Appendix 19
p. 190, *The Missing Links* by Caroline Mondon (Industrial Press, 2016)
www.themissinglinks.info

The Power of Decoupling

Unlocking the Secret to Demand Driven Material Requirements Planning (DDMRP)

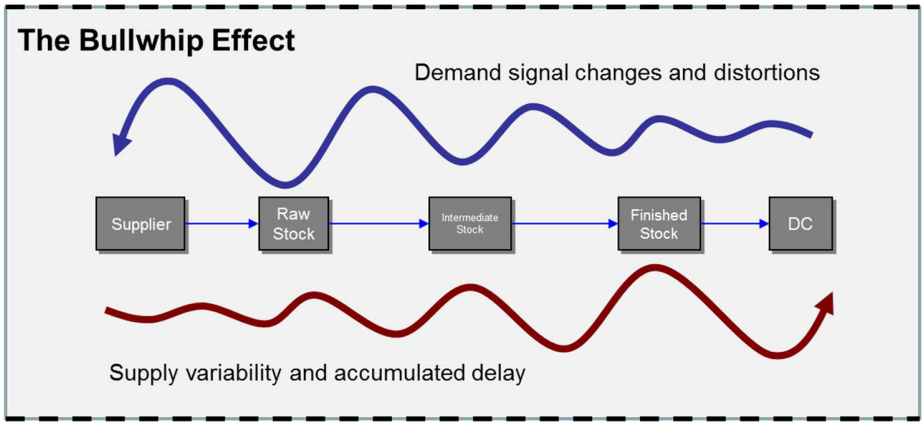
System Variability – Enemy #1 to Flow

If sustainable financial return is related directly to our ability to protect and promote the flow of relevant information and materials then we need to understand what the biggest enemy to that flow is.

The answer simply stated is system variability. The impact of variability must be better understood at the systemic rather than the discrete process level. The war on variability that has waged for decades has most often been focused at a discrete process level with little focus or impact to the total system. Variability at a local level in and of itself does not impede system flow. What impedes system flow is the accumulation and amplification of variability. Accumulation and amplification happens due to the nature of the system, the manner in which the discrete areas interact (or fail to interact) with each other. The Law of System Variability states that

The more that variability is passed between discrete areas, steps or processes in a system, the less productive that system will be; the more areas, steps or processes and connections between them the more erosive the effect to system productivity. (Smith & Smith, 2013)

At the supply chain level, this lesson manifests itself as something called the bullwhip effect. The bullwhip is a rather infamous effect in industries with large extended supply chains dominated by major assemblers. Examples would include aerospace, automotive and consumer electronics. Distortions and changes in demand signals move from right to left (customer to supplier) while delays and shortages are passed from left to right (supplier to customer). The figure below illustrates the Bullwhip Effect.



Decoupling – the Key to Demand Driven Material Requirements Planning (DDMRP)

If the accumulation and amplification of variability is the biggest enemy to system flow then we have to design a system that that stops or mitigates the transfer and amplification of variability through the system. But how to do that? The answer cannot be "guess better" or "eliminate all variability." Industry has tried that for decades, has spent fortunes and failed.

The concept of "decoupling" provides the break from convention that is needed. Decoupling breaks the direct connection between dependencies. The places at which we decouple are called "decoupling point."

Decoupling point—the location in the product structure or distribution network where strategic inventory is placed to create independence between processes or entities. Selection of decoupling points is a strategic decision that determines customer lead times and inventory investment. (Blackstone, 2013, p. 43)

Decoupling points represent a place to disconnect the events happening on one side from the events happening on the other side. They delineate the boundaries of at least two independently planned and managed horizons. Where to place these decoupling points? The answer is neither "everywhere" nor "nowhere." The answer is simply stated as "somewhere." But how to find that somewhere? Where to strategically place decoupling points depends on careful consideration of the six factors described in the DDMRP positioning factors. (Smith & Ptak, 2011, p. 392)

Unfortunately, conventional planning systems are not set up to position and then manage decoupling points. The very basic foundation of Material Requirements Planning (MRP) was to make everything dependent – decoupling is a not a word in its vernacular. When we look deeper we see that the inability to decouple is the primary culprit behind system variability in planning systems and a major impediment to flow.

Decoupling simply makes sense given the basic circumstances that we face today. We have elongated and more complex supply chains. These longer and more complex supply chains are subject to much higher levels of variability and much harder to plan. Breaking dependencies in key places will dramatically simplify the planning equation and allow us to live in shorter horizons with much more relevant information.

One of the most obvious things that has occurred in supply chain over the last two decades is that customer tolerance times are becoming shorter in relation to our elongated and complex supply chains. With this in mind we reach a simple conclusion; someone has to hold stock somewhere. Not everywhere. Not nowhere. Somewhere. The natural place to put this stock is at the decoupling points.

Summary

Today's companies are held hostage by hard-coded rules in MRP - rules that act as a foundation for the way MRP functions - rules that have been around since the inception of MRP in the 1950's. Many of which directly result in the distortion and obfuscation of relevant information for planning personnel and lead directly into materials challenges evident in the bimodal distribution. This impediment to the flow of relevant information and materials directly compromises the protection and promotion of sustainable return on investment.

Rooted in a foundation of flow, the concept of decoupling unlocks the door for much more effective planning. It gives us the capability to use the highly accurate demand signals we have had available to us for years – sales orders. When used properly, decoupling effectively ends nervousness by stopping variation from being passed within the supply chain. When the supply chain has significantly less nervousness, things become clearer and determining what is relevant becomes an order of magnitude easier. Thus decoupling becomes the first step to driving the promotion and protection of the flow of relevant materials and information that is so crucial for driving improved return on investment performance.

Chad SMITH

Chad can be reached at csmith@demanddriveninstitute.com or for more information please visit www.demanddriveninstitute.com