to consumer is important. It shows why some companies are very profitable and others are not. The value chain show how costs accumulate and profits are extracted from the value chain.

Petroleum

The CA petroleum value chain explains the costs and profits between the origin of oil in a poor part of the world to gas being used in rich places. It explains how excellent crude oil in the Niger Delta makes some Nigerians super rich, with the country remaining terribly poor. It explains the links between high gas prices at the pump and production costs ... and how markets work!

Coffee

The CA coffee value chain does the same for coffee. How is it that coffee consumed in a retail coffee shop is many times more to buy now than years ago ... but the price paid to farmers for their coffee has increased so very little. Where is the money going? Value chain shows that some of the organizations that were created to make the economic playing field fairer for the farmer have ended up being merely a way of extracting profit from the value chain without doing anything in return.

Value chain over time is also important. The value chain technique may also be applied over time. In this case an activity that has costs today creates profit and value tomorrow.

Education

The education of a child is a big expense ... but it is an investment that will pay back many times over the life of the person. Value chain analysis shows something of how a cost in early years creates opportunity for benefit in later years ... and could be the basis for economic analysis to justify investment not only by parents, but also by society in education and building human capital for the future.

Health

Treating disease is also a big expense ... and again with an economic dynamic that changes over time. A strategy that invests so that there is no need to treat disease because the disease is controlled or eradicated is probably better than one that merely waits and treats the disease and incurs the associated costs. Value chain helps to determine whether prevention rather than cure is the optimum strategy.

Infrastructure

The building of the US Interstate Highway System is another example. The system cost the US Government more than $100 billion ... but the immediate incremental property values around the country were way more than this ... and the productivity improvement of the national economy way bigger, and long lasting. Value chain analysis of this shows how amazing big good investments can be for society.

Understanding priorities and needs

A good starting point is to recognize that every community is different, and what is a top priority in one place may not be the same in another place. Priority needs are both a reflection of physical and human characteristics at a point in time, but also a reflection of history and what has been done in the past.

Caveat

To use the sporting analogy ... the game is already going on. How do you make some useful contribution as a scorekeeper when the game has already started? One way is to find out what has already happened and start off with the score as others are reporting it ... and then to keep score on a continuing basis from that point on. This seems reasonable.

With these CA data and analysis it becomes possible for everyone to know a lot more about socio-economic performance than would be the case without. In sport, the score determines which team wins, but the statistics of the game show which players contributed the most to the result.

Value chain from raw material to consumer

The value chain from raw material to consumer helps to show why some companies are very profitable and others are not. The value chains show how costs accumulate and what profits are extracted from the value chain.

1. The petroleum value chain helps to explain the various connects and disconnects between the origin of oil in a poor part of the world to gas being used in rich places. How is it that excellent crude oil in the Niger Delta makes some Nigerians super rich, with the country remaining terribly poor. How is it that there is seemingly little rational link between high gas prices at the pump and the costs of producing this gas? How do markets work ... and who do they work for?
2. The coffee value chain does the same for coffee. How is it that coffee consumed in a retail coffee shop is many times more to buy now than years ago ... but the price paid to farmers for their coffee has increased so very little. Where is the money going? Value chain shows that some of the organizations that were created to make the economic playing field fairer for the farmer have ended up being merely a way of extracting profit from the value chain without doing anything in return.

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Time Series

Year to year comparison

By measuring what is easy and useful, it is possible to keep costs down and get some material value.

> **Is there progress?**
> Take any issue and ask the question "Is there progress in the last year?" ... and maybe also over the last ten years! If the answers are yes, then there is progress.

Comparative balance sheet

CA draws on the experience of financial reporting. CA reporting aims to be clear and relevant, and does this by reporting in a modular manner around issues that are material for the community. The first level of CA reporting is the comparative balance sheet. How do key matters of the community change from period to period, that is year to year, or month to month, or at even more frequent intervals. Most good, stable communities change rather slowly, and there is little that is material to report. Poor communities, on the other hand may have a lot that is material because, for example, small changes in crop production can easily magnify malnutrition in children and mortality.

Measure what is most useful ... but may be more difficult to do

If there is progress on many issues ... but not on some important issue ... get data about why this issue has not progressed. This may be easy ... or very difficult ... but its value is significant, because an issue not progressing is a constraint, and maybe a chronic matter for the community

> **Why is this issue not progressing?**
> Take any issue and ask the question "Is there progress in the last year?" ... and maybe also over the last ten years! If the answers are yes, then there is progress.

A comparative balance sheet is a simple example of time series ... two datapoints. Having datapoints associated with time makes it possible to do time series. Tine series show how things are progressing or regressing over time. The time interval should be a balance between very frequency and cost and the value of the associated results. Sometimes data needs to be daily, or even more frequent ... sometimes once a year is enough!

Changes over time are very informative. One bit of data is better than none ... but the same data over time starts to tell a story. Are the data telling us that the situation is getting better or worse? Are the data telling us that there is a seasonal characteristics? How do these data sets compare with data from other places? Do changes shown by these datasets show a causal relationship with actions or events that can be identified? These time series are immensely powerful ... and become even more powerful when they are used both in as simple a form as possible and also in ways that facilitate complex searches for correlation.

> **So much is driven by time series**
> So much is driven by time series ... whole theories of capital market behavior have been developed around this ... scientific analysis ... economic analysis ... etc. But hardly anything has been done at the community level to understand poverty and progress. CA is setting out to change this.

Time series trends are great indicators of progress ... or not. Time series are simple, clear and powerful. While it is possible to do advanced statistical manipulation ... simple and clear time series tables and charts work very powerfully as well.

There are many different time periods that may be used. The choice depends on the natural characteristic of what is being measured.

- By hour ... to show what happens at different times during a 24 hour period

- By day ... to show what happens from day to day
- By month ... to show changes month by month including seasonality
- Year on year ... to show how things progress over the longer period

A plot of a single parameter shows how this parameter has changed over time ... but in isolation does not show what might have been the cause of any changes. Plotting multiple variable may show something about cause and effect. While this may be done by simple visualization for a couple of variables, a more rigorous mathematical approach is needed for large scale multivariate analysis.

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The Bloomberg System

The Bloomberg organization made data about the capital markets easily accessible to uses of the Bloomberg system. For almost every possible metric about the capital market, the Bloomberg system contains a time series.

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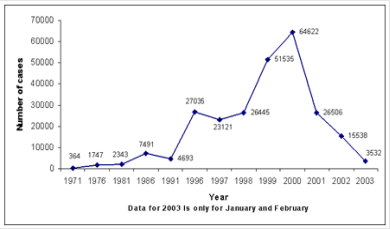
Time series example	Experience from Kwa-Zulu Natal.
	In this example the measure was low, then increased rapidly, and then decreased again. In this example the measure is the number of malaria cases in the area, which rapidly increased when the use of DDT was stopped, and then decreased again when DDT was reintroduced. There is no reference to cost. It is possible that DDT is not only very effective in reducing malaria, but might also be very cost effective as well.

Return

The idea of return is very common in the field of for profit investment ... but less so in the area of philanthropy and in public sector initiatives. The concept is simple ... an amount of money paid out now produces a flow of money back in the future ... a return.

In practice there are many ways to do the calculation. The different ways of doing the calculation reflect different priorities.

Return on Investment

Return on investment (ROI) is probably the most common and is used to measure results from the perspective of an investor. ROI is not a good measure of performance from most other perspectives, especially where financial leverage is being used to improve reported ROI. When profits are positive, financial leverage improves the ROI, but the same leverage with losses becomes catastrophic.

Return on Capital Employed

Return on capital employed (ROC) is a better measure of performance than investment. It measures how much revenue and profit are generated relative to the amount of capital being used, that is, the equipment and machinery, etc. (fixed assets) and the inventory, receivables, etc. (working capital). ROC eliminates the financing costs and leverage and provides a measure that is most closely related to real, that is technical, productivity.

Productivity

Productivity is a very important measure, especially productivity computed in respect of social values rather than productivity relative only to financial profit. A society that is not productive is unlikely to be sustainable ... and what might appear to be sustainable is not when there is a draw down of the assets of the society.

An economy is as productive as its people and its infrastructure ... with infrastructure being used in the broadest sense of the word. For many years, the US had a better infrastructure than most everywhere else, but this advantage has been allowed to diminish over time. There was a time when almost all examples of great infrastructure were the best and biggest in the USA, but that time is long gone. For the past several decades ... since the 1970s ... the US advantage in productivity because of its infrastructure has been in decline ... and with it the standard of living. The following are two examples:

Productivity Example: US Steel in the 1950s

There was a time when US made steel was the best quality and the lowest cost. The US used the best machinery and the workers pushed the equipment to the limit ... way better than the Europeans at the time. The US steel workers were paid a lot more than the workers in Europe, but the high productivity in the US kept the cost of the steel low.

The productivity of US steel was a function of productivity and cost from end to end of the value chain. Iron ore was mined productively. The transport was highly efficient and low cost ... the steel mills typically located where ore ships could unload directly into the plant. Energy was low cost. Everything end to end was productive.

What happened?

Productivity Example: Interstate Highway Congestion

When the Interstate Highway System there was a huge improvement in distribution productivity. Trucks were able to travel faster and with less wear and tear on the vehicles. Over time, experience showed that much bigger trucks were practical, and productivity went up even more.

But all this ground to a halt when the highways became overcrowded. With too many vehicles, the transit times increased, safety dropped, and productivity increases reversed. As overcrowding increased, costs soared. The cost of congestion is not a widely reported metric of productivity and economic performance, but if it was, congestion costs would be seen to be a terrible drag on the productivity of the United States.

Responsible Reporting

Reporting Clarity

A good report is one that is clear, complete and unambiguous.

> Financial reports are able to report a lot about corporate performance in very few numbers ... a few pages to report performance of an organization with more than 100,000 staff is impressive. In order for this to be reliable, there have to be sensible rules and the strict application of good principles of financial reporting.

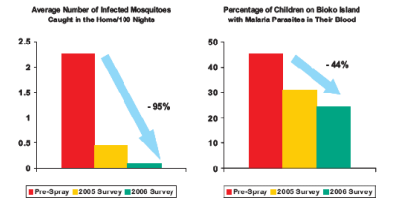
Though there have been serious problems with financial reporting in recent years ... notably Enron, financial sector institutions, and a number of corrupt enterprises, the basic principles of accountancy applied to financial reporting are very powerful.

There are many ways in which reports are prepared in ways that misinform. Often the best way to misinform ... or half inform ... is to report using graphs.

Progress ... but at what cost?

The data presented in the following examples are unclear and only tell part of the story. They are constructed in a way that provides misinformation. The data must be organized so that this type of analysis is easy.

Example 1



Experience from the Marathon Oil, Bioko Island

In this example, the graphic clearly shows change over three years. The left three year series shows the prevalence of malaria infected mosquitoes down by 95%. The right hand series shows the prevalence of malaria parasites in children down 44%. But there is no indication of how much this cost. There is no indication about the population involved, and the size of the program in terms of area.

The graphic does show progress ... but at what cost?

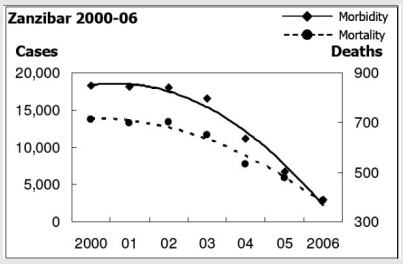
Distorted graphics

Thee following is an example of distorted graphics. It should be noted that this appeared in a report that was prepared by a well known consulting firm ... McKi9nsey and Company ... and distributed at a very high profile international forum ... the World Economic Forum ... by a group that was skilled in PR but maybe not as good on responsible reporting ... Malaria No More.

