Thinking Allowed Part Two: "Inactivity Based Costing"

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Financial Accounting records have been around for thousands of years, but Management Accounting is a much more recent phenomenon.

The emergence of different organisation structures, notably from the latter part of the 18th century when the factory began to replace the household as the centre of productivity, was the "fuel" for demanding new ways of presenting accounting information.

Management Accounting, includes standard unit costing, was invented in the period from 1880 to 1926.

Hard to believe today when it is more popular to characterise accountants as "bean counters" but this period was a hotbed of innovation and invention.

The same conditions for change exist today; with changing demand patterns and improved ability to "model" business processes opening opportunities to provide much more relevant accounting information.

Then

Pre 19th century virtually all exchange transactions were made at "arms-length". A merchant or entrepreneur would for example: -

> Buy raw material from suppliers

> Pay "piece" rates to workers

> Sell to customers

Success under these conditions (at least from the Merchants perspective) was quite easy to measure; cash from the sales must exceed cash expended for product.

Success was less clear for the workers; more social comment and beyond the scope of this short article but "piece rates" were still around in the UK as late as 1945. At that time in the UK miners were paid for how many "coal tubs" they produced per day; nothing was given for mine props.

So, back in the day, with simple organisation structures and direct market traceability between the sell price and the money the business had parted with to make the product; a product cost was born.

It allowed owners of the companies of the time to compare their cost of producing an article with a competitor for example, or the cost of an additional feature versus the extra price the market was willing to pay.

The "simple product costing" model began to unravel during Industrial Revolution as enterprise owners committed significant sums of money to their production processes and the emergent "factory system" was organised on a hierarchical structure. This included encouraging worker specialisation and changes to compensation from piece rates to payment for attendance.

The key point is that these changes replaced direct market transactions and fuelled the need for other ways to assess competitiveness.

Real market traceability was made more obscure again by the propensity of successful companies to integrate vertically. For example, if you built cars and owned the Steel Mill then the transfer price between organisations was not introducing real new money to the overall business anymore.

If you wanted to know how well the Steel Mill was performing, key performance indicators such as "cost per tonne" and "inventory turns", just a couple of a whole plethora of new measures of "efficiency", were invented.

Cue……. *the Innovators*

As the complexity of organisations increased and market traceability was subsumed by local efficiencies, so the demand arose for new management accounting information.

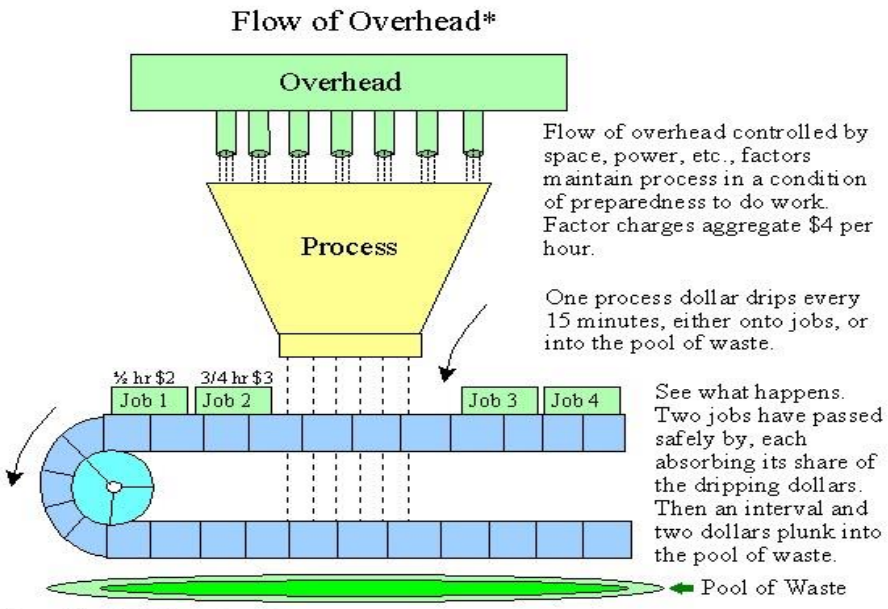
Credit for inventing standard costing is quite hard to assign to any one individual. Many engineers and accountants were involved.

