

D. T. HICKS & CO.

Cost Measurement and Management Consultants
6905 Telegraph Road – Suite 325
Bloomfield Hills, Michigan 48301
Tel: 248.761.3706 – Fax: 248.792.6026
dthicks@dthicksco.com
www.dthicksco.com

“...if cost accounting set out, determined to discover what the cost of everything is and convinced in advance that there is one figure which can be found and which will furnish exactly the information which is desired for every possible purpose, it will necessarily fail, because there is no such figure” – John Maurice Clark (1923)

July 2012

Dear Executive:

Visible light is electromagnetic radiation that we, as humans, can detect with our naked eyes. When we observe the heavens on a clear night – either with or without the aid of a telescope – we are detecting radiation in “the visible spectrum” – that portion of electromagnetic radiation emitted from celestial objects that happens to fall within the range our eyes can detect. We are not observing everything that is there; only those things emitting a certain type of radiation. This visible light covers only a small percentage of the existing electromagnetic radiation – I’ve seen estimates as small as .0035% and as high as 2.5% – so we’re only “seeing” a small portion of what exists and what it is doing.

Since the existence of radiation outside of the visible spectrum was discovered in 1800, scientists have developed tools for detecting and measuring the radiation in many other ranges of the electromagnetic spectrum. Aided by these tools, humans can now “see” and measure things that are invisible to the naked eye; from low frequency, low energy radio waves to high frequency, high energy gamma rays. The following link to the “Two Micron All Sky Survey (2MASS)” site provides many examples of the different views of reality that can be experienced by escaping the visual range and viewing celestial objects from other points along the electromagnetic spectrum:

<http://www.ipac.caltech.edu/2mass/outreach/optircomp.html>

This ability to see that which was once invisible has been a prime mover behind the exponential growth in our understanding of the universe as well as practical inventions humankind has found quite useful – like radio, television, microwaves, lasers, night vision goggles and x-rays.

Financial Accounting and Economic Radiation

Financial accounting is the decision maker’s visible light. Through the eye of financial accounting, a decision maker can detect and measure only the *economic radiation* that happens to fall within financial accounting’s “visible range.” Financial accounting does not detect and measure all of the economic radiation lurking in the universe; only the radiation within its limited range. When decision makers limit themselves to economic information as defined and measured by financial accounting, their level of effectiveness is comparable to that of a 21st Century

astronomer who limits himself/herself to information that can be detected through visual celestial observations.

The Search for Economic Radiation

Let's get out our telescopes and point them at a manufacturing facility. We'll zero in on a manufacturing cell in the facility and view it in the visual (financial accounting) spectrum. What we see is shown in Figure 1. All we can see through our telescope are four workers – the direct laborers working in the cell. Each of those workers has a cost attached for every hour they work; a cost that includes all of those manufacturing costs allowed under Generally Accepted Accounting Principles, both fixed and variable. In addition to costs such as salaries, wages, fringe benefits and payroll taxes, this cost per labor hour includes costs such as building and equipment depreciation, perishable tooling, utility costs required to operate the equipment, and equipment spare parts and maintenance materials. The rate also includes the cost of the company's maintenance, receiving, shipping, production control and any other departments whose cost is includable under the precepts of GAAP. There is, however, nothing incorporated in the rate to cover the company's cost of capital.

Costs from this cell are assigned to products based on the number of hours worked by the cell's laborers. If the product being produced in the cell requires only three workers to maintain the cell's throughput rate, the overall cost per hour of cell operation decreases by 25%. If another product requires that five laborers work in the cell, the overall hourly cell cost increases by 25%.

