

1. MRP

Materials Requirements Planning - a production planning and inventory control system used to manage manufacturing processes. Most MRP systems are software-based. It is possible to implement MRP as a manual process.

An MRP system is intended to simultaneously meet three objectives:

- a. Ensure materials are available for production and products are available for delivery to customers.
- b. Maintain the lowest possible material and product levels in stock
- c. Plan manufacturing activities, delivery schedules and purchasing activities.

Prior to MRP, and before computers dominated industry, reorder-point/reorder-quantity (ROP/ROQ) type methods like EOQ (Economic Order Quantity) EBQ (Economic Batch Quantity) had been used in manufacturing and inventory management. Joseph Orlicky developed ERP in 1964 as an early response to the Toyota manufacturing methods being highlighted as 'best-practice'. Black and Decker were the first to use MRP in 1964. By 1975 MRP had been implemented into 150 companies. By 1981, 8000 companies had introduced it. There was a need for development as it was recognized that 'in-practice', irrespective of what had been promised by the marketing and sales pitches used to promote this 'solution', there were as many problems created by these control systems as there were problems resolved by them.

2. MRPII

Manufacturing Resource Planning – In 1983, Oliver Wight developed MRP into MRPII. He is known for his book 'The Oliver Wight ABCD Checklist for Operational Excellence' first published in 1988. This saw other practices like Rough Cut Capacity planning, requirements capacity planning, Master production Scheduling and S&OP (Sales and Operations Planning – later to evolve into SO&FP – Sales, Operations and Financial Planning) methods introduced to the software systems. By 1989 about 1/3 of the software industry in the US was MRPII, identified at that time as a \$1.2 Billion market. It is interesting to note, that the ABCD checklist starts with 1. Strategic Planning processes, 2. People / Team processes and 3. Continuous Improvement processes while 'Planning and Control' processes are only featured in the *last* chapter.

3. ERP

Enterprise Resource Planning – Over time it was realised that these systems fundamentally hadn't resolved the issues in business they were designed to address. The response was to increase the reliance on software. With the 'Fear' surrounding the turn of the century and the proposed 'Crash' of all computer systems due to the predicted incapacity to manage the date change from 1999 to 2000, ERP seemed to replace MRPII 'over-night' (to use a generalism). ERP was provided to integrate internal and external management information across an entire organisation, embracing finance / accounting, manufacturing, sales & service & Customer relationship management etc. Popular systems include SAP and IFS among many others.

4. MIS

Management Information Systems – Through the 1990's, Six Sigma had evolved out of 'Lean' (See notes below). The Banking and Finance industry looked to Manufacturing (Motorola / GE) during this period and introduced Six Sigma. In so doing they also took on-board ERP systems as a response to their own challenges and an accompaniment to their change programs. In this particular arena the name 'Management Information System' evolved. MIS systems are proposed to encompass three primary components: technology, people (individuals, groups, or organizations), and data/information for decision making. MIS is claimed to be distinct from other information systems like ERP, as they are designed to be used to analyze and facilitate strategic and operational activities in the organization. Academically, the term is commonly used to refer to the study of how individuals, groups, and organizations evaluate, design, implement, manage, and utilize

systems to generate information to improve efficiency and effectiveness of decision making. However good such stated academic intentions, in practice, they are used and drive people to perform in much the same way as ERP based control systems do in any other sector. In general parlance, ERP and MIS are interchangeable terms in different sectors and all are typically too big and too complex for any one person to understand in sufficient detail to guide and develop the use of them at operational efficiency and strategic levels. In the absence of generic human comprehension, the logic built into the programming language sees many irrational and illogical processes and decisions evolve, as 'common sense' gets lost in the size and complexity of the organizations the control systems are designed to help. (Studies by Dr. Glen Parry of Warwick Manufacturing Group found that only 2% of ERP implementation projects met expectations, the other 98% of implementation projects going over time, over budget and failing from a quality and capability perspective, mostly by 100's of percent above original estimates).

5. BSC

Balanced Score Card – The need to be able to give leaders a framework or model by which they can conceive the interacting aspects of an organisation has seen some become more popular than others. Kaplan and Norton first made the 'Balanced Scorecard' popular when writing an article called "Using the BSC as a strategic management system" in the Harvard Business Review in 1996. As that suggests, the model was originally a simple performance measurement framework before it became a strategic model. An example of a similar model that hasn't obtained the same popularity is Nadler and Tushman's Congruence Model, which also shows how organisational outputs become market standards which in-turn become the feedback / input mechanism organisations must respond to. This aspect isn't overtly included in the design of the BSC.