According to some Harington Emerson and G. Charter Harrison were the first to publish a description for analysing standard cost variances.

But to mention only Emerson and Harrison would be to do an injustice to other innovators such as H.L. Gantt and the amazing contribution of Alexander Church

H.L. Gantt: *"Manufacturers in general recognise the vital importance of a knowledge of the cost of their product, but few of them have a cost system on which they are willing to rely under all conditions"*

Alexander Church appears to the author's eyes to be one of the first to combine concept with visualisation:



* Adapted from Church's Figure 3, p. 70.

At this time costing information was often designed by engineers who understood their product process characteristics and was intended to serve two main management purposes: -

> To check that the product diversity under consideration was worthwhile considering what the market would bear in terms of price
>
> To check whether a particular division, or location, within the overall company portfolio was profitable and worth investing in further.

The mechanics of the system had one last twist worthy of note: the growth of companies around the 1920's and the pressure on capital markets was the motivation for public accountants, those who had

to audit accounts and say whether they were a true and fair reflection of a company's trading position, to agree standard well defined procedures that any audit firm could apply fairly.

The public accountants could not cope with the diversity of methods they encountered when contemplating the costing practices of the engineers and so traceability of costs to products was given up to a broader method of allocating cost to inventory for periodic profit reporting.

The result was a convention which inflates the value of work in progress and finished goods with labour and overhead costs and this inadvertently increases profit during periods of overproduction; so pretty dumb today but a solution to the problem of the 1920s.

Ever heard the phrase "we have not recovered enough overhead" well now you know what it means "we haven't produced enough things". Never mind that we have satisfied demand and reduced our lead times. The double entry book-keeping is unhappy!!

A few key points here are:

- Standard unit costing was an "invention"
- It is nearly 100 years old
- It has morphed into a financial accounting system in order to value inventory for periodic profit reporting and no longer does justice to "decision making"

Zombie Zone

So, standard costing has not been with us for that long.

For those interested in the history of the development of the ideas of "costing" and management accounting kick off with Johnson and Kaplan's book "Relevance Lost: The Rise and Fall of Management Accounting".

And as you might glean from the title of that work it is those author's conclusions that innovations were "pooh" during the long period from 1925 to the 1970's or thereabouts.

There were changes but many had more to do with the mechanics; reducing the cost of acquiring the data or speeding up the processing by utilising increasing computing power in 1960's and 1970's.

As far as purpose was concerned there was some debate in the 1960's hinging around the difference between Marginal versus Fully Absorbed costing.

Fast forward to 1980s-1990s and the debate was largely the same although it was now represented by the two polarised positions of Throughput Accounting (TA) and Activity Based Costing (ABC).

In the opinion of this author ABC won; the statistics claiming ABC adoption by companies were telling.

The "tell" was that it had more to do with familiarity than revolution. The "desire" to allocate overhead reveals an appetite to continue via a different mechanism; it is a re-collective device for accountants.