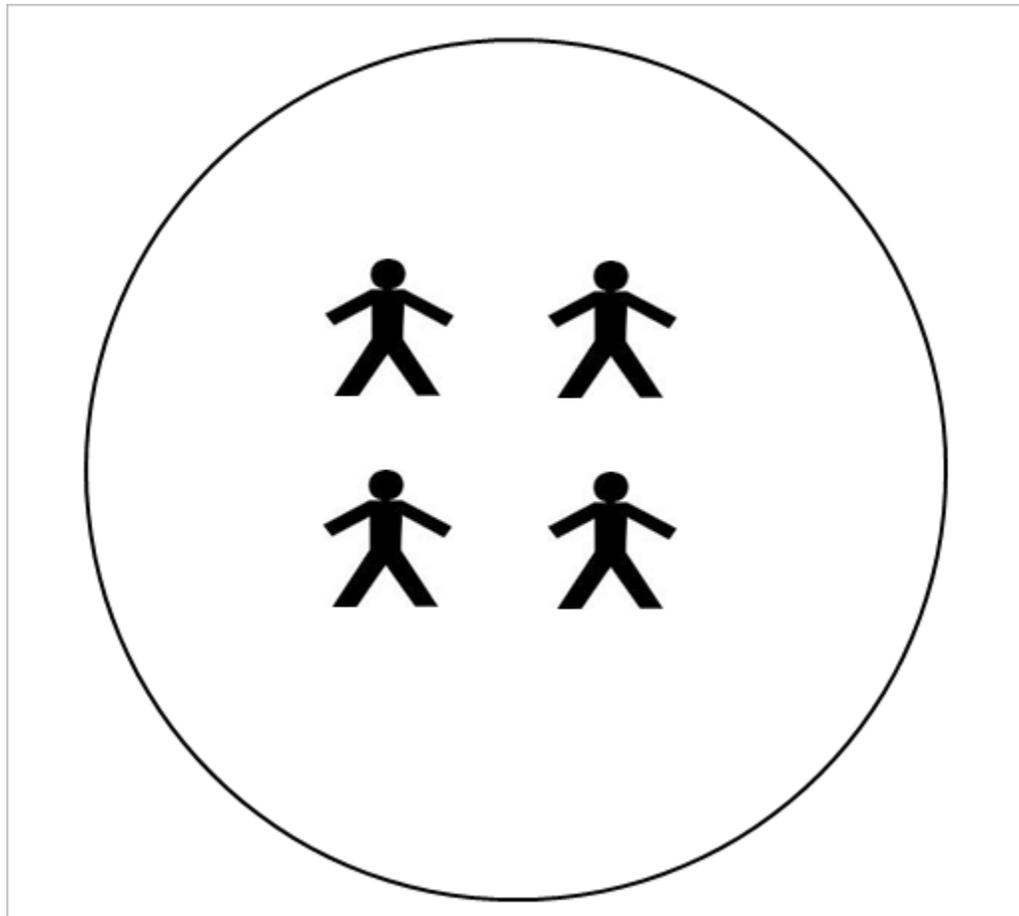


Figure 1 - Manufacturing Cell Viewed in the Visible Spectrum

All costs change in proportion to the labor; even those costs like building occupancy, depreciation expense, perishable tooling, equipment maintenance and operating utilities that have little or no relationship to the labor activities.

Now let's install a sensor on our telescope that picks a different portion of the economic radiation spectrum and see what it reveals. This is not the only other portion of that spectrum – that spectrum reveals a wider variety of economic radiation than can be discussed in a short article – but a portion that highlights one of the many different “views” that are critical if the business decision maker is to reach a level of understanding that will lead to sound management decisions and effective actions.

A look through our telescope after installing the sensor appears in Figure 2. Instead of simply revealing four workers, the sensor shows us that there is a dedicated area in which this cell operates as well as four pieces of equipment that have been assigned to the cell. The four workers in the cell no longer carry all of the manufacturing costs related to the cell's operation and the cell's costs are no longer limited to those allowable under GAAP.