The good new is that they achieved in great measure what they set out to do ... Malaria No More helped to mobilize a lot of money for malaria control activities and in this regard their work was magnificent. But they also set the stage for the money raised to be used very badly and for the results to be puny compared to what might otherwise have been possible

Example 2

Experience in Zanzibar 2000-2006



In this example morbidity has declined by 77% according to the report and the graph, and this is a good outcome. But is it the whole story. This relates to measures at the clinic ... less malarial incidence results in less attendance at the clinic ... but what about those that do not have access to clinics. Mortality is down by 75% according to reports ... but this is mortality among the young children subset.

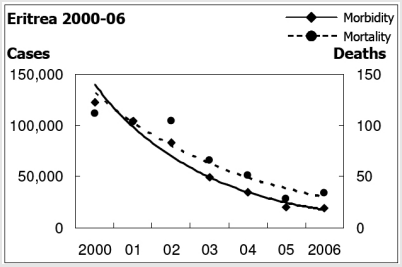
The question about cost is not addressed. Is this the most cost effective way to reduce the malaria impact. Maybe it is, but the information is not presented. The main interventions were bednets and free delivery of ACT medication.

Cause and effect

The cause and effect at very important pieces of information. It is difficult sometimes to "prove" causality, but good management and decision making makes it very important to have data that facilitate good judgment and supports not only the making of a decision, but validating the quality of the decision as quickly and as reliably as possible.

Example 3

Experience in Eritrea 2000-2006



The morbidity was reduced based on the number of visits to clinics by 63%. The mortality was reduced by 85%. A small survey of 2,300 households suggests that bednet distribution has reached 67% of the population in Eritrea.

This example is a simplification that shows progress, but does not explain why or at what cost. At the national level there is progress but regionally within Eritrea there were areas that progressed well and areas that did not improve very much. Why was this? Was it because they were already malaria free, or was it because the interventions were ineffective ... important questions that should be guiding policy and program. There is no cost information included that shows cost effectiveness.

Report Formats

CA reporting has more of accounting than it has of statistics. The goal is for everything that is "material" to be accurate.

Roll up and drill down

The CA reporting format embraces the accounting ideas of "roll up" and "drill down". The CA reporting framework has the community as the primary unit for accounting. The data about community may be aggregated to provide reporting at the district and provincial level as well as at the national level.

The same framework of data is used at each level. The "roll up" and the "drill down" of the data provides a coherent set of data for decision making at the national policy level and at the tactical operational level in the community.

The following shows the "roll up" and "drill down" framework

Country	Province	District	Community	Location

About "state" and "activity"

The data are of two types: (1) data that describes a state; and (2) data that describes an activity. This is the same concept that is used in corporate accounting where there is a balance sheet (that describes a state) and the operating statement or profit and loss account (that describes activities).

The changes in state are a result of an activity. Progress is most accurately measured by observation of the state. It is possible to have activity with no change in state and no progress.

The following shows the tabulation of any item from State 0 through Activity 1 to State 1 and then through Activity 2 to State 2 ... and so on. Typically this is for an annual period.

Item	State 0	Activity 1	State 1	Activity 2	State 2

By month seasonality

Many of the elements of the community socio-economy have seasonal characteristics, and the data needs to be compiled to show this. Using a monthly reporting format will show seasonality clearly.

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year

Feedback

The value of metrics is most when the data are used with feedback to improve decision making.

> The only public sector organization that had very good performance feedback in my experience was the United Nations High Commission for Refugees (UNHCR). They were able to move from problem identification to effective action in hours, and keep its program relevant in very fast changing and often challenging dangerous conditions. No other organization in the Official Development Assistance (ODA) community had anything like the feedback capacity of UNHCR.

Basic control theory shows that when there is rapid measurement that feeds back to the operations, the system can be both stable and performing to its optimum. CA uses metrics in this manner. This is very different from ex-post-facto monitoring and evaluation (M&E) which is normally too little and too late to make much of a difference. M&E mainly what results were achieved ... good or bad ... but too late to do much to improve the outcome. The following experience is from 1973 shows, however, how powerful feedback can be when it is used in the right way and at the right time.

> **Production Reports at Southern States, Inc.**
>
> This story illustrates the vital importance of timely information. Most of my career I have been associated with corporate accounting, consulting, planning and the analysis of performance. I have not done many line management assignments ... but in this case some years back I was appointed VP Manufacturing for Southern States Inc, a manufacturing company making air-break switches for the electric utility industry during a reorganization to improve the company's results.
>
> The company had orders, but the factory was a bottleneck ... and we had neither the time more the money to invest in expanded manufacturing facilities. We had to do better with what we had. For years the factory production report had been written up and distributed every day around 10 am ... informing everyone of the production numbers for the day before ... a fairly standard practice! I changed this to give management a report at 8.30 am (the factory got started at 7.30 am) about the anticipated production for the day ... today, not yesterday! By 9 am the support staff were deployed fixing problems that would improve performance today! The factory always beat its anticipated production ... and the factory production almost doubled without any major capital investment to expand the capacity!

Technology

Technology to facilitate paradigm shift

Throughout history technology has always been the primary limiting factor in making sustainable progress ... but there has been a shift in the last few decades. Technology may now have the power and capacity to do far more than our society will allow it to do.

CA was designed to be independent of technology ... the data are a logical framework that does not need technology ... but this becomes a million times more powerful when it is matched with the capabilities of technology.

CA is about data much more than about technology. The ideas of CA were applicable when paper was the storage medium, and the same ideas still have application in a fast moving digital age.

Powerful technology and analytical capability should not be used as a substitute for good data. There is no more place for sloppy concepts in a powerful analytical environment than in the much more power constrained situation of earlier times.

Rapid changes in IT economics are taking place, and it is likely that this will continue. Computational power has increased exponentially for many years and the potential is a long way from being fully utilized.

Stationary centralized computational systems have given way to distributed systems ... to the Internet and to mobile systems. The power has gone up and the costs have come down.

> If the cost to power relationship has improved by a factor of 1 million over the past 40 years ... how come a data centric profession like accountancy are not a million times more useful? Why has so little of the potential been used for public good?

Internet and World Wide Web

While CA is built on concepts that were applicable for pre-computer accountancy, the architecture of the data also works for an electronic environment and Internet accessible data and analysis. As Internet technology has evolved, the need for and use of “broadband” has increased, and most applications now require broadband access for the Internet to be an efficient tool. This has the effect of making the Internet a limiting factor for the universal deployment of CA. The combination of Internet and other technology driven tools now makes data centric programs cost effective.

Satellite imagery

		This image shows individual houses in a section of Monrovia, Liberia. Images of this sort enable plans to be made for surveillance and for interventions. The image is a start ... how it is used to plan and deploy interventions depends on the local situation and the staff on the ground.

Specialized PDAs

Specialized PDAs (personal digital assistants) have been used for a number of years (since around 1995) to reduce the burden of paper based data in mobile situations. Organizations like Federal Express and UPS were early adopters of this specialized technology, and it has been adopted for many applications where accuracy and speed are important (for example inventory control). The use of a PDA is cost effective when labor costs are high and the use of data has a high value. PDAs are rarely low enough in cost to be of advantage in low wage settings ... but they have been deployed by AID agencies using grant funding even though the sustainability of their use is near zero.

Mobile phones

Mobile phone technology has produced a paradigm shift in communication. The deployment of cellphone technology has been very rapid, and a very good example of a low cost technology producing a very high value ... and marketed in ways that have made the service affordable to customers in a broad range of economic circumstances. Mobile phones have both data and analog capabilities, and this enables both text or data transmission and image capture and transmission. It is unclear how much of these technologies can be deployed immediately, but it is clear that rapid change is happening.

Social network web architecture

Social network web architecture is changing how people interact, and how knowledge is used. In general most of the data moving around social networks are of little management value, but this can change. The same data architecture that links people with people may also be used to link problem to solution and the resources needed for everything to come together.

Village bus data transfer

While most systems that have been developed have been for markets that are rich and where profits can be made, there are emerging systems that are designed to bring value to communities in the very least cost manner. Community focus data can move in and out of a community using methods other than Internet broadband ... as for example the village bus data transfer system, where data are moved from a community based system to a traveling intermediary system and on to a central datastore.

Community Focus

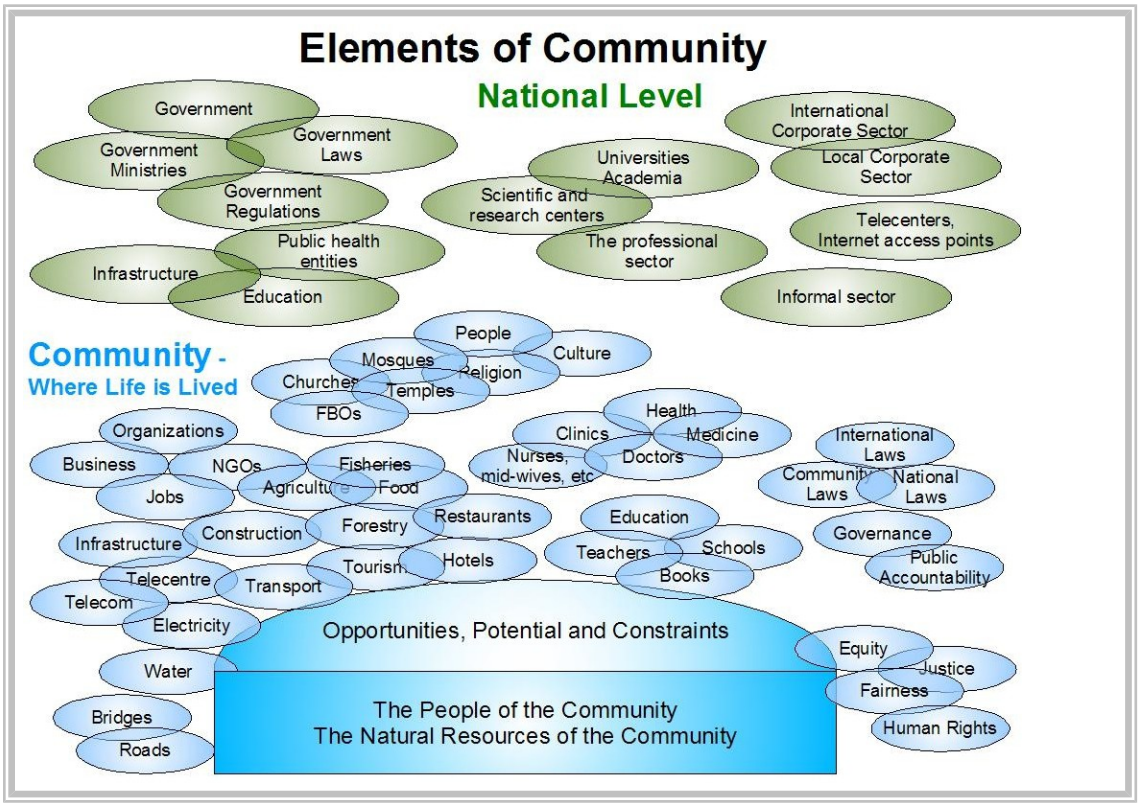
Structural Complexity
Simplifying Performance Metrics
Clarity at the Community Level
Community Perspectives
Elements of Data about the Community
Overview Data about the Community
Analysis Data about the Community

Community Focus

Structural Complexity

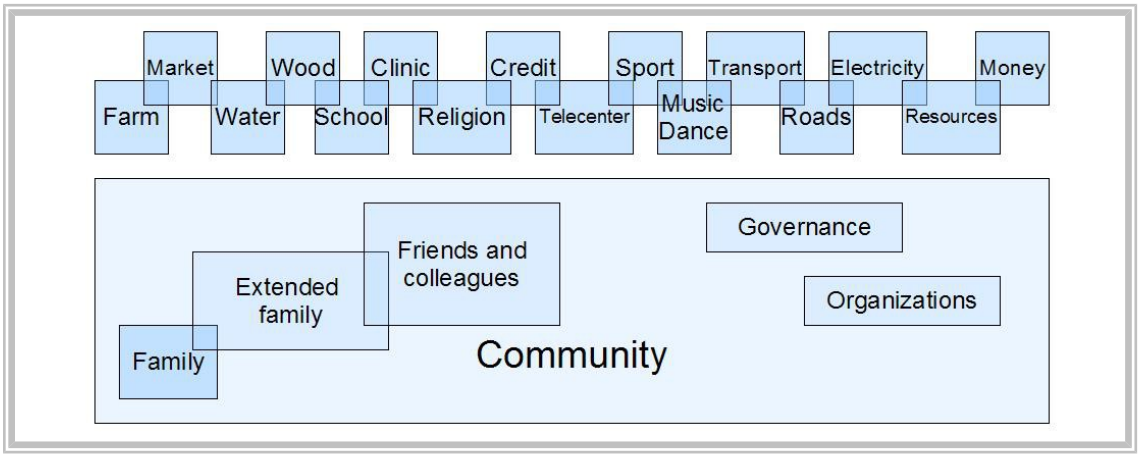
Society is complex

Society is very complex. The institutional framework is very complex. The following graphic shows some of this complexity ... in a very simplified manner. There is complexity at the national level and the international level (not shown) and all sorts of complex detail at the community level.