6. EFQM

European Foundation of Quality Management – With much misinterpretation of 'The Toyota Production System' (As Quality Circles for example), many industry experts, leaders and influencers, like Crosby and Juran among others, have focused on and promoted Quality above all else over the last 4 decades or so. [This is ironic, as the original TPS principles behind western headlines like "Quality Circles" included such KPI's (Key Performance indicators) as QCDGSM (Quality Cost Delivery Growth Safety & Morale) as detailed by Jake Brake, owned by Danaher & one of the first, if not *the* first western manufacturing company to receive training directly from Toyota. This QCDGSM acronym remained cognoscente of Muda (The 7 Wastes) and Muri and Mura (The 8th – Human / Psychological – Wastes). In recent years, largely to suit a western culture submerged in a Keynesian Economic belief system, these fundamental and holistic KPI's have been reduced to QCD, largely to suit 'logical' / 'fiscal' measurement and reporting practices buried in ERP systems. Ignorant of this, many 'Quality' focused methods and models have evolved, leading to western / global industry quality standard organisations being created and becoming regulators, like BSi (British Standards Institute) and ISO (International Standards organisation). EFQM is an organisation named after this focus on Quality, but it promotes a 'non-prescriptive' and holistic model, which is in essence, an alternative to Hoshin or BSC. In it's simplest form the EFQM model is a 9 box Cause and effect diagram comprising 5 enablers and 4 results.

The 5 enablers are:

- i. Leadership;
- ii. Strategy;
- iii. People;
- iv. Partnerships & Resources and Processes,
- v. Products & Services.

The 4 result areas are:

- i. Customer Results;
- ii. People Results;
- iii. Society Results and
- iv. Key Results.

7. Hoshin Kanri Also known as ‘Policy’ or ‘Strategy’ Deployment – In very ‘rough’ terms, this might be considered a Japanese equivalent of Western Strategy models like BSC, but this misses the essence of the approach and does a disservice to the depth of thought and philosophy that saw it evolve. In its simplest description, it is an operational strategy model that evolved in Toyota to provide a visually managed ‘framework’ that offers all members of an organisation a clear and contextualised connection between narrow and deep (day-to-day) actions and broad and shallow (organisational) outcomes, in a planned vs. actual format.

The crucial difference, that works at much deeper levels than are not often considered in business best practice today, is the use of ‘time-line’ reduction as the primary measure and driving force of actions required. The philosophy behind the development of Hoshin recognised the importance of people being able to emotionally ‘connect’ to their own capability to influence results. In providing this in the form of ‘Time-lines’ (Raw Material to Finished Goods | Concept to Launch | Order to Cash), which can be impacted by day to day process improvements (within the individuals control), this model recognises the failings of ‘Fiscal’ measures used as a driving force behind current actions, and the use of fear (of attaining or missing an imaginary future state) as a control mechanism. Using ‘Time reduction’ as the driver of actions in the present, Hoshin relegates ‘fiscal’ measures from the ‘Drivers and objectives’ column to the ‘Outcomes / benefits’ column (which can only be assumed now and measured retrospectively). This is a psychological stroke of genius. However, to be applied in a way that works in harmony with ‘human factors’ in the west, it requires an understanding of this, and fundamentally a change in ‘belief’, in those who have been educated to put fiscal measures front of centre of every strategic and operational process they have ever been taught is ‘good’.

As with ERP / MIS, BSC, EFQM and other such over-arching operational and strategic control and deployment models, Hoshin requires the primary advocate and subsequent users to *buy-in* & have *reasons* for its use and acceptance ... i.e. to understand the benefit to themselves (WIIFM) that will be achieved from its application and utilisation. This has to be understood ‘in-depth’ and considerations surrounding its introduction must include the ‘change’ people are being asked to navigate in themselves, including the detail behind process and technical / intuitive / experiential knowledge. Just as with any other ‘Control’ system, this level of awareness in leaders is essential if its application is to actually add value & capability in practice. **Ultimately the benefits of any such model are wholly reliant on the capabilities of the leadership promoting them, as all “Change” is [at root] an emotional, psychological and neurological adjustment over time.**

8. Lean

Lean has been historically known, through various iterations of the markets own understanding of the ‘Toyota Production System’, such as, Quality Circles, Total Quality Management, Just in Time & World Class Manufacturing; (Not including the ‘Toyota Management system’ or Toyota’s 4 point philosophy ‘The Toyota Way’). Under its current and previous names, Lean is essentially a set of process improvement tools and principles that evolved out of the mindset, attitudes and culture created by the social conditions at Toyota, to address the company’s specific problems.

