ADEXA
Whitepaper Series

How Efficient is your Supply Chain?

Stock markets are probably the most efficient example of how our economy works and adapts itself in "real-time." The pricing is real-time, the decisions are super-fast, volumes are high, the risks are huge and the returns can be enormous! Does this sound like your supply chain? Given the complexity, the reality is that most people do not know how much better they could do with their supply chain! They sometimes make good decisions but do not know how much of a better decision they could have made and sometimes they, unknowingly, make bad decisions, and there are times that they make really bad decisions that by the time they know it is too late, as shown later in this paper.

In a typical supply chain, at any point in time one has to make decisions as to what to buy, how much to buy, how many to make, where to make them, at what price to sell, how much to keep, where to keep them and where to ship them. It is a dynamic environment exemplified by unpredictable but inevitable events such as natural disasters, labor disputes, new product introduction or unexpected competitor moves. Making such decisions requires many experts and more importantly integration of their knowledge and information in order to make a decision that yields the best result, sometime in the absence of all the data that is needed. Unlike the stock market, what makes the supply chain problem particularly complex is that there are multiple and contradictory objectives in any given situation. Examples are market share increase at lower short-term profits, lower inventory, fast on-time delivery, and of course increasing profit.

Systems can quickly and efficiently examine the relevant data, process it and convert it to a set of decisions. The wrong decision can lead to some very undesirable outcomes: losing market share, loss of hundreds of millions of dollars, or tarnishing the brand as in a recent botched introduction of Samsung smart phone. Here are some more examples: (Source: Forbes)

Hershey's to miss out on the crucial Halloween season at a cost of approximately $100 million. The mistake also shook the confidence of investors, and as a result sent the company's stock plummeting by eight percent

After investing $400 million in a software package that was designed to oversee the process of fulfilling warehouse orders, the company was handed an estimated $100 million in lost sales, several class action lawsuits and a 20 percent dip in their stock market prices

Because of massive server backlog, that HP was completely unprepared to handle, HP's customers began switching to their competitors. It cost the company approximately $160 million in revenue and also left a dent in their reputation.

What is interesting in these cases is that the company became aware of what was going on and took steps to correct it. Based on hundreds of instances that we have observed, the majority of companies make wrong decisions without even being aware of them. These are decisions relating to the mix of products to make, how much to make, where to ship them to and what priorities are relevant for increasing customer service, or even as simple as giving the right delivery date to their customers. Hence not utilizing the highest potential that is available to them every day of the week. *This is death by a thousand cuts!*

Supply chain planning applications analyze incoming data from suppliers, customers, DC's, factories, subcontractors, machines, resources, market prices, market and demand data, manufacturing and planning data etc. and transform them into a decision that is best for the current objectives of the company. Such objectives maybe profit, market share, cash-to-cash cycle reduction, inventory reduction, phase-in or –out of certain products amongst others. More importantly, such decisions are made in real-time or in a time-critical manner. The reaction time is relative depending on the situation at hand. In certain cases, the system needs to react in seconds, in other situations, a few hours may be acceptable. This concept is what we call "time-critical" planning. The reaction time in sequencing a factory could be seconds, however, in planning the entire supply chain in minutes and in planning the 5-year plan, a few hours maybe acceptable.

In conclusion, there are two dimensions in *transforming data into decision*: Quality of the solutions and the speed of decision making. The former also depends on how well the system can represent the real-world. The better the representation the more optimal the results. In the absence of ability to show all the relevant constraints of the real world, the system cannot possibly produce a realistic solution! This is one of the major issues with many of the recent S&OP solutions. They are so high level that the accuracy of plans is far less than ideal. Without the ability to model at order level and deep modeling of the supply chain, the plans are no better than using a simple spreadsheet used for many decades. Secondly, Plan accuracy becomes irrelevant if the system takes too long to respond and deliver a decision. As you can imagine, if the system is not scalable and it takes too long to respond, then the results of the run are not necessarily valid. If the run is too long to allow data to change significantly, then the entire run will have to be repeated always playing catch up!

We believe, *transformation of data into decision*, is the critical and core competency not just for organizations of all types in the 21st century, but also every one of us will be facing similar situations making decisions on all aspects of our daily lives, from taking the best route to work or which hotel offers the best value, to identifying the best place to get our next TV set from.

For more information on this topic as well as scalability and speed, please visit **adexa.com**

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