

Thinking Allowed Part One: Once Upon a Time in Continuous Improvement

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Then

Once upon a time MRP and Standard costing systems were great break through inventions and moved manufacturing organisations of their day on enormously.

They represent two of the biggest elements in modern manufacturing organisations information structure. In the case of standard costing the original work was completed in the 1920's and in the case of MRP during the 1960's and 70's with the growth of computing power.

OK MRP has morphed a few times to newer versions, notably MRPII, in a desperate attempt to get it to take into account capacity but to no discernible effect.

Perfidia

They became irrelevant to the needs of modern manufacturing decades ago and are now doing positive harm to the organisations who revere them and spend millions on their upkeep.

These systems: -

- Pre-determine batch sizes before calculating "load" on resources when a common sense response would be to work out utilisation of resources first and then consider changeover and batching policies
- Use fixed lead times to calculate start dates (there is no such thing in life as a fixed lead time). Result: work orders with start and end dates in the past. Tricky unless you happen to have a Tardis
- Tell you that the bigger the batch the cheaper it becomes per unit; when it's clear total cost increases as batches get larger
- Promote over production by a facile interpretation of value added which says "each time I make something I add value to the company"
- Allocate massive overhead costs based upon the tiny labour content of work and consequently encourage "busyness" claiming frankly hilarious "cost savings" on the back of making too much too soon

The list is not meant to be exhaustive but they are betraying continuous improvement movements

It is a case of uncorrected obsolescence rather than original error.

And it does beg the question: when does standardisation or convention actively mislead and hinder development?

Deus ex Machina

ERP represents the current state of the evolutionary development of computing power via integrated, shared data systems for organisations. Their growth and adoption statistics are impressive. Often built on a centralized database and normally utilizing a common computing platform, ERP systems encompass all business operations into a uniform and enterprise-wide environment.

In plain “English” this means you only have to enter the data once and that all users in other functions can see it almost immediately.

The arguments put forward by the proponents for the MRPII and Costing modules within the ERP suite are quite seductive.

“If only they (production) would stick to the lead times in MRPII everything would be ok”.

And it would, except that lead times are a function of demand and capacity and cannot be pre-determined so the “work to lists” produced by MRPII are impossible to follow.

“If we allocate the costs properly we can compute more accurate unit product costs”.

Except profit is a function of total revenues less total costs and allocation of costs does not lessen the total. And prices are set by markets.

The rules of standard costing are there for financial accounting purposes so that profits and taxes can be worked out with a reasonable chance of representing a “true and fair” view of results. It has to be said there have been some high profile cock-ups on that front recently via Tesco and Toshiba (something about the letter T?) but on the whole it works ok. The problem is that the same dated system of inventory valuation for periodic profit reporting and hence taxation is being used for management decision making and it is long due an overhaul. In the next part of Thinking Allowed we will look at alternatives.

The rules of MRPII are actually more obscure, hidden as they are within the code of the computer software. They are no less divisive and reduce planners to dealing with error messages from MRP instead of pro-actively planning by understanding demand and capacity thoroughly. In the final article of Thinking Allowed we will look at alternative ways to consider these subject areas

“We’re here.” “Here was this?”

Many people reading this short article will have been involved with an ERP implementation.

Breathtakingly expensive to install and prone to significant overruns of cost and time, it is hard to see why the MRPII and Costing elements within ERP are still popular. In manufacturing businesses they are often justified on the basis of reduced inventories and lead times and the associated cost savings, the cornerstones of good supply chain management.

And for all their promise too often they fail to deliver¹.

There have been plenty of warnings that these computer “solutions” are improbable by some of the major thinkers in manufacturing of the 20th century who made breakthroughs without MRP or cost accounting.

- Taaichi Ohno: “It was not enough to chase out the cost accountants from the plants. The problem was to chase cost accounting from my people’s minds.”
- And Deming: “...using cost accounting metrics to make decisions is like “driving by looking in the rear view mirror.” “...we need good results, but management by results is not the way to get them”
- Henry Ford was rightly lauded for prioritising flow firstly by limiting space and later by moving assembly lines. The amazing success can be judged by the fact that in 1926 the lead time for a completed car from iron ore was 81 hours! No manufacturer today comes near to beating that.
- Taaichi Ohno could not afford the investment to justify moving assembly lines because at the time his demand was high variety and low volumes. And so he designed the Kanban system and as a by-product caused a change of thinking from inventory being an asset to a liability only to be tolerated temporarily.

So, tell us, with all the rhetoric we hear today about “systems thinking” “value stream management” and “end to end processes” why aren’t standard costing and MRPII firmly in the firing line?

Nobody Move and Nobody gets Hurt

Empirical evidence is that many companies would sooner ignore these system design flaws.

However considerable store is set by the device of putting an old truth in a new form which is why we hear a lot about changing the “culture”. More often than not change is directed to the lower reaches of the organisation whilst the main information structures, roles and responsibilities remain the same.

It is far more comforting to talk about changing the culture of the shop-floor than redefine your own work as Finance Director or Head of Supply Chain.

It is not within “the gift” of the shop floor employees to change these systems only senior managers have the authority.

¹ SAP had some very well publicised Law Suits a few years ago because of alleged system failures

Hopp and Spearman quote the stagnation of inventory turns in the USA in the same period as a growth of MRPII adoption.

Personal Experience

Neither is the lack of insight limited to these “functions”. Assessment organisations appear to be quite content to give out “gongs” without evidence of a “pull system” and costing methods which encourage over production, the worst form of waste.

So why do so few “Leaders” take on these issues but relegate themselves to “Leader Standard Work”.

Leader standard work is good but you will not spot the abnormalities of an awful costing assumption about batch sizing or the daft algorithms within an MRPII system by a walk on the shop-floor.

The issue of change is also tied up with the credibility gap; “How can our systems be wrong everyone has them?”

And this is the point; as long as everyone is competing with the same poor systems then the conventional organisations are ok. The problem for the majority occurs when some single company begins to do something discernibly different; like Toyota for instance in the field of operations management.

Ironically it is not too hard to make MRPII work much better via a “pull system” because the basic architecture is sound enough; it just cannot handle capacity properly and is useless at working out start dates for schedules.

Similarly with accounting, no manufacturing company is going to take lightly the complete overhaul of its traditional accounting system, not least because it is part of the business environment which they can’t change independently.

But many of us run our lives quite successfully without allocating our mortgage repayments over all the space in our house or reducing our “cost per child” by not sending them on to higher education.

If you feel, like us, that it is possible to free yourselves from the constraints of these antiquated systems and consider where your organisation could be much more successful maybe even achieve a step change then sign up for parts two and three of Thinking Allowed and check out the University of Buckingham’s Lean Enterprise Unit (BLEU), we would like to share ideas.

- ▶ Thinking Allowed Part Two: “Inactivity Based Costing”
- ▶ Thinking Allowed Part Three: “ERP/MRP Rest in Peace”