On a larger scale, the Lean tools and principles are a culmination and outcome of a ‘surface level’ shared theological & philosophical belief in “‘Goodness’”. In fact,

Kaizen, does not mean 'Continuous Improvement', it more accurately translates as "On-going goodness (or benefit) for all, no one-person gaining at another's expense".

This is the cultural philosophy that sat behind the problem solving activities that took place in Toyota as it grew from a national to an international corporation.

That said, many tools, in their raw form, can and have been applied to other companies, environments & sectors and have made perfect 'sense' ... but it is the principles and the deeper (Psychological) awareness in those leading their use that make the tools work in practice.

This is not a popular opinion in the global market, largely because these aspects of 'performance' are not readily measured by accounting practices, using projected outcomes as drivers, embedded in very expensive and extensive ERP & MIS systems. However, popular or not, it is the principles and understanding in Leaders, which is the real catalyst for organisational change at a deeper (Cultural) level, regardless of popularised fiscal (Keynesian) measurement and reporting beliefs.

Unfortunately, the Muri / Mura aspect of Lean has been de-popularised over time in favour of those fiscal / logical measures promoted during the evolution of software based control mechanisms like MRP and MIS. This has allowed an ignorance of 'systems' & 'cause-effect' to evolve, which is ironically a large part of the Taoist, Buddhist and Confucianist belief system that sits behind the Shinto religion, which influenced the Japanese and Chinese cultures in combination through the leadership of Taiichi Ohno & Shigeo Shingo. This saw the 'tools' emerge within the social dynamics of a deeply respectful *and yet fearful* society.

I stress ... one must not consider Japanese culture 'right'. Many aspects of the strict Japanese social rules (The 'Tatamae' [publicly presented 'face'] behind the 'Honne' [The truth behind the publicly presented face]), are at play in the evolution of the approach that has led to westerners copying what they thought were readily transferable 'tools'. This social 'Tatamae' is itself (psychologically) a social 'Fear' based control mechanism, allowing actions and attitudes that would close a unionised company down in the blink of an eye in the West.

Many 'lean' advocates (promoting the sale of tools), will deny Culture impacts the efficacy of Lean tools in application But, of course, that is another 'behaviour' that can be understood psychologically ... and a behaviour, based on imprinted beliefs that doesn't fit with the Kaizen philosophy any better than social fear based control mechanisms fit with it in Japan.

9. Six Sigma

Six Sigma has much history in Motorola, which is unknown to many (see following links) however in summary, it is a deeply statistical approach to quality control that was a little different in its origins than the product marketed and promoted globally. Over the last few decades it has followed a normal 'New product' sales curve. At first it became all-consuming and is now falling from favour as it is recognised to have severe limitations in application. I.e. it works much better in theory than in practice, as the real changes impacting business largely come from 'Tail events' (i.e. they are the one in a million chance found in the area's of a Gaussian distribution curve that day-to-day statistics can't account for, and, ultimately, these 'game-changing' events are largely relative to people, their beliefs and relative virtues, values and morals, as much as they are relative to any process, logical control mechanism or the data on which they rely. (Sub-prime lending & Libor fixing for example – we had all the measures and metrics required for Six Sigma Master Black Belts to detail more statistics than anyone could comprehend in the banking industry, yet the fact the actions of sub-prime lenders and those driven by fiscal outcomes undermined market *confidence*, couldn't be accounted for! (Confidence, of course, isn't a statistical, fiscal or quantitative measurement point).

In the prevailing conditions of the time, saturated by a 'logic-only' belief system in the greater part of the business world, Six Sigma was socially and culturally easy to

accept following TPS (lean) application in manufacturing. To qualify that, it can be noted that Willaim Edwards Deming is one of the largest Western names in the world of Lean, being seen as the originator of many principles originally identified by Shewhart at Bell telephone laboratories in earlier years.

Deming's 1950's address to the Japanese on Quality saw SPC (Statistical Process Control) promoted and a focus on parts per million defect rates popularised (rather than parts per 100 i.e. percentage). Even at that time, the Gaussian Bell shaped curve was used to identify Standard Deviation (i.e. 1 sigma in statistical language) and the term 3.4PPM (Parts per million) was promoted as a loose representation of what constitutes 3 sigma either side of the mean average (+3 / -3 Sigma = 6 Sigma – however inaccurate this is in reality – it made for a good 'marketing name'). The term became part of popular language, promoted by consultants everywhere looking for the next fad to sell and make money on.