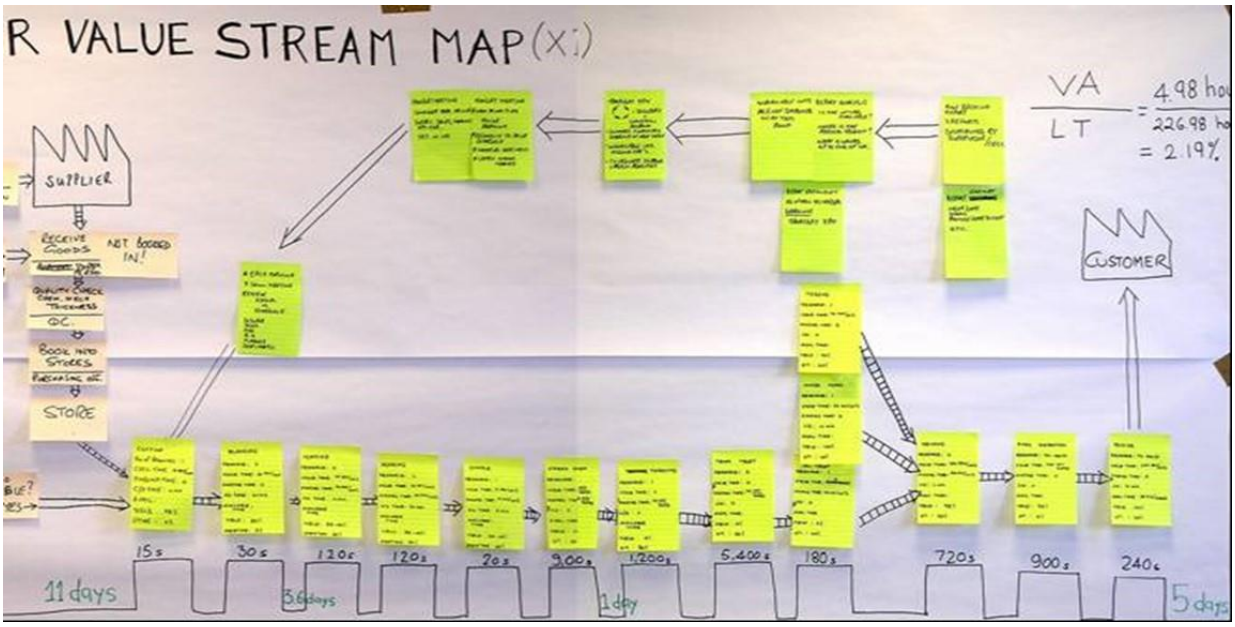
It is not desirable or possible to get rid of the financial accounting rules of product costing not least because it's part of the business environment which cannot change independently: the parent group, the shareholders, Companies House, the stock exchange all expect traditional accounting disciplines to be maintained.

But we must recognise the negative consequences of standard unit costing systems. They are based on a 1920's formula which multiplies production time by allocated money and results in bizarre conclusions regarding "productivity", encouraging optimisation of individual processes rather than the whole: -

- They encourage overproduction by their clumsy interpretation of the “value added” principle
- They do not recognise the importance of bottlenecks, constraints or pacemaker processes
- They encourage local efficiency creating “islands of excellence”
- They have little or nothing to say about lead times
- They promote the idea that, “*The bigger the batch, the lower the unit cost”*
- They encourage “cost reductions” which often prove to be mirages

Basically, today the system provides such distorted messages that basing decisions upon it are perilous.

Picture this…..



This is a value stream map and many of the readers of this article will have constructed something like it in the past.

There are often several outcomes springing from taking part in such an exercise but for us the most interesting output is the comparison of the Lead Time with the Value-Added Time.

And in this instance, to be honest, 2.19% is very, very, respectable; it is often less than 1% value added and over 99% non-value in manufacturing.

Two aspects of this alternatively appal and intrigue us in equal measure.

Firstly, a major source of this difference between VA and NVA is designed into manufacturing organisations by the system parameters required to run the local ERP system. These systems require 4 fields to be populated called by various names but fundamentally MOVE, QUEUE, SET-UP and RUN.

The reason behind these requirements are for MRP II to establish product priority/sequence rules (See Thinking Allowed Part Three article *ERP Rest in Peace*)

Of course, this logic (sic) is self-fulfilling; if you release work with no consideration of capacity or system condition, as in the case portrayed, 229 hours earlier than you need it, then you will get at least a 229-hour lead time. And no ERP MRPII system today knows how much work in progress is too much.

Secondly considering the VA is only 2% why do we not get more upset about what is not happening for 98% of the time?

All the emphasis in standard costing as administered today is focussed on speeding up the 2% elements. And if they are successful and a small number of seconds or minutes are taken out of any cycle time then the product cost will fall.

Hilariously funny actually☺ because of course time and money behave quite differently and all forms of "allocation" required for product costing are likely to create entirely artificial relationships that never apply in practice.

By way of example we read an article that recorded that Bill Gates earns $130 per second. Which then goes on to suggest that if Bill Gates was walking along the road and saw a $100 bill on the floor in front of him, it wouldn't be worth his while to bend down and pick it up. *Jesus wept*☹

But an even simpler thought: why make life so complicated by trying to optimise the 2% when you can work on the 98% waste?