... but less so at the community level

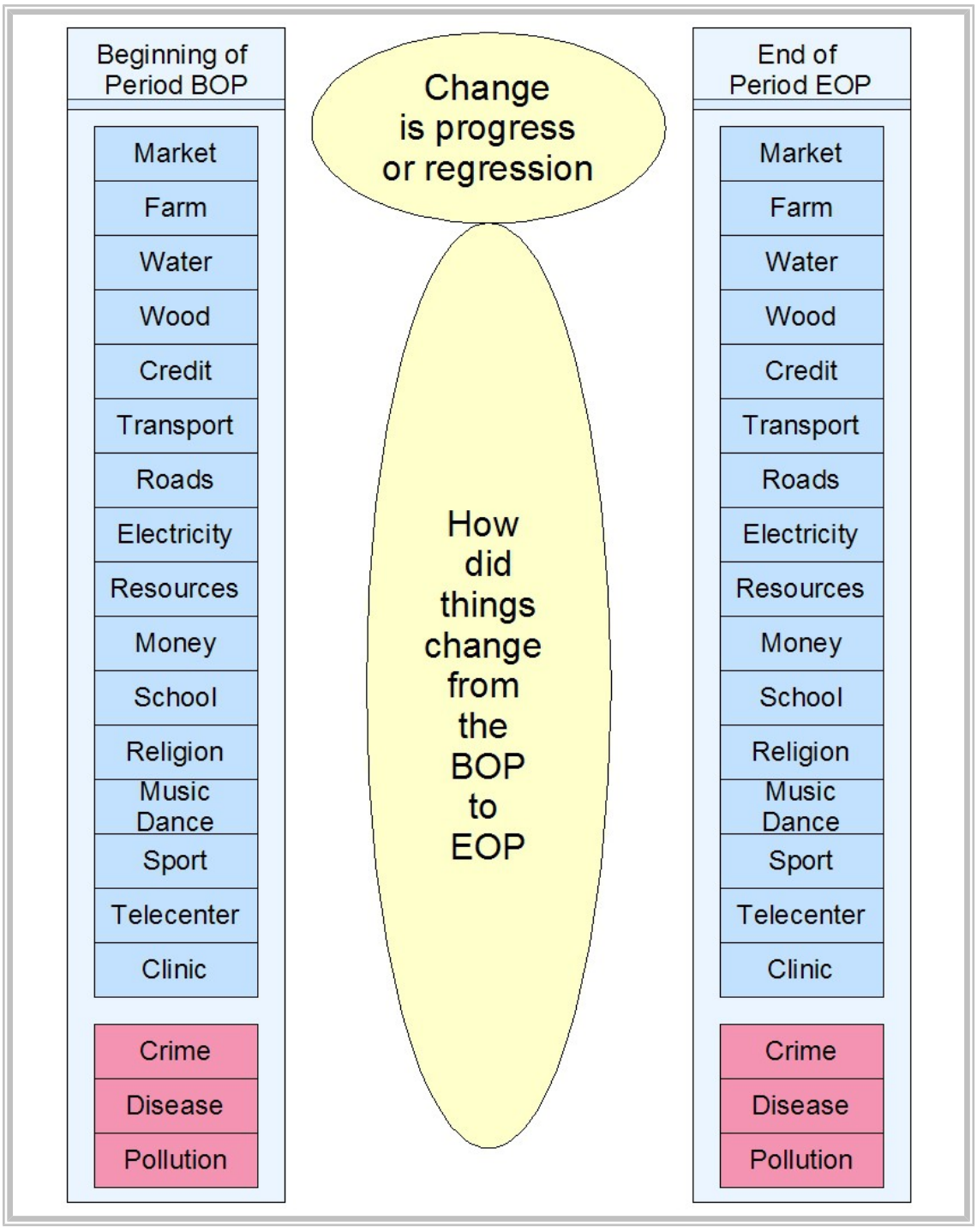
The community is where people live ... and a lot easier to understand.



Even though a community is simpler ... it is still quite complex, but this complexity can be understood. Though there may be many relationships, they are relatively simple, and therefore, understandable. At the community level people have names, and are not merely part of a statistical pool. Activities are tangible, and accounting for costs and results is an exercise that everyone with interest can understand. The community is where progress dynamics are easier to understand and where measurement has more clarity.

Simplifying Progress Metrics

Progress is all about making change ... so what changes have been achieved from the beginning of the period (BOP) to the end of the period (EOP) . The measure of this can be quite simple ... or quite complex ... but the key is for the metrics to be clear



It is impossible to do management by walking around at the national level ... and even the sophisticated survey techniques and statistics that have been popularized in academia and research institutes provide rather little management information. It is, perhaps, possible to understand something about the "state" of the national economy, but rather little about how and why the economy is in this state.

Progress is measured by how these many different things are getting better. Less crime, less disease, less pollution is better. More sport, more telecenters, more clinics is better. The elements are not limited to the set shown ... any item that is important can be measured in this way.

The community centric perspective produces a very different and much more understandable view of how activities are done, how resources are allocated and what decisions are best. Community is where there can be accountability. The community is, after all, the most important locus of life, so quality of life impact can be monitored and measured. The CA construct for measuring progress ... the changes in the socio-economic state of the community from the beginning of the period to the end ... applies to every aspect of the community along the following lines.

Community Perspectives

The primary community perspectives are the following:

- People ... families
- Organizations
- Sectors
- Organizations
- Activities
- Programs and projects
- Events
- Resources
- Constraints
- Possibilities ... potential

The socio-economic interactions in a community are complex ... and probably the critical determinant in the process of progress. The graphic below sets out some of the pieces of the puzzle ... people and the family, the extended family and friends ... all together are the base building block of community.

In community there are all sorts of activities that go on ... economic, cultural, spiritual. All have varying importance. All interact with each other in a multitude of ways. They all have some role in success ... or they serve to constrain and limit progress.

There is also governance. Human society creates governance ... it may be light, or not. Governance that is internal, local and relevant has some advantages over external governance that may not be respectful of local conditions. A mix of both may well be best ... and result in a favorable enabling environment.

There is also organization. Without organization, people are severely limited ... but with organization people can do collectively many things that they cannot do on their own.

More than anything else, a system is needed that allows the people of a community to self organize and optimize how the resources of the community are best used. The foundation of such as system is a set of appropriate performance metrics.

This is the goal of Community Analytics (CA), which is a system of metrics for socio-economic measurement that builds on the two key ideas: (1) the basic concepts of money accountancy used by organizations; and (2) the idea that this can be modified so that it has community focus rather than organization focus, embracing accounting for value as well as simply accounting for money.

The key concepts of money accountancy used by organizations are (1) the idea of double entry; and (2) the organization of data into accounts that either relate to operations, or relate to the balance sheet. These ideas make it possible to draw conclusions about performance without having a full set of data but without compromising the reliability of the conclusion.

The system of accountancy that is used by organizations record money transactions and prepare reports to the stakeholders of the organization. There is a tremendous pool of experience associated with this work ... but it has the weakness that the impact on society is not part of the system.

People ... families

Organizations

Sectors

Organizations

Activities

Programs and projects

Events

Resources

Constraints

Possibilities ... potential

Family

The family is one of the key units of society ... and within the family the well-being and happiness of every individual is important. For the management of public policy, however, the community ... or neighborhood or block ... is easier to use as an indicator of progress and the effectiveness of interventions.

There are some datasets that are best compiled using the family as the unit because this is the best place to identify impact ... as for example, the case of malaria, where interventions are undertaken in the community as a whole, and the impact is best observed within the individual families.

Understanding priorities and needs

A good starting pint is to recognize that every community is different, and what is a top priority in one place may not be the same in another place. Priority needs are both a reflection of physical and human characteristics at a point in time, but also a reflection of history and what has been done in the past.

Elements of community

Getting organized ... making progress

Managing frustration

Culture

Behavior change

Time lines

etc

Data Elements about Community

Data about community

Data about a community starts to tell something or real importance ... and it becomes possible to see what are the factors that have resulted in the state of the community. If something in the data is surprising ... data at the community level helps to pin-point what caused this and why and how this came about.

It is much easier at the community level to walk around and get to know what is going on ... especially the important things that affect the place ... and to see things that may be important but being ignored in the collection of data.

Getting little pieces of information about the community makes it possible to start to do an accounting using the CA framework ... and with this it starts to be possible to have transparency and accountability.

Data about neighborhood or block

Some communities are too complex to be easy to understand ... in which case the neighborhood may be a better level for detailed data. Common sense applies.

In some cases it may be appropriate to get data at the block level. In high density urban settings, the block may still be quite a large population, and the economic activities quite complex.

State and Activities

CA aims to put into the record everything that is important about the community. These data are of two types: (1) data that informs about the state of the community ... its resources and its constraints; and, (2) data that informs about the activities and the productivity of the community. These data are also of two characteristics: (1) data that are easy to obtain and at little cost; and, (2) data that are much more difficult to obtain and requiring considerable effort and cost. Some of these data are fairly stable over time, some change rapidly over time ... some data apply to all the area, some data relate to a very specific place within the broader area.

Information about activities is usually more difficult, and especially to get all the data that are needed.

The data usually have more value when they are part of a time series ... what was the equivalent data for a past period ... and what is the situation now, and what will it be in the future.

CA uses averages to measure progress ... to measure change ... but not to understand the data. The key is to know what goes into making the average and to understand what can be done to eliminate what is bad and to enhance what is good. When this is done, the average changes ... but trying to change the average without understanding its components is a waste of resource and energy!

Overview Data about the Community

The basic identification data

Identification of the community	There is a need to know some basic information about the community: 1 Name of the community? 2 Where is it? 3 What is it like?

Where is it?	There are several ways to specify the location of a community 1 GPS coordinates 2 Distance from three or more key places such as area town

Some general data

What is it like?	1 Physical geography 2 Weather patterns: rainfall, temperature, humidity

Item	Past		Now		Future
Area (total)			X		
Urban built up area			X		
Agriculture			X		
Irrigated agriculture			X		
Undeveloped dryland			X		
Undeveloped marshland			X		
Forest			X		
Number of houses			X		

These data can sometimes be obtained from existing maps or satellite imagery. These data normally change slowly.

Population

Population demographics	1 What age profile; 2 What sex mix; 3 What socio-economic profile; 4 What educational profile; 5 What skills profile; 6 What health profile.

Changes over time

Item	Past		Now		Future
Population (total)			X		
Population (male)			X		
Population (female)			X		
Population (5 and under)			X		
Population (6 to 15)			X		
Population (16 to 45)			X		
Population (46 up)			X		
Population (female pregnant)			X		

Data about population changes slowly. However, from time to time there are rapid migrations that can materially change the population data.