Due to Deming's address and subsequent association to the Japanese, this method became linked to Japanese methodologies in the general public, even though it's origins are in the USA (Bell) and further afield (Motorola). This market opinion built, even though Toyota were already building to parts per billion defect rates by 1989 and do not use Six Sigma.

This market evolution saw the definitions between 'TPS' (Lean) and Six Sigma blurred and the market has been largely confused around the subject for decades as a result. When Six Sigma took 'Statistics' to a new level, with complex models like Chi Squared, DOE and Regression analysis, the 'language' had already been primed by the use of SPC & 3.4PPM within TPS, QC, WCM & Lean improvement projects and, of course, by Deming himself.

In it's early days, Six Sigma wobbled and nearly fell over in the market, as it's total focus on logic and stat's didn't work in the real world (this is claimed to be because it was only a partial package promoted by Motorola to get the Baldrige award while protecting it's real IPR – see following link) but those promoting it quickly recognised it's lack of 'holism' and used many principles from the 'Lean toolbox' to 'pad it out', making it what it is commonly recognised to be today (12 step DMAIC process, SIPOC etc. are all reflective of models originally included in the 'Lean' toolbox). This re-branding of tools further blurred the boundaries between the markets of Lean and Six Sigma, seeing much confusion and various recruitment drives happen in numerous sectors, chasing superficial qualifications, insultingly based on the self-discipline and dedication over years of martial arts (Yellow / Green / Black belt etc.) in the hope that 'Six Sigma' was some kind of 'golden bullet'.

This approach spread like wild-fire. While the manufacturing sector was moving (as they saw it) 'beyond' Lean and into Six Sigma, the Banking and Finance industry copied them (through the 1990's). In the latter part of the 2000's the Banks have largely dropped Six Sigma (as has much of industry, with it's biggest advocate, Jack Welch of GE stating a few years ago "We can no longer afford to do Six Sigma" or words to that effect). The Banks have more recently been focused on the training and application of 'Lean tools'. This has ultimately seen the term 'Lean Six Sigma' emerge, along with other terms poorly understood, like 'Culture Change'. These developments, masked by an industry wholly invested in the superficial view, exists only to the detriment of the 'Organisational Change' market and it's effectiveness in reality. As more superficial headlines are added to the already over-populated and largely confused arena, with few, if any knowing the history or understanding the lack of reality that sit behind the headlines and marketing hype, this is only set to get worse and most are now waiting to see what the next 'Politicians Allowances', 'Libor Fixing' or 'Sub-Prime' issue will be, rather than addressing the 'cultural' root cause issues (Values, Beleifs etc.) that created the conditions in which 'greed' and an over-reliance on logic allow these socially damaging behaviours to occur in the first place.

http://www.gems-europe.com/get_file/display_gems_document/356

<http://demingcollaboration.com/why-i-dislike-the-name-six-sigma/>

- 10. OpEx** **Operational Excellence** – This is largely a new name for all the tools mentioned above, Lean, Six Sigma etc. Of course, as all of these methods are influenced by earlier marketing hype around other methods that didn't have any substance in practice, you can also find in this and all other methods some principles popularised by Brandeis and Taylor under the banner 'Scientific Management' (itself a made up name to suit a railroad unions case, in which Brandeis, a Lawyer, convinced F.W.Taylor to describe his 'Time measurement' methods as Scientific Management rather than talk about under the name 'Time Study'. This action led to Frank and Lillian Gilbreth distancing themselves from Taylor and Taylorism as it was fundamentally marketing hype with no results from practical application). Much of western 'Best-practice' is, unfortunately, based on such historic manoeuvring and moulding of the truth for an individuals personal gain (again, hardly 'Kaizen').
- 11. Agile** **Agile Manufacturing** – Another name created to sell the same tools and techniques under a new banner. An 'Agile' organisation is said to be one which has developed methods to respond and adapt to its challenges ... which is a capability development requirement that sits at root of all the tools described above.
- 12. Control** Control is a huge issue in business, relative to process, quality, cost and delivery, hierarchy, power, position ... etc. Unfortunately, the negative impacts it has on people, engagement, ownership, innovation and physical and mental health is only now starting to hit the headlines and become understood with advances in neuroscience. The world of 'Work' and 'Leadership' cannot afford to ignore this any longer, as it sits in significantly complex ways, at root of all organisational performance, where we recognise 'performance' as a word used to describe the combined actions and reactions of people ... which requires we understand psychology... philosophy ... neuroscience ... physiology ... etc.
<http://www.guardian.co.uk/science/2012/sep/14/work-stress-risk-heart-attack>
- 13. Seligman** Not for the faint hearted, but further detail can be reviewed via Wikipedia here
http://en.wikipedia.org/wiki/Learned_helplessness
Extract: However, not all of the dogs in Seligman's experiments became helpless. Of the roughly 150 dogs in experiments in the latter half of the 1960s, about one-third did *not* become helpless, but instead managed to find a way out of the unpleasant situation despite their past experience with it. The corresponding characteristic in humans has been found to correlate highly with optimism: an explanatory style that views the situation as other than personal, pervasive, or permanent. This distinction between people who adapt and those who break down under long-term psychological pressure was also studied in the 1950s in the context of brainwashing.
- 14. The Monkey Experiment** [http://wiki.answers.com/Q/Did the monkey banana and water spray experiment ever take place](http://wiki.answers.com/Q/Did_the_monkey_banana_and_water_spray_experiment_ever_take_place)
- 15. Medina** <http://www.brainrules.net/the-rules>
- 16. Y.A. Barde (Neurotropic Factor)** http://scholar.google.co.uk/scholar?q=Y+A+Barde+neurotrophic+factor&hl=en&as_sdt=0&as_vis=1&oi=scholar&sa=X&ei=SThgUJbBAsSp0QXk8IGQBw&ved=0CB4QgQMwAA
- 17. Gould** http://scholar.google.co.uk/scholar?q=Gould+neurogenesis&btnG=&hl=en&as_sdt=0%2C5&as_vis=1
- 18. Driven** http://scholar.google.co.uk/scholar?q=laurance+nohria+driven+4+drive&btnG=&hl=en&as_sdt=0%2C5&as_vis=1