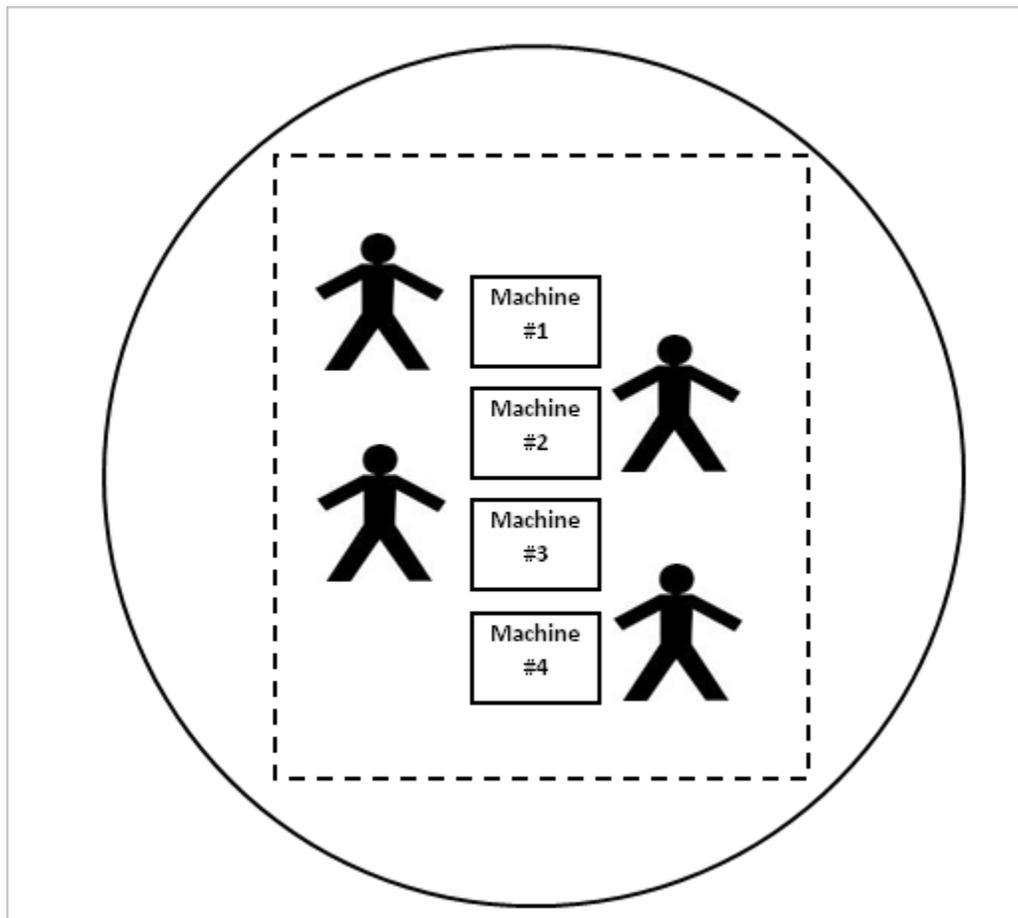


Figure 2 – Manufacturing Cell Viewed Through Sensor

Through the sensor, we see that the four direct workers only carry costs that are driven by the fact that labor is taking place in the cell. These include the workers wages, payroll taxes and fringe benefits as well as the cost of any support they get from worker-related activities such as human resources and supervision. Also included are any consumable supplies that are needed by the workers – not the equipment – while the cell is in operation.

The area in which the cells sits is also shown as a dedicated area that represents a fixed annual cost, regardless of how much labor takes place or how many hours the cell operates. This fixed annual cost is reflected in a cost per square foot of the cell's 'footprint' within the facility and includes an appropriate portion of the facility's rent or eventual replacement cost (not its GAAP-based depreciation expense), as well as its maintenance, real property taxes, facility-related utility costs and, if the facility is owned, a cost of capital.

The equipment that has been dedicated to the cell also shows a variety of costs driven by its existence and use during the cell's "uptime." Those related to its existence include a cost of capital represented by an annual return on assets – based on the "value" of the equipment, not its original or depreciated cost – that is sufficient to provide the company's owners with their targeted return on investment. Those that are driven by the operation of the cell include equipment-related utilities, consumable supplies, maintenance materials, utility costs and a cost per hour to cover the eventual replacement of the equipment (again, not GAAP-based depreciation expense). Also included are the costs of services provided to the cell's equipment by the company's maintenance activity.

Occupancy-, equipment- and labor-related costs are all assigned to the products produced in the cell separately. When a product requiring fewer or more cell workers is being produced, the cost per cell hour does not change in proportion to the change in labor. Instead, only those costs attributable to labor change, costs related to the occupancy and equipment ownership and operation remain the same.

Through this sensor, the manufacturing cell looks a lot different that it does in the visual spectrum of financial accounting. A comparison of the two views is summarized in Figure 3.

Spectrum	Cost Driver	Costs Driven in Proportion to Driver
Financial Accounting	Direct laborers	All "allowable" manufacturing costs - both fixed and variable - as defined by GAAP rolled up into a direct labor-based costing rate
Management Accounting	An unique area dedicated to cell's operation	A fixed annual cost per square foot for "renting" the floorspace required to operate the cell based on the cell's actual footprint including its maintenance, real estate taxes, basic building-related utility costs and a provision for the rental or eventual replacement of the building
	An unique set of manufacturing equipment dedicated to the cell's operation	A variable cost per hour - not a fixed annual cost - to provide for the eventual replacement of the manufacturing equipment dedicated to the cell A fixed annual cost of capital representing the ROA required to meet the owner's ROI target and based on the value - not the original cost or depreciated cost - of the equipment dedicated to the cell
	Direct laborers	A variable cost per hour that includes the workers wages, payroll taxes and fringe benefits as well as distributions from those other activities that support direct labor including human resources and supervision
	Costs that vary with cell "uptime"	A variable cost per hour that includes the cost of utilities, maintenance materials and consumable supplies driven by the use of the equipment as well as distributions from those other activities that support equipment including maintenance.
	Costs that vary with direct labor	A variable cost per hour that includes the cost of consumable supplies driven by the efforts of direct laborers within the cell