Analysis Data about the Community

People view:

About people	1	Who are key people in the community leadership
	2	Who are people in activity leadership
	3	Who are external friends of the community
	4	Who are international friends of the community

Organization view:

What organizations are in the area;	1	Government offices
	2	Local private businesses
	3	Businesses from other places
	4	Local NGOs
	5	International NGOs
	6	Religious organizations
	7	Political organizations

Sector view:

What are the economic activities;	1	Agriculture and fisheries
	2	Post harvest processing
	3	Manufacturing
	4	Construction
	5	Transport
	6	Warehousing, wholesale
	7	Small business ... retail
	8	Etc.

Health	1	Patients
	2	Staff
	3	Supplies
	4	Infrastructure

Education	1	Students
	2	Teachers
	3	Supplies
	4	Infrastructure

Construction	1	Workers
	2	Organizations
	3	Skills and knowhow
	4	Building materials
	5	Equipment
	6	Demand

Financial services	1	Microfinance
	2	Government financing
	3	Donor financing
	4	Commercial banking
	5	Capital markets
	6	Insurance

Jobs ... employment:

About jobs	1	What jobs in agriculture, fisheries and forestry; 1. Crops 2. Livestock 3. Fisheries 4. Lumber, fuel wood
	2	What jobs in industry;
	3	What jobs in services;
	4	What jobs in trade and commerce;
	5	What jobs in tourism;
	6	What jobs in culture, entertainment, sports, etc.

About jobs and economic opportunity	1	Jobs and economic activities
	2	Security, crime, etc.
	3	Everything else that is material

Infrastructure:

About infrastructure:	1	Housing;
	2	Transport ... roads, etc.
	3	Health ... clinics, hospitals, etc.
	4	Education ... schools, etc
	5	Water
	6	Sanitation
	7	Electricity
	8	Telecom

Resources:

About resources	1	Minerals
	2	Energy
	3	Timber ... forest products
	4	Agricultural land
	5	Fisheries
	6	Tourist destinations

Governance:

About governance	1	Government admin

	2	Security ... crime
	3	Services
	4	Taxes

About crime, violence and security	1	Crime and violence
	2	Security
	3	Police
	4	Courts

Possibilities ... potential:

About possibilities and potential	1	What is possible;
	2	What is not;
	3	What are key constraints?

How can resources be best used	1	Natural resources
	2	Human resources
	3	Organizations
	4	Know-how

Constraints ... what is missing:

About constraints	1	Financial;
	2	Organizational;
	3	Knowledge;
	4	Politics, Governance;
	5	Everything else that is material

Value Dynamics of Society

Existing Models and Metrics are Inadequate
Value Adding, Value Destruction and Sustainability
Global, National and Community Dynamics
The Value Dynamic of Markets
Rule of Law ... or Rigging the System
Incentives ... Profit or Value?
Needs, Wants and Market Demand ... Poverty
Making the Best of Available Resources
Productivity Instead of Growth
Metrics ... for Services and for Production
Value Dynamic in an Organization

Value Dynamics of Society

Existing Models and Metrics are Inadequate

Over the past forty years the practice of econometrics has resulted in models that were meant to explain how the economy had behaved and predict how it would behave in the future. In fact, however, these macro models were quite limited in their capacity to understand what had happened and less able to do much useful about the future.

CA is a different model ... much more basic ... and much more grounded in data that can be used for decision making as well as for operations research. CA is about the economic dynamic of the community ... and how community is impacted by internal and external influences.

Economic models have become an important tool of modern economics ... but how good are they? The ones that are used to predict socio-economic progress for poor societies seem to be counter-productive ... and in reality most poor societies have progressed very slowly over a long period of time.

Nor is it clear how good economic models have been

It is not clear what economic models have used by the modern advanced private investment and banking community, but experience suggests that most users of models do not have a deep understanding of the assumptions used to create the models and their limitations.

It seems that most economic models are developed around the data for highly monetized economies ... but most of the poor world is only lightly monetized. Life is not driven by how much money but by how much of the necessities the family has ... some of which are obtained by money transactions, but much comes from self-production and petty trade that has a barter-like quality. The CA conclusion from economic modeling for poor communities is that productivity is the key issue that needs to be addressed, and experience suggests that when constraints on improving productivity are identified and removed, there can be amazing progress.

Macro-economic metrics ... key indicators

Macro-economic metrics did not identify the economic crisis of 2008 until the damage was done ... the models could only anticipate previous experience ... even while other models were being used to game the system.

At the macro level there are all sorts of metrics ... mostly derived from small surveys and aggregated statistically. They serve as useful proxies for more reliable metrics ... and serve quite well as long as changes are modest and there are no disruptive elements. When there is disruption and things change these measures are inadequate and probably wrong.

But there are more fundamental problems with macro-economic metrics. They do not provide the level of detail or granularity that is needed to make decisions at any level much below the level of the Federal Reserve ... and the models are worse than useless outside the specific economy where they were developed.

CA acknowledges that a range of macro-economic indicators exist and that these time series need not be changed, but a new set of indicators need to be developed and deployed.

Crucial for effective policy formulation

Understanding the economic dynamics that drive what happens in society is important.

Value Adding, Value Destruction and Sustainability

Value adding and value destruction is the absolutely central idea of sustainable socio-economic development. A sustainable society is one where there is net value adding ... anything else is unsustainable.

Value adding

An economic dynamic that creates value will sustain not only at a present level, but at an increasing level of value creation ... a virtuous outcome. In a simple world it would be easy to plan progress and achieve progress, but in the world of reality there is little that is simple. Besides value creation and a virtuous compounding, there is also value destruction.

Value adding takes place whenever something that adds to quality of life occurs ... frequently in small increments

Value destruction

Value destruction compounds to form a vicious cycle of increasingly difficult outcomes. Value destruction may start slowly, but if not corrected the compounding eventually takes hold, and it is very difficult to control.

In the complex reality of the economy, both value creation and value destruction are going on at the same time ... one offsets the other ... but there is always the potential for one of the other to get the upper hand. When it is value destruction that becomes dominant, the socio-economic outcome is catastrophic ... and this is what is happening in most poor settings.

Sustainability

Value chain analysis

Global, National and Community Dynamics

Globalization has been a “buzz word” since the 1980s ... though it can be argued that global economic activity has always been in play albeit constrained by the technologies of the past.

Global Dynamics

The ideas of terms of trade and comparative advantage are fundamental to basic economic understanding. Where trade is free and fair, there will be trade when there is differential comparative advantage.

Of course, when there is rule of law, there is never free and fair trade ... just regulated trade, with the regulation usually in favor of those that make the laws.

National Dynamics

The national and global economy

What is understood at the macro level and the economic models used at this level do not translate well to the community level. There has been growing complacency among experts that the “business cycle” could now be controlled because the models were so good.

Community Dynamics

Linkages between activities ... everything is linked

Linkages

The world has discovered social networks which are all about links ... but links are fundamental to the operation of an economic system and much more prevalent than usually assumed in the attempts to measure socio-economic performance. Without taking into consideration the complex web of links, it becomes impossible to understand socio-economic performance. The CA value chain analysis identifies key linkages and helps to ensure that success is facilitated by a multi-sector and multi-function approach to development implementation.

Multiplier

Accelerator

Employment

Investment

Savings

Consumption

Profits

The CA paradigm shift makes the community the focal point for socio-economic analysis and planning. It becomes very clear that there are problems when they are visible in the community ... and opportunities are much more real when they can be seen at the community level.

A sustainable community is one where the economic activities of the community improve the balance sheet of the community ... a balance sheet comprising social and human value as well as natural, material and financial assets.

By simplifying the focus to the community ... rather than an aggregate at the national level of thousands of communities ... it starts to be possible to understand what is going on. It becomes possible to see what it is that is constraining better performance ... and what is enabling survival when survival seems impossible.

Dynamics

Economic dynamics are complex and very important ... but not well understood, especially at the community level. The CA paradigm is strongly in favor of investing ... and much less in favor of consuming, except where the consumption is needed for quality of life.

The dynamic for economic crisis

The dynamic for economic crisis is ever present. Society is complex ... and made more complex by the various institutional, legal, religious, cultural and other frameworks that people have created over the ages. But, for all its complexity, there is an underlying dynamic that results in progress or not.

Exponential compounding

One characteristic that is clear is that relationships are never linear ... rather relationships are exponential ... and because of this change sometimes appears to be slow, but hardly before it is recognized, it is already spiraling out of control. This may be good ... or bad.

The Value Dynamics of Markets

Markets and markets

There are many that are totally committed to the idea that markets are the perfect invisible hand that makes economics work ... but experience suggests that while markets have a very important role in the functioning of the economy and society, they are only one part of the totality of the socio-economic infrastructure.

Markets are better than administered prices

My experience of pricing in Communist countries in the decades prior to 1990 would have convinced anyone that a system of administered prices ends up distorting the economy and making it totally unproductive. Markets do a far better job of allocating resources, and moving goods and services in response to demand.

But administered prices have been little better in the non-Communist world. President Nixon imposed several rounds of price controls in the aftermath of the 1973 oil shock ... and accomplished nothing but market distortion and disruption. At the time I was running a factory and buying large quantities of bronze under a long term purchase contract. When price controls were introduced in the USA, but not in the rest or the world, our supplier suddenly had no supplies for us. Not surprisingly the supplier chose to sell on the world market at the world market price rather than in the USA at a much lower administered price. To keep our foundry operating we had to purchase bronze in Europe at the prevailing world price ... and then fly the metal to the USA in time to keep production going. Instead of bronze prices going from 50 cents a pound to 35 cents a pound ... the administered price ... my cost moved from 50 cents to $1.35 a pound. So much for controlling inflation through administered prices!

But markets only work well when there is competition, and the competition is reasonably fair. The market does not work well as a resource allocation mechanism and as a vehicle for creating incentive for more supply when the supply chain is complex and there are market players on both sides of the same transaction. This has become very common, and the market mechanism often serves as a vehicle for extracting profit from the value chain

Monopolies, oligopolies and the concentration of power

Monopolies, oligopolies and the concentration of power have been a problem in all of history. There has been commentary on this since biblical times. Concentration of power is a reliable predictor of economic abuse. This was recognized in the 19th century and exploited to the maximum extent by those with powerful interests ... as it probably has been for all of history. The US lawmakers have tried to prevent the abuse of the concentration of economic power with Anti-Trust legislation ... and so also have other jurisdictions. It is difficult, because the rewards a great and there has been no lack of creativity.

Democracy is an attempt to stop government and politics from becoming a system for the concentration of power ... but it has not been totally successful, and ever since it has been possible to pass law, there have been powerful interests trying to influence legislation in their favor.

Rule of Law ... or Rigging the System

The idea of rule of law is very attractive ... but in practice it has worked less well than in theory. Law not only has the power to level the playing field, but also to rig the system so that the powerful side will always win. Rule of law should be something that works for the people ... but so much of the law that is practiced serves the interests of an entrenched elite.

Economics of employment

Money, capital and credit

Brand dynamics and distortion

Media dynamics and distortion

Incentives ... Profit or Value?

Needs, Wants and Market Demand ... Poverty

Needs

Human beings in rich countries have little appreciation of the difference between basic needs and the many “wants” of a rich society. Those that live at the $1 a day level know how important it is to have water to drink, some food to eat, some clothes to keep warm and some shelter from the elements. This population knows something about family and children secure the future. Somehow, this population understands the importance of education and the need for healthcare. Above all this population is incredibly entrepreneurial and are survivors against all odds.

The definition of basic needs changes as the wealth of the society increases ... but it is worth remembering that there are many layers of need. Below the lowest of the basic needs ... the outcome is death.

What people want!

Market demand

Poverty

It is confusing to hear the one liner that “people living under $1 a day” are the ultra poor, and ordinary poverty is merely “living with under $2 a day of income”. But worse, the very idea that so much of the world's population, maybe 2 billion people or about one third of the world's population, live at this level of poverty is disgusting. Until these levels of poverty are eliminated, the world should consider the national and international processes of relief and development an abject failure.