19. Shepherd

http://www.trans4mind.com/transformation/Transforming_the_Mind_sub.pdf

20. Tracey/Hill/Carnegie

<http://www.youtube.com/watch?v=ukRplmVyZ1U>

To dig in a little deeper and get behind what many would see as 'Pop Psychology' or 'Religion', (Due to the language used by Carnegie, Hill, Tracey etc.) it's also interesting to investigate Hermes Trismegistus (Thrice Great Hermes) and the 7 Hermetic Principles (or 'Laws') of 1. Mentalism, 2. Correspondence, 3. Vibration, 4. Polarity, 5. Rhythm, 6. Cause and Effect and 7. Gender, believed to be a combination of ancient wisdom connected to Egyptian Gods (Thoth) and Greeks. Much of what can be found from this pre-history period is reflected in more recent religions and in Stoicism / Platonism etc.

Also .. much of what we are now starting to prove scientifically can be seen in the principles and knowledge of this time (3-4 Thousand years ago). The language used to describe this ancient wisdom, may appear to be 'simplistic', but it is also frequently eloquent and all encompassing of the detail we can now see in neuroscience with fMRI / PET Scanning and Bromodioxuryridine cell tagging techniques etc. and through developments in the field of psychology.

e.g. The all encompassing axiom that comes from 'Hermeticism' is

- As Above, So Below – As Within, So without – i.e. the world as you experience it will be a reflection of the world as you perceive it & vice versa – an amazing summary of all we can prove with advances in psychology.

Covered by points (laws) (1) & (2).

- (3) Vibration - Everything is in constant movement, and has a 'frequency'.

Acknowledging thought as energy, the ancient Greeks and Egyptians proposed that +ve thought could have a positive impact on the world and vice versa.

- (4) Polarity – They also recognized everything has it's polar opposite, including 'thought' (1) Mentalism ... seeing people become 'polarised' in their views and attitudes, but also able to change them (Happy to Sad is one example).

- (5) Rhythm – understanding the previous principles, it can be understood that everything has a rhythm (Energy frequency / waveform) and altering the inputs can change the rhythm (Sad to Happy for example). This links to 'innovation' / 'creation' of new, rather than going with the flow, etc.

- (6) C&E – Every effect has it's cause and every cause is effect. (Butterfly effect / pebbles into ponds) etc. Changing the 'input energy' (In Thought / belief) will see ripples spread out. (Socially – like corruption / libor fixing etc.).

- (7) Gender – understanding biological differences / qualities and how they can conflict and compliment each other as humans and in all aspects of life.

To think this was knowledge in overt and documented existence 3-to-4 thousand years ago is quite incredible. It is also liberating to think that technology today allows us to scientifically understand what was meant by the observations of that time and it is also exciting to think what this could mean for the development of leaders, societies and the human race in general, if we can only, once and for all, construct the language required to pass some fundamental understanding from one person to another.