Figure 3 – Comparison of Financial Accounting's & Management Accounting's View of the Manufacturing Cell

As mentioned earlier, this is just one of the many alternate views of the cell. For the management accountant, other views will be required depending on the decision or action being contemplated by management. Different economic radiation information will be needed if the objective is to value inventory and cost of sales, measure the impact of an operating improvement, estimate the cost of a product for use in a pricing decision, determine the return on

a possible capital investment, evaluate the advisability of outsourcing a process, support a make/buy decision, select the lowest cost (vs. lowest price) vendor, or any other use. As John Maurice Clark pointed out ninety years ago in his classical work *Studies in the Economics of Overhead Costs*, "...if cost accounting set out, determined to discover what the cost of everything is and convinced in advance that there is one figure which can be found and which will furnish exactly the information which is desired for every possible purpose, it will necessarily fail, because there is no such figure." The effective management accountant understands that there are "different costs for different purposes" and has the ability to view economic radiation at whatever point along its spectrum is appropriate for the use at hand.

Managerial (or Decision) Costing ≠ Cost Accounting

Managerial costing is not cost accounting. Over the past century, cost accounting has been manipulated and oversimplified by financial accountants to insure its ease of use in supporting the financial accounting system. Unfortunately, decision makers have become accustomed to using such inaccurate and irrelevant cost accounting information in spite of their intuitive doubts about its accuracy or relevance. As a consequence, the quality of decisions has suffered. Materials and parts were sourced overseas where the prices were lower, but additional costs not measured or traced appropriately by financial accounting obliterated the price savings and made the total costs greater. Lean initiatives were overlooked or rejected because the substantial benefits that would have accrued were not measureable under financial accounting's precepts. Manufacturers attracted unprofitable business, some of which drove those companies out of business, because the aggregation and illogical assignment of costs caused them to severely underprice products. The focus on EBITA resulted in the deterioration of manufacturers' capital bases and left them unprepared for future opportunities. The list goes on. Reliance on the severely limited visual spectrum of financial accounting has made it impossible for many manufacturers to survive, let alone grow, in the ever more competitive worldwide marketplace.

Conclusion

The confusing "clutter" of concepts circulating in the management accounting community (Financial Accounting, ABC/M, Lean Accounting, RCA, GPK, etc.) is a direct result of individuals viewing business from differing points along the spectrum of economic radiation and believing theirs to be the only valid point of reference. Each concept makes perfect sense when the portion of the spectrum being used is believed to be one-and-only "economic truth." The fact is that the "economic truth" can change as decision situations change. Only by understanding the entire spectrum of economic radiation – not just one small section of that spectrum – can management accountants provide the decision support needed for a manufacturer to be financially successful in the 21st Century. Continued reliance on economic information that is emitted from only a miniscule portion of the vast spectrum of economic radiation – regardless of which portion that is – is a road that leads to underachievement for those who are lucky and failure for those who are not.

Updates

The Society of Cost Management arranged to videotape and post one of my presentations that included observations concerning "economic radiation" from outside of the financial accounting portion of its spectrum. The 45-minute session titled "Understanding the Impact of Investment Costs of Productivity and Profitability" can be found on YouTube at:

<http://www.youtube.com/watch?v=9rSQN39oZWc&feature=youtu.be>.

The Society also videotaped and posted a two-part presentation on the soon-to-be-published study by the Institute of Management Accountants on “The Conceptual Framework of Managerial Costing.” Larry White, Chairman of the committee formed to develop study, former Chair of the IMA and current Executive Director of the Resource Consumption Accounting Institute is the presenter. Each part runs about 35 minutes. You can find them at:

Part I <http://www.youtube.com/watch?v=bpC2KkgWiGI&feature=relmfu>

Part II <http://www.youtube.com/watch?v=4wMvkH6Fjr4&feature=relmfu>

I hope you’ve had a good first half of 2012 and that the second half proves to be even better. As always, feel free to forward a copy of this letter to anyone you believe might be interested (or at least amused) and do not hesitate to contact me if you have any questions or comments.

Very truly yours,

Doug

Douglas T. Hicks, CPA
President