Poverty is not caused by the laziness of poor people as much as it is caused by a systemic failure of the economic apparatus. People work hard ... but they get little reward, and there is little progress. A paradigm shift is needed that allows a productive economic system to work and makes it possible for poor people to be included.

Making the Best of Available Resources

Productivity Instead of Growth

Metrics ... for Services and for Production

Value Dynamic in an Organization

Types of Organization

The profit maximizing enterprise

The profit maximizing enterprise ... the engine of the modern economy has a dynamic that seeks the maximum of profit and the maximum of stockholder value. Though a good organization would work to have great stockholder value that is sustained over time ... the way capital markets work, it behooves the management and decision makers to focus on short term value even if this consumes long term value.

While the score-keeping was rigorous and relatively simple fifty years ago ... modern corporate score-keeping is now the subject of all sort of rigging ... no relative of rigorous. The law and rules have allowed all sorts of practices that have helped make it possible to have reportable profits on top of enterprise activities that have been catastrophic.

Bluntly put ... a lot of this has been fraud, even though it has been “legal”.

The not for profit charity or NGO

The not for profit or NGO has a very different dynamic. Job one is the survival of the organization, and for this a constant flow of funding to support the activities is crucial. There are a lot of activities that are done to support this priority ... including the production of monitoring and evaluation reports that satisfy the funding organizations, the donors.

The organization must do some of what the donor expects them to do ... enough to be able to show the donors that the activities being funded are taking place. Nobody is, however, looking at cost efficiency and assessing whether or not the spending is resulting in a high or low level of activity. Nor is anybody looking at the results and assessing cost effectiveness in a rigorous manner.

While the mission of the private charity or NGO may well be laudable ... this does not automatically translate into a well run organization that is both cost efficient and cost effective. These metrics are usually missing.

The social business

The social business has a different dynamic. The operations of the business may be highly profitable ... but the resulting fund flows are used to expand the operations to serve more of the market rather than to reward stockholders and maximize stockholder value.

The business model helps to make best use of technology and resources to get the maximum of productivity. The social dimension aims to provide the most of value to the community by scaling up the operations as effectively as possible and as fast as possible. The sustainable business means that the enterprise is sustained not by donors, but by the market.

About State

Balance Sheet
Making Progress Metrics Simple
About Assets
Cash ... Money
Current assets
Fixed assets
Intangible assets
About Liabilities
Current liabilities
Debt ... long term liabilities
Equity
Community Assets
Commons
Human Capital
Natural Resources
Know How
Organization
Community liabilities
Constraints

About State

Balance Sheet

A balance sheet is a very powerful part of financial reporting. A balance sheet shows the state of the reporting entity at a point in time. It shows assets and liabilities and the net of assets and liabilities.

When a current balance sheet about now is compared with a balance sheet about some time past, there is an immediate view of how things have changed. revenue of the period should be matched with the costs associated with this revenue.

The balance sheet of a community, a neighborhood or a block shows in stark simplicity what is happening. Much may stay the same from year to year ... indeed from century to century ... but some items change rapidly, sometimes for the better, sometimes not. A community balance sheet report can be prepared that shows what is changing in some detail while having the rest that has not changed in simple summary.

Caveat

Accountancy has been very engaged with ensuring that assets and liabilities are accurately reflected on the balance sheet. Unless these numbers are right, financial reporting becomes an exercise in dangerous stupidity. It is apparent that sound accounting principles have been ignored in the development of modern rules about how financial assets and liabilities are valued for balance sheet reporting.

A common interval or period is one year ... but there are circumstances when more frequent analysis is useful. Monthly reporting provides information about seasonality for example. In farming there are times when stocks are very low, and then after harvest very high. A monthly balance sheet report shows when stocks are lowest and highest.

Balance sheet – assets

A balance sheet should show the total of assets, and detail the make-up of the assets. There are both tangible and intangible assets. Money, equipment, etc. are tangible assets. Goodwill is an intangible. There are current assets and there are fixed assets. There may also be “off the balance sheet” assets.

In the corporate environment the generally accepted accounting principles (GAAP) are applied. In CA the concepts are broadened to ensure that assets are reflected in the best possible way to show the state of the community. In the CA environment, possibilities and potential are assets.

Balance sheet – liabilities

In corporate accounting with GAAP the liabilities are those that are reflected in law and about money. The amounts owed, are the liabilities. There are also contingent liabilities that may be liabilities if certain things do not work out.

In the CA environment constraints of various kinds are liabilities.

Balance sheet – net state

The net state is the difference between the assets and the liabilities. In corporate accounting this is stockholders' equity.

In the CA environment, the net state is a convenient measure of the state of the community. However, it is rare for this measure to be complete enough to be a useful comparative index across many different communities.

Balance sheet analysis

Balance sheet analysis I

This method of analysis results in getting an understanding of the strength of the balance sheet and the potential of the organization in corporate accounting analysis or for the community in CA.

A tabulation and analysis of the balance sheet of a community is an illuminating exercise.

Poverty

It is clear that the people in the community are poor ... but the balance sheet of the community shows that the community is the home to vast natural resources. Why is there a disconnect between the people poverty and the natural resource wealth? What is it that makes this possible? What are the systemic issues that are keeping the poor people poor?

Analysis shows that there are many issues that go into explaining the persistent poverty. There are rules of law that make it possible for property rights to trump human rights. There are ownership rights that have priority and allow absentee owners to get rich while local people stay poor.

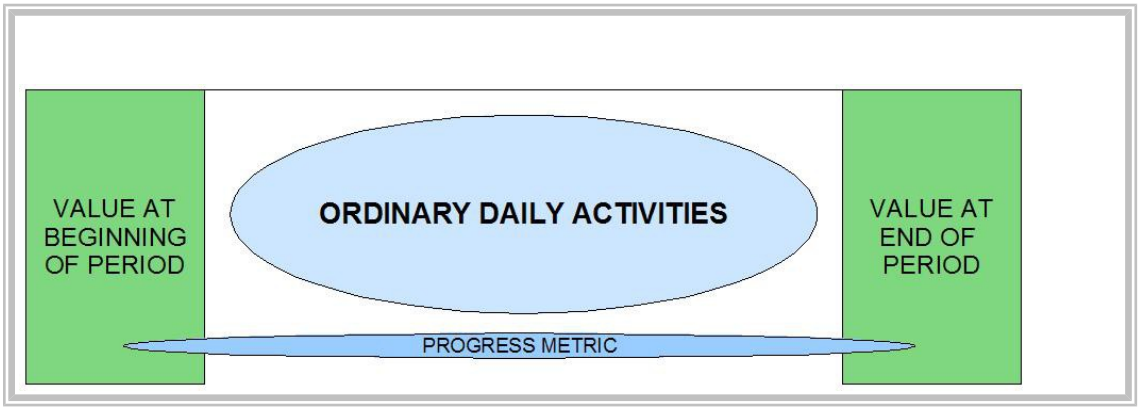
Balance sheet analysis II

This method of analysis results in an understanding of how the organization's balance sheet or the community balance sheet has changed over time.

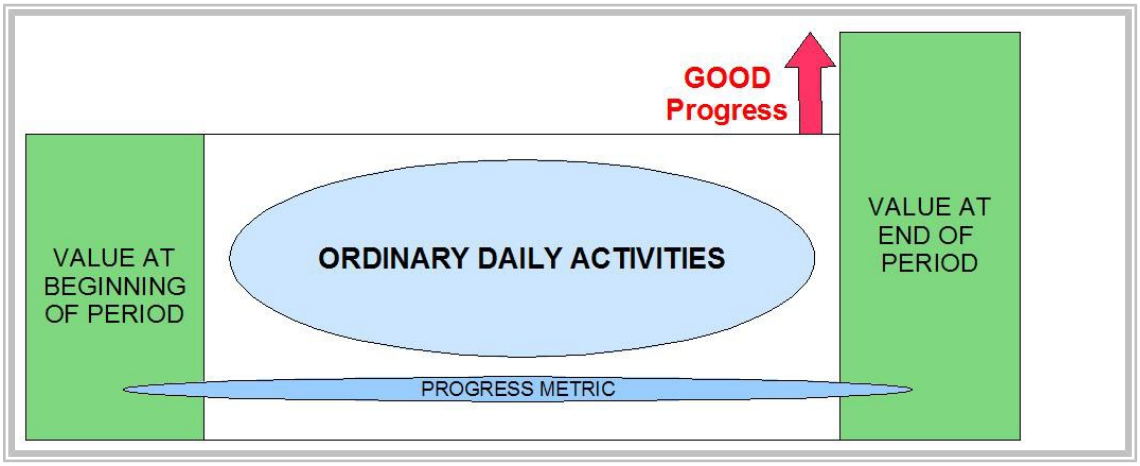
Making key metrics simple

CA's primary metric of progress is very simple. Is the community better now than it was in the past? This is not a complex idea, and there is no reason why there cannot be quick, easy and useful data about this.

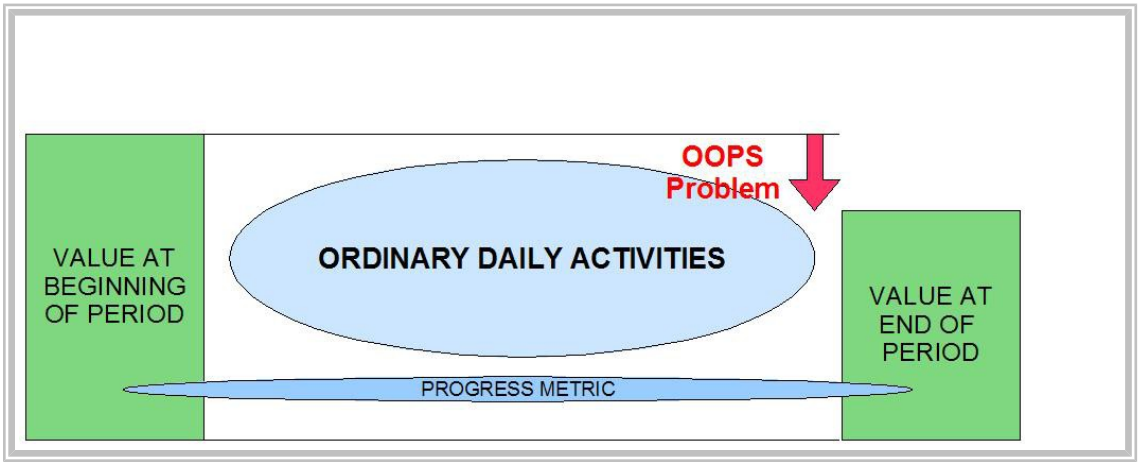
In the image below, the value of the community is the same at the end of a period as it was at the beginning ... ordinary daily activities produce what is consumed ... it is a stable situation.



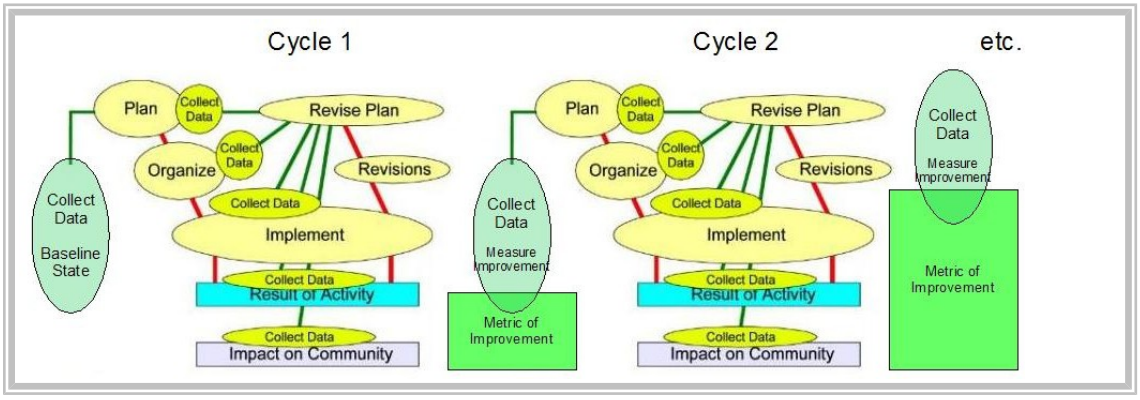
In this next case the value of the community is more at the end of a period than at the beginning of the period ... ordinary daily activities produce more than is consumed. It is progress ... it is a good situation.



