

The Data Powered Supply Chain



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CHAPTER I

Introduction



'Data is the new oil' is a popular quote in today's business world. The reality however is that most large businesses today generate too much data.

Data is everywhere, and most companies generate more than they could ever use. What matters is not how much data you have but what you do with it. Nowhere does the idiom ring more true than your supply chain; the link between your products and customers.

It's no coincidence that Amazon can deliver products more quickly than its competitors or that Uber can surge rates the second demand increases.

Companies that have invested in the tools, technology, and operational know-how needed to enable a Data Powered Supply Chain have gained a tangible competitive advantage.

And while the strategy needed to deliver on this potential competitive advantage starts with the data you collect, execution requires a toolset for integrating, analyzing, visualizing and acting on this data throughout your supply chain.

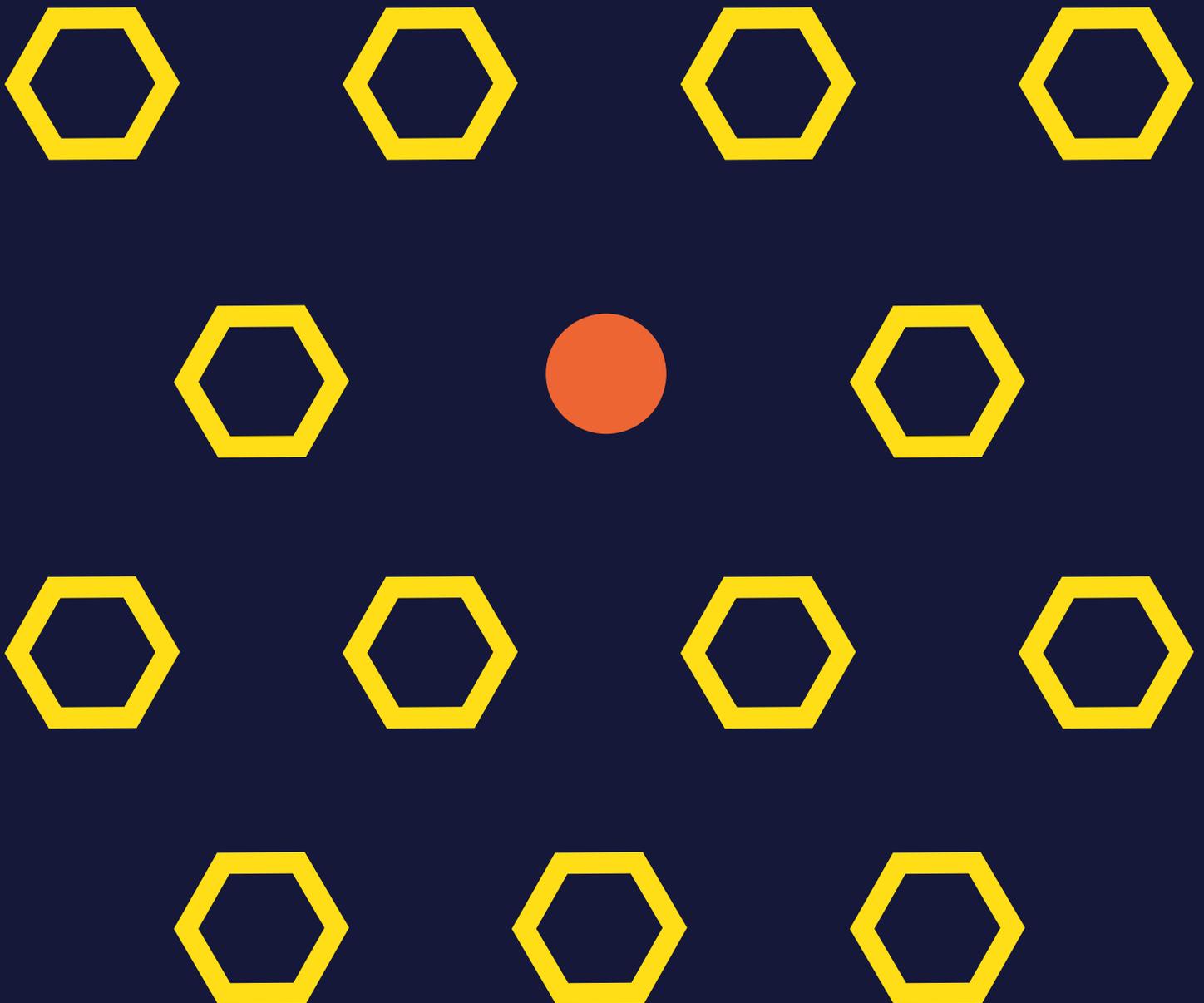
In this e-book we will cover the tools you will need and also some common opportunities and challenges and discuss use cases.



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CHAPTER II

Tools



While companies such as Amazon and Uber were designed from the ground up to leverage their vast amounts of data into a supply chain fueled competitive advantage, you and your company can leverage many of the same tools, technologies and best practices at a fraction of the cost, and with far less expertise.

There is no definitive list of required (versus optional) tools, sophisticated-sounding terms such as Artificial Intelligence (AI) and Internet of Things (IoT) tend to grab the most attention.



The reality however is that building a data powered supply chain is much more about a methodical approach than about building your own cutting edge technology. Key to understanding the tools you need is to first conduct a thorough analysis of your business needs, capabilities and current practices with regards to:

A. Data Audit

Because your organization likely has so much available data, the first step of building, leveraging and optimizing a