If we moved to Inactivity Based Costing, we would be motivated to reduce the 98% queue or lead time length.

When lead times reduce it helps: -

Improve quality and engineering change

Improve total margins and investment

Improve due date performance and inventory holding

And as the great man Taiichi Ohno said all those years ago "all we are trying to do is reduce the time from when we commit money to materials to the time we collect money from the customer"

So "improvement" is all about the common sense reduction of lead time

Buy with one click; delivery tomorrow

To our eyes there is evidence that the hierarchy of needs is alive and kicking. Satisfy the needs of the physiological and safety and we turn increasingly to needs of belonging, esteem and self-actualisation.

Admittedly not everyone on this planet enjoys the full range but we would put forward two examples of demand and supply to support the proposition that demand is insatiable and changing.

Firstly, the creation and development of Amazon & Fed Ex is a response to a culture of immediacy. Customers are getting less and less tolerant of "waiting". They are beginning to expect anything, anywhere, anytime.

Secondly for example: A set of eight dinosaur cupcake decorations purchased for £7.99 on Amazon.com costs £20.00 to ship to arrive at my home the next day *1

Think of the information and physical flow systems that have been set up to respond to these "exotic demands". Customers are completely oblivious to the logistics performing behind the scenes in order to satisfy these "wants".

As individuals we could question the society that is ignorant to the "black box" systems which permit lifestyle convenience over global issues, but it is not up to companies to question these motivations.

For survival it is up to the companies to respond.

And now for something completely different

Standard costing has nothing to say about lead time; if there is an accounting response it is often depressing……"reducing inventories are a one off gain".

If we want to design an accounting system which encourages us to compress lead times in order to respond faster to customers, we need to highlight "inactivity".

We are working towards reflecting "inactivity" with new measure we call "the Flow Cost".

The concept is quite simple; the longer a product or service takes to pass through an organisation the more it is exposed to the money it takes to run the organisation.

If we manage to halve the lead time, then the products or services are not exposed to the organisational costs for as long and the "flow cost" comes down.

The implications of this new measure that we would call a high level KPI, is that it encourages lead time compression which can then be passed on to customers.

The Flow Cost is the antithesis of ABC because it made up 98% from inactivity.

Imagine the implications: -

Reduce batch sizes and the Flow Cost falls ☺

Establish standard work in progress via "5s" and the Flow Cost falls ☺

Increase capacity without a corresponding increase in Throughput or reduction of Lead Time and the Flow Cost increases ☹

Release capacity by improving quality and reducing scrap or rework and the Flow Cost falls ☺

Change is inevitable *(unless you're talking about the drinks machine at the University)*

We think there is a compelling case for changing Management Accounting because of:

The insatiable demand for variety

The intolerance of modern customers to delay

The capability of logistics to deliver in shortened lead times

The improvements in information flow

There are some new data requirements for doing the calculations to show the Flow Cost but most of them are already contained within ERP systems; so, it is more a question of extraction and manipulation than expense of new data capture.

The Last Bit

We are not arguing about the need for Financial Accounting: we need it most definitely and we need it to be vigorously practised. There are rules and they need to be followed

We are talking about Management Accounting.

We were trying to think of a common sense way to put it? And as per normal our thoughts go back to how we run our own lives:

Do you spread the cost of your mortgage payments over all the rooms in your house? Is it massively expensive to have your children play in the back bedroom but much cheaper to do so in the living room because of “ABC Cost Drivers”?

Do you consider eating out because having had the kitchen refurbished it has sent the cost of your meals up and now it’s cheaper to eat in restaurants?

Smile if you like but someone back in your business will be calculating such rubbish and be taken seriously

These “systems” are nearly 100 years old now and due a re-think. We aren’t criticising their invention; in their day they did a lot of good. But now they are holding us back

So, if you believe “improvement” is all about the common sense compression of lead time why not at least try Inactivity Based Costing. And encourage operations to take actions to reduce lead time and offer customers shorter and shorter response times.

It can be used for competitive advantage.

*1 Acknowledgements

CLAIRE LYSTER “The Logistical Future” CABINET MAGAZINE, Fall, 2012, issue 47.