In this last case the value of the community is the less at the end of a period than at the beginning of the period ... ordinary daily activities produce less than is consumed. It is a problem ... a bad situation.

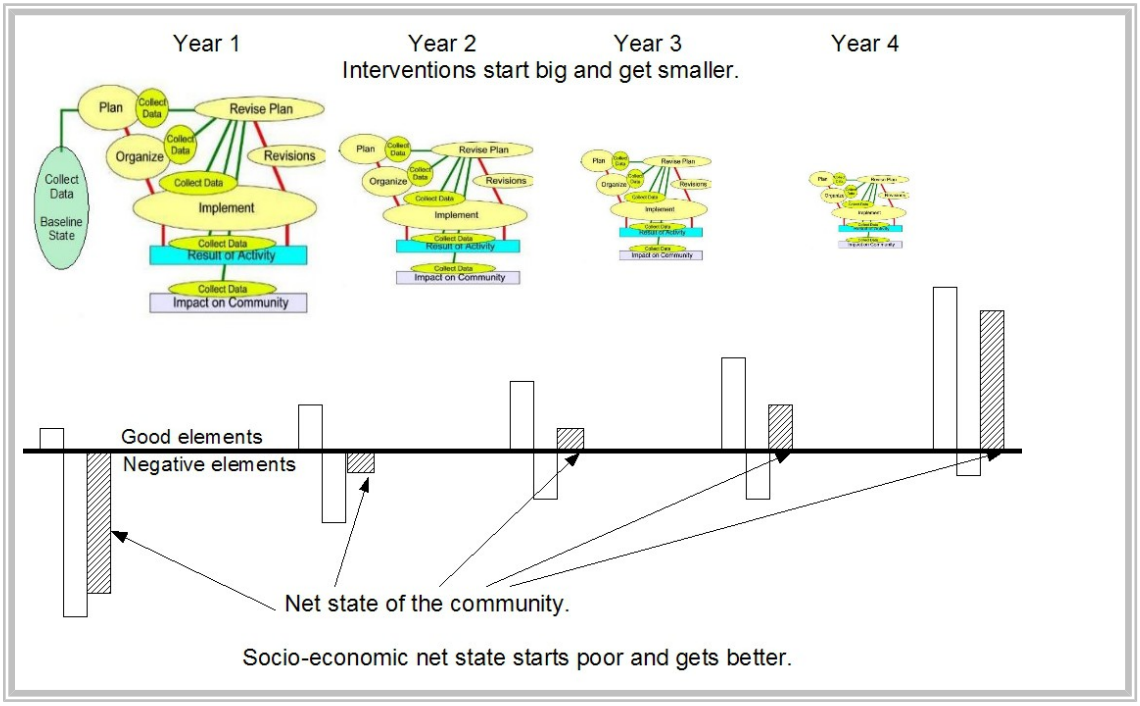


High performance programs integrate data collection, analysis, planning, action, more data collection, more planning, more action in a perpetual process.



The ultimate measure of success is whether the change between the initial status and the post activity status has a value that (substantially) exceeds the costs. The above schematic shows this as a box "Metric of Improvement". The activities produce their own results or outcomes, and in turn these have an impact on the community. The metric of improvement is the impact on the community and the constituents of the community measured as value adding.

Over multiple cycles the aim is for the scale of the interventions to diminish and for the impact on community to get better and better, and the bad things to get smaller. The following depicts this graphically over a four year cycle. The interventions start big and get smaller while the net socio-economic state starts poor and gets better.



In this graphic the initial condition reflects a high level of socio-economic burden which over time diminishes, yielding socio-economic improvement. Over time the amount of activity to improve the situation and sustain the improvement diminishes.

This is the essence of success and sustainability. In the long run the value of a good status in the community should be sufficient to pay for the cost of the essential ongoing activities that are needed to maintain the improved status ... and repay any external funding required in the initial program stages.

Section II – Key Elements

This section introduces all the key elements of Community Accountancy (CA) as briefly as possible. For convenience the items are listed below

Balance sheet

Balance sheet – assets

Balance sheet – liabilities

Balance sheet – net state

About the assets

About the liabilities

Balance sheet analysis I

Balance sheet analysis II

Activities

Cost

More about cost - elements of cost

Value

More about value

Productivity

Return

Price

Profit and value adding

Macro-economic indicators

Reporting

Independent, neutral and reliable

Value chain analysis

Time series analysis

Focus on community

Data collection ... dataflow

About Assets

The GAAP definitions and the CA principles

Tangible and intangible assets

Current assets and fixed assets

Working capital

Cash

Accounts receivable

Inventory

Prepayments and others

Fixed assets

Depreciation provision

Land

Buildings

Leasehold improvements

Equipment

Vehicles

Vessels

FFF

Goodwill

Natural resources

Human resources

Water

Infrastructure

Enabling environment

Security

Health

Education

Potential

Culture

About Liabilities

Value Change Activities

?

Behavior of cost and value

Clarity about product and cost

Measuring performance

Money cost elements

Value cost elements

People costs

Equipment costs

Materials, supplies

General expenses

Operating overhead

Financial costs

Standard costs

Price

Profit and value adding

Value

Standard value

Value Change Activities

Activities are the origin of value adding ... or value destruction. Data about activities may be needed to explain why some aspect of the community balance sheet has changed ... but it might be quite obvious without much need for detailed data.

Activity reporting is similar to the reporting of the corporate Profit and Loss Account or Operating Statement. An Activity Report may show some of the characteristics of economic activities in the community that have had an impact on socio-economic changes. An Activity Report helps to explain the changes that have taken place in the balance sheet of the community. Thus, for example, an increase in stock levels of grain might be explained by an unusually good harvest ... and explain why there was a good harvest.

CA also uses time series of key items to gain an understanding of what is happening in the community. Market prices are a leading indicator of market conditions and other broader issues in the community. High food prices and low livestock prices is a reliable indicator of emerging famine conditions.

Clarity about product and cost

Much of the confusion in economic analysis and policy formulation would be avoided if there was a clear distinction about what is a product and what is a cost.

Gross national product (GNP)

Gross national product should be the output of the economy ... what the economy produces ... the product. Over time, more and more of the product is expressed as the cost of the product at the transaction level and over time the measure has become more and more inflated so as to become meaningless. Rather, it is much worse ... it has resulted in the wrong signals being sent about the prosperity of the nation!

Producers, consumers and prosumers

Henry Ford

Henry Ford is meant to have realized that a prosperous working class would eventually be the consumers of the automobiles that his company was manufacturing ... those that were producing were the same as those that were consuming. I associate Henry Ford's insight as being something of the origin of the idea of a prosumer.

Keynes was clear about the way economic activity behaved in a society ... but his understanding seems to be little understood by most modern economic analysts and policy makers.

Integration of CA reports

In corporate accountancy there is an integration between the balance sheet, the operating statement and the cash flow. The data in the accounts is the same ... and each of these reports shows a part of the whole. The data in each are coherent. The changes in the balance sheet are explained by the performance reported in the operating statement. The cash flow statement reconciles with the operating statement and the balance sheet.

These ideas translate well to the CA system. They may be used to deduce information that is not easily obtained. While it is relatively easy to collect balance sheet data, it is much more difficult to get all, or nearly all of the data to report reliably about activities. Using the inherent integration of balance sheet and operating statement, it is possible to use the changes between two balance sheets to deduce the result of economic activities without actually having all the details of the activities.

Comparative data ... trends over time

One datapoint is unlikely to be very useful ... but two datapoints have much more value. If the measure of the same item but the time is different, there is the beginning of a time series and change over time is now known.

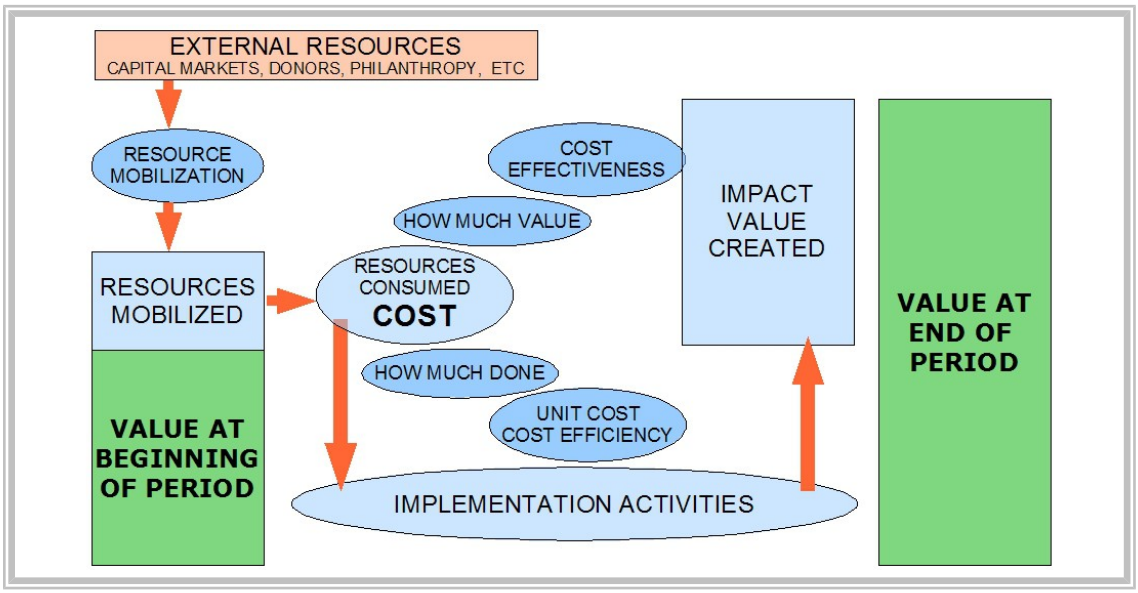
Comparison between places

If the measure is about the same item but in different places, then it is possible to start to draw conclusions about what is happening in different places.

Measuring Performance

"What gets measured gets done"

CA measures progress ... measures performance ... they are related but not the same. The following graphic shows in a simplified way how cost is related to implementation and to results. The goal is for the community value at the end of the period to be more than at the beginning of the period. Resources are consumed to fund implementation activities that produce an impact and value creation.



Costs: How much did it cost?

Knowing how much something costs is pretty basic. It is appalling how little data about cost is reported, and how little information about cost is understood and appreciated by people with responsible jobs. Because there is so little understand of cost ... cost gets used to justify bad practice of all sorts. Understanding cost and cost behavior is central to the CA system of metrics.

How much got done?

Knowing how much got done is also pretty basic. Without knowing how much got done, there can be no oversight, control or accountability ... no inventory control ... no operational analysis ... in other words, without knowing how much got done, the whole process of management falls apart.

Cost efficiency ... how much should it have cost?

Cost efficiency is the simple idea of comparing the actual cost with what the cost should have been. This is a powerful way of getting control of operational performance. How much should it have cost to do what was done?

What it should have cost is a technical question. The cost that it should be can be calculated based on what needs to be done and the prevailing costs. The cost in one place can be compared to costs in other places. The cost now can be compared to costs in a prior situation.

Cost effectiveness ... how much value for the cost?

Cost effectiveness is the more complex idea of relating cost to the value of the accomplishment. The idea is simple in theory, but becomes more difficult as the problems being addressed are more complex. CA uses techniques to get an overall idea of cost effectiveness, and then goes into more detail to assess the way different initiatives contribute to progress. This may require multi-variate analysis of the datasets where there are multiple interventions being used.

The core of CA metrics is the goal of having fund allocations flowing into intervention activities that are the most cost effective and deliver the most of social value. The Tr-Ac-Net/IMMC cooperation using the CA framework for performance metrics provides the basis for this to become the norm.

Cost Elements

Financial elements of cost

There are several elements that make up the cost of anything. It is convenient to use the following categories:

1. People cost
2. Material cost
3. Equipment cost
4. Operating overhead cost
5. Cost of capital employed
6. Admin overhead cost.
7. Financial costs

Drill down to elements of cost is important because the elements of cost all change in different ways ... have different behaviors ... and different impact on the community.

The purpose of data in the CA environment is to have data to understand ... and to use this understanding to improve decision making and the quality of life!

People cost

People cost depends on (1) how many people and what skills and job types; (2) the wage rates for each group; (3) the benefit costs associated with each group. The costing is complicated by matters such as training and the use of consultants and service contractors instead of direct paid staff.

People costs vary enormously depending on the mix of local and international staff. Local staff are usually paid much less than international staff. There might be a cost offset to the extent that international staff can do some work more efficiently than local staff due to their knowledge, training and experience.

Material cost

Material costs are a function of a bill of material and the purchase price of the materials. A scrap factor should be included. Most production processes require more raw material inputs than there is output because of process losses (in machining, in casting, etc.).

Equipment cost

Equipment costs do not behave in a simple way, and care must be taken in costing equipment use appropriately. Some of the characteristics that must be taken into consideration include (1) the life of the equipment in elapsed time; (2) the life of the equipment based on usage; (3) the utilization of the equipment in any given period; (4) the costs associated with running the equipment such as fuel and maintenance; (5) the cost of periodic major maintenance, etc.

In some cases, as for example, in using an aircraft for vector control, there are people and material costs that have variability depending on equipment utilization. All fixed assets have use costs that should be brought into account for costing.

Operating overhead cost

Operating overhead costs are costs associated with the supervision and management of operations. They are made up of elements of cost (1), (2) and (3) above, and allocated to specific units of activity.

Cost of capital employed

Cost of capital employed is the cost of using fixed and working capital. It is calculated by reference to the investment made in equipment, buildings vehicles, etc (fixed assets) and the investment needed for material inventory, work in progress and finished goods, receivables and cash (working capital) that are used for specific activities.

The calculation uses a cost of capital rate that varies depending on the ownership structure of the operation and the goals of this ownership. The cost to “rent” capital may vary from 2% to in excess of 200% per annum. This has become one of the most expensive aspects of modern capital market capitalism.

General overhead cost

The general overhead cost is similar to operating overhead. It is made up of the same elements and allocated to operating activities o a basis that reasonably reflects the structure of the organizations and activities.

Cost is a key metric ... while it is usually the subject of intense analysis within an organization, it is difficult for the public to get access to cost information. In the corporate for profit business, reducing cost is a way to increase profit ...other things remaining the same. Little is put into the public domain about costs ... but cost is a critical part of performance metrics both for determining money profit and also socio-economic performance.

Depreciation

Depreciation is a part of the cost framework. It is a concept that is derived from the economic life of an asset ... and in this context, nothing to do with tax law and allowable write-offs. The aim of depreciation is simply to relate the cost of using an asset to the activities the asset is used for. If an asset has a three year life, and is used most of the time, each of the year periods should be charged one third of the capital cost. This would give a reasonable result. On the other had an piece of equipment may have a life that depends on how much it is used (for example, an aircraft) ... say it will be useful for 50,000 hours of use. In this case the hourly cost can be computed and the asset charged to the activity for each hour it is used, and offset against the depreciation provision for the asset.

Cost of profit

One of the biggest elements of cost in modern business is the cost of capital ... which is essentially the idea that profit becomes an essential part of the cost of product or service. In a system where the computation of (corporate) value is a function of the level of profit and the growth of profit ... then the profit behaves more like a cost than merely being the derivative of corporate performance.

Value elements of cost

Value chain

Standard values

Time series

Beyond economic indicators

People costs

People costs	Collecting costs about people cost is also very useful. The basics are the same, though sometimes, indeed frequently, the pay rates are not common knowledge: 1. Who is working? 2. How long? 3. How much are they being paid? 4. Multiply and the cost amount is known. Some information is quite sensitive, such as pay rates and benefit packages, and the like. Though they are sensitive, they are also important to understand since the cost of activities is very much a function of the cost of people.
Consultants	Consultants are often employed instead of salaried staff. People costs should be adjusted to reflect this where needed.
Salary scales	In many situations the salary scales that apply to different groups of staff are very different. This makes cost analysis difficult ... but it also is an important issue that needs to be considered in planning, developing a strategy for sustainability and the analysis of performance. International pay scales are very much higher than local pay scales. This may be justified by the idea that international staff are better trained and have more experience ... but this justification may not always be valid. Labor costs are a critical component of cost. Expatriate staff costs may be 100 or 1,000 times the cost of local labor ... to some extent justified by the knowledge and experience of the expatriate, but the design of programs should include this important economic parameter. In the IMMC approach, there is a component of capacity building and training. This makes it possible for the organization to be optimized for cost effectiveness and local staff to be training so that they are not only low wage, but also productive and able to do the work that needs to be done. The Tr-Ac-Net metric for the labor component of cost includes a profile of labor cost by wage rate. There is a caveat about low wages ... the goal is not low costs, the goal is high cost effectiveness.
Benefits	In most situations the benefits accruing to staff are significant and should therefore be taken into consideration when computing costs
Expatriate benefits	
Government staff benefits	
Outsourcing	
Staffing tables	

Equipment costs

Cost to purchase	The initial cost to purchase is usually a substantial outlay, but because the life of the equipment is long ... several years ... the period cost is relatively low. The cash cost is high and immediate ... the operating cost may, however, be quite low.
Depreciation	Depreciation is the way accountants allocate cost to the current period from equipment that has a long life. If the equipment will last five years, the annual depreciation is the total cost divided by five. This is referred to as straight line depreciation because the annual charge is the same over the five years of the equipment's life.
Provision for depreciation	The annual or periodic depreciation charge is credited to an account usually called a provision for depreciation ... and specifically associated with the equipment item. As the equipment gets older the provision for depreciation becomes larger. When the equipment reaches the end of its life ... that is accounting life ... the cost to purchase and the accumulated provision for depreciation are the same.
Net book value	The net book value is the cost of purchase less the provision for depreciation. At the end of the accounting life the net book value of an equipment item is zero. Usually this is adjusted to be $1 so that there continues to be a flag in the accounts about this equipment.
Fully depreciated equipment	Fully depreciated equipment does not require ongoing depreciation charges, and is to this extent lower cost than newer equipment not yet depreciation. On the other hand technical considerations may mean that maintenance is higher cost and there may also be operating qualities issues to be taken into account.
Operating costs	Most equipment has considerable operating costs ... operator costs (labor) ... fuel and lubricants ... maintenance ... operating supplies ... etc.
Machine hour costing	Sometimes it is convenient to calculate a machine hour rate for costing. This might be calculated incorporating all the operating costs, or may be simply the cost of the equipment depreciation for the period divided by the anticipated hours of use anticipated for the period.
Variability of cost	Because each cost has a different behavior, it is usually preferable to limit the costs that are aggregated for calculation. There is a trade-off between precision and convenience.

Materials, supplies

Materials, supplies		Materials and supplies are frequently the key cost, and therefore important to understand and control.
Supply chain		The cost of materials depends very much on where the cost is measured in the logistics, supply or distribution chain. The cost "ex factory" may be very different from the cost delivered to an end user. Logistics ... ocean shipping, port dues, insurance, duties, warehousing, trucking, etc. are usually substantial costs even when done as efficiently as possible. Costs such as pilferage can also add substantially to the total cost.
Use of materials and supplies		Efficiency in the use of materials and supplies can made a big difference to the total cost of materials. This may be technical in nature as for example in the case of ULV spraying where droplet size can make a substantial difference in the amount of chemical used as well as how well the chemical works to kill mosquitoes.
Life of active materials		The life of active materials is another consideration. A long lasting insecticide treated bednet may have a life of several years ... so the annual cost is lower than the total cost outlay in the year of distribution and first use. The life of IRS treatment is several months ... maybe a year ... depending on the type of dwelling construction, the spray equipment and the chemical being used. Annual periodic cost is also impacted by the duration of the malaria season ... what might be OK for a short malaria season does not suffice for a longer season.
		In malaria control the active materials and supplies are both a big cost and a key to success. The behavior of cost and the way these active materials impact
Cost behavior		The analysis of cost should be based on units of measure that are the most relevant. Where the goal is the reduction of malaria, the unit of measure for cost analysis should be a good proxy for this goal, or a logical step towards this goal. In the case of ULV spraying, cost per acre is a useful metric because it relates to performance in an understandable technical way ... while cost per capita is an indicator of cost and possible cost effectiveness of impact on the population.
		CA uses indexes as a way to simplify the recording of change ... but mainly at the detail level. Progress requires change, and change can be reported using an index as a measure.
		CA identifies key indicators of progress in a community, but does not generally combine these indicators to form an aggregate index with the exception of the CA progress indicator. This indicator is a measure of the change in profile of the community over a period of time.
		Costs vary depending on the circumstances. Good program design minimizes costs and maximized cost effectiveness. This is a central focus of the IMMC strategy. Cost effectiveness is most easily optimized when there is good

		information about costs, without this information planning is merely a guessing game. In the IMMC cost effectiveness model, the strategy has a focus on achieving low cost so that there can be permanent sustainability. Accordingly there is a need to understand how costs behave under varying conditions.
		The analysis of costs should be based on the units of measure that are the most relevant. Where the goal is the reduction in the burden of malaria. The unit of measure should be a good proxy for this goal, or a logical step towards that goal.
		In the case of ULV spraying, cost per acre treated is a useful metric because it relates to performance in a useful technical way ... while cost per capita is an indicator of cost and cost effectiveness impact on the population. .

General expenses

General expenses Rent Insurance Telecom General repairs Security Travel Etc	Everything that is not already included in people costs, equipment and material costs should flow through general expenses. There are many things that must be included.

Operating overhead

Operating overhead	In most organizations there are multiple levels in the organization. An operating overhead are the expenses that are incurred in running a unit that is not directly involved with the operations. These units may be responsible for several operating units. Thee expenses have to be “allocated” between the various units to get the true total cost of the operating unit.

Financial costs

Financial costs	Money has a cost ... though there are cases where money comes at no cost as, for example, as a gift or grant ... but usually free money comes with some strings or constraints. If money is borrowed, and there are fees and interest to be paid, this is a cost that must be taken into consideration When money must be paid back ... this is not a cost, but it is a very important drain on the cash of the organization, and there must be planning for repayment. A good way of costing the use of money is to compute how much of the organization's assets are deployed to do the work. Assume a cost of capital ... of say 12% per annum ... and think of this is as the cost of capital. It is a useful discipline. The best operations are those that do valuable work with the least possible use of resources.

Standard Costs

Standard costs

Because cost is such an important metric, accountancy has developed techniques to have cost information in various efficient ways. One of the most useful techniques is the use of standard costs. This technique makes it possible to have useful cost information with a minimum of detail calculation. In most stable operations, actual costs and standard costs will be almost the same.

About Standard Costs

The application of Community Analytics (CA) is simplified by the use of standard costs. Standard costs are used in most corporate cost accounting systems and are a powerful way to reduce a large amount of data to something that can be readily understood and acted upon. CA takes the concept of standard cost and also applies it to value ... making it possible to understand value impact more clearly than any other approach.

The standard cost is what something should cost based on technical considerations and experience. The standard cost can be calculated from the bill of materials, the bill of labor, the operating processes and the costs associated with everything. In a factory setting, this is a very normal thing to do.

It is relatively easy to check that a standard cost is right by comparing the standard cost of all the production in (say) a factory department with the actual costs incurred by the department. If the standard costs reasonably reflect the actual costs there will be little difference between the standard and the actual.

This idea may be better understood by the following examples: (1) standard costs used in the construction of a pulp and paper mill; and, (2) standard costs for foundry production.

Example Construction Costs: Pulp and Paper Mill

This experience relates to the oversight of a large cost plus construction contract for a pulp and paper mill in Texas. The consulting engineers costed the whole project in detail, with a budget cost for everything that was going to be built, and costs for each of the stages of construction ... excavation, foundation formwork ... foundation concrete ... backfill ... structure ... roof ... cladding ... and then going through the purchase, installation and testing of the equipment.

Each week the contractor advised what had been done. Each week the contractor advised how much had been spent and how much they were owed.

As field accountant, I compared what it should have cost for what had been done with what the contractors had spent. My analysis suggested that the contractor had done about 1% of the work (based on the budget or standard) but had billed for about 2% of what was the total contract cost estimate ... in other words about a 100% cost overrun.

The next step was to physically look at the work being done ... and to understand why the costs were out of line. Almost everything was “padded” as far as it could be. Too many people in each work-crew ... unused spare equipment onsite not needed but being billed ... supplies ... like form lumber used once near new being junked ... etc.

Thursday, about 3 pm, the senior manager of the consulting engineers reviewed my work ... by 10 pm he had concluded that it was credible and called the contractors for an urgent review next day. Next day the contractors were ask to explain themselves ... and why 1,400 workers were on site? Monday the work continued with just 700 workers. The contract was completed on time and just 2% over budget!

When cost data are weak, it is usual for operations to be sloppy and costs excessive. When cost knowledge is absent, addressing cost efficiency will not take place and the easy way to do something will usually be chosen over the better way to do it. Examples abound in international development assistance, such as, for example ... the use of high cost international experts is often chosen over much lower cost local staff.

Standard Costs – Foundry Costing

This experience goes back to being VP manufacturing for an air-break switch manufacturing company where we had a foundry to produce the castings we needed. We produced thousands of different castings weighing from around 100 pounds down to about a quarter of a pound! For decades the company had used a simple "per pound" cost to describe the cost of their castings, and as a result over time the engineers had reduced the weight of all our castings thinking they were reducing costs, but in fact doing more to reduce product quality and foundry productivity.

When we used standard costing to define the cost of each casting based on the cost behavior of all the processes in the foundry, and the use of each process in producing the casting ... it became clear that the small castings were far more costly to produce ... and weight much less important than, for example, scrap rates, the amount of cleaning required, and what sort of equipment was used in production.

We validated the standard costs by comparing the total of production quantity times the standard cost (by part) with the total department costs for the foundry department. There was a variance but not big enough to invalidate the approach.

We refined the standards so that the various elements of cost were taken into consideration. We also refined the department costs to have various sections ... especially important being the cleaning room labor costs. We ran the standard actual calculation for a month and found cleaning costs under-estimated into the standards. We then did daily standard actual for labor costs in the cleaning room and were able to find specific castings that were the worst offenders ... due to design that made casting very difficult. The engineers improved the design ... making the casting heavier ... and costs reduced.

This became the new practice for design engineering and costing ... a win win for the company.

Price

Price is what a buyer pays for some good or service. It is what the customer pays at the supermarket or drug store.

Understanding price ought to be simple ... but is not. The price is usually framed in a way that makes comparison between different products as difficult as possible. This is no accident ... it is designed to confuse the customer and mis-inform as much as possible. Making comparison difficult is a standard practice in marketing.

There are also prices all the way along the value or distribution chain from factory gate to final retail sale. This chain sometimes involves changes in ownership, in which case there are prices that are reflected on invoices ... but the distribution chain may be under single ownership in which case there is no inter-organization price, merely a transfer price as the items moves along the distribution chain.

Price is also associated with the problem of affordability. People who need something may be poor and not have enough money to pay the price that the supplier can demand. This is a key issue in public policy for health, education and a number of other essential services needed by a progressing society such as water and sanitation.

Determining price

The market mechanism is the classic determinant of price, and, it has to be said, the market is more often better at getting a sensible price than bureaucrats in secluded government offices. But the market is not always right, and can be very wrong when there is an excessive amount of "gaming" in the market. The market works because there is some speculation ... but the market fails when the market is dominated by speculation.

Many prices are set, not by the market, nor by government fiat, but by thoughtful analysis in corporate offices. They are set with, in most cases, the goal of making the most profit from the product or service. The models to optimize profit are complex, but usually flawed. Good judgment and luck are important as well. Experience and knowledge of the product and the customer are vital.

None of these methods of determining price explicitly take into consideration the role of value. Corporate investment in profitable products and services trumps any investment in value producing products and services ... and at the limit, society fails.

Profit and Value Adding

Profit … financial profit

Financial reporting is calculated using prices ... that is revenues ... and costs to calculate and report profit. There are rules about how this is done in practice ... but the key principle that should determine the detail of the rule is that the revenue of the period should be matched with the costs associated with this revenue.

Caveat

One of the (many) ways in which modern American accounting has gone off track has been to have rules that allowed revenues to be taken into the accounts without the long term costs of these revenues. An example is the pension and health benefits of auto-workers who built vehicles that were sold years ago, but without these benefits being treated as a cost and provided for. The law and the rules of FASB and GAAP allowed this practice ... but the principles of good accountancy do not.

Wealth

When there is social value adding, there is wealth creation. There may be the appearance of wealth when there is a lot of profit ... but this wealth is inconsequential unless there is social value adding that supports the profit.

Some people thing wealth accumulation is the ultimate goal of an individual and family ... and while it is a useful driver of an enterprise economy, it is unsustainable if the production of profit is at the expense of the production of social value.

The economic crisis of 2008 had its roots in financial profits that were made by a community of deal makers that made money on deals while wrecking the underlying society. Financial wealth was created and concentrated among the deal makers while social value was destroyed throughout communities.

Value

The measurement of value has a large subjective component ... but it is still possible to have some useful measurement. By using the concept of standard value ... a concept rather similar to standard costs ... it is possible to compare different programs and see how one program performs relative to another.

> In the case of malaria control programs, the goal is to reduce mortality and morbidity. By having a table of standard values it is possible to report that one approach had more value relative to the costs than another.

The perception of value differs from place to place, and also changes over time. The changes are ongoing. Values change over time because of the evolution of society. The CA set of standard values makes it possible to start a process of understanding value perception better, and also to make value adding the goal of economic interventions.

Standard cost and standard value

Standard cost and standard value are very powerful techniques for managing and getting control of very large and complex operations. Actual cost systems are data intensive, with very many transactions that vary all the time, but only in a consequential way rather infrequently. The aggregate of these transactions is important, and the aggregate should not vary very much unless there is something going on that is of importance. A standard is built by being thoughtful about the item ... whether cost or value. The aim is to determine what the cost or the value should be.

In the aggregate the cost or value should be the unit standard times the number of items. In the case of costs, the aggregate of actual costs should be about the same as the aggregate standard cost. If there is a substantial difference, then there needs to be analysis to see what is causing the variance.

Value is different ... but when the consumption of value (a standard value calculation) exceeds the product of value ... that is the creation of value (another standard value calculation), then there is the need for inquiry.

Arguably, the core of CA is the use of value ... and specifically the use of standard value. Everyone knows that value is important ... but nobody wants to embrace value as a numeric measurable elements, despite the fact of its centrality to quality of life ... everything that is important in society.

Value

Price is not value. They are different concepts. Value is often expressed in terms similar to a price ... but they have a different origin. Value has to do with perception ... what someone is willing to pay for something in order to be gratified. Because the money numbers associated with value are rarely articulated, and not the subject of conversation and news reports, there is a weak set of value information. It is critical that this is changed. Associating a money number to values is regarded as a difficult ... even impossible ... task. However, this is very important if society is to have metrics that reflect what is the most important in society.

Relationship to price

If value is lower than price, there is no incentive to buy the item.

Something may have a low price, but have enormous value to the person using the product. An aspirin may have a low price ... but getting rid of a headache has big value.

Society is in a good place when goods and services have low prices and these goods and services have high value for the community.

Value adding ... social value adding

Value adding is a broader concept than profit. Value adding is the difference between the ending value and the initial value. It may also be thought of as the value created less the value consumed.

Value is rarely the same as price. Many things in life with the most “value” are truly priceless ... good health, friends and family, the birth of a child, happiness, and so on. It is a challenge to associate a number with value ... but CA does this by using a dialog around sets of standard values.

Value consumed is more than the financial costs. Value consumed reflects costs but also includes issues like the damage to the environment ... or the exploitation and consumption of natural resources that have taken millions of years to create as in the petroleum industry.

Value ... financial and social

Capital markets are all about value ... but it is financial value only. A stock has a value based on its financial profit history and profit potential. What the company does for society is not a part of the capital market computation. It is just about profit history and profit potential ... about money flows ... about risk and the safety of money capital.

Social value is much more. It is no accident that the phrase “Pursuit of Happiness” is in the founding documents of the USA and not “Chase for Money”. Happiness derives from social values that end up making life worth living. CA embraces both the financial and the social value and puts both in the metrics of the community.

About Standard Values

Standard values are used in CA in much the same way that standard costs are used ... that is they make it possible to quantify critical information without having a lot of detailed data and complex computations. Standard values are different from costs in that they vary depending on the perspective of an individual, the perspective of the community, and the value systems of different people and communities. Standard values reflect a variety of different value systems influence by culture and tradition rather than being a result of purely technical calculations.

The following table is an example of different standard values that might arise because of the different situations in, for example, the United States and a typical poor community in a developing country.

Description	A US perspective	A very poor community
A lost days work	$200	$2
Death of a child less than 1 year old	$100,000	$50
Death of a person aged 75	0	0
Extending life of 75 year old person by one year	$100,000	0
Having medication to save life of a child	$100,000	$50
Unlimited toys for Christmas	$50,000	$20
Being safe at home	$50,000	$100
Caring for an aging parent	-$50,000	$1,000
Caring for an orphan		$100

Standard values provide insights that are helpful. They start to show how different aspects of society and of life relate to each other. Different communities will value different things in different ways.

Values are central to the power of CA ... standard values are a way to make an idea into a reality. Nobody agrees much about what values are priority and what are of lesser importance ... and putting a numerical value onto this is considered impossible. But if value is going to be central to metrics then these standards have to be developed and then they have to be used.

It is not possible to get agreement quickly ... if ever. However, it is possible to start to build value profiles for each community, and it will then be possible to compare profiles between different places. These profiles of value make it possible to prioritize resource use in a more appropriate way for the community ... and for dialog about values to have a solid starting point.

What is value

Value is somewhat subjective.

Cost effectiveness

Cost effectiveness is a metric that relates the cost of doing something with the value of the results achieved.

Cost Effectiveness Example: Malaria

The global strategy for malaria is to reduce the burden of the disease ... value is derived from reduction in the burden of malaria. Let us take the following two situations:

1. Bednets are used, cost $10 per net ... and say $100,000 was spent on nets ... and the burden of malaria goes down down 5%.
2. IRS is used and $100,000 is spent on IRS ... and the burden of malaria goes down 20%

At first glance it appears IRS would have a cost effectiveness 4 times better than bednets. But bednets last 3 years and IRS must be done annually ... so the comparative cost effectiveness is closer.

The comparison model can be very powerful ... but the data need to be specific, precise and timely. At the present time with very limited data about malaria interventions it appears that most of the available funds are wasted.

Behavior of Cost and Value

Behavior of cost

Understanding the behavior of costs is the key to making program performance optimum. Matching the behavior of cost with all the other dimensions of operational performance makes it possible to get better results than might otherwise be expected. While elementary analysis is often based on simple relationships, efficient cost accountancy shows how low costs can be matched with high impact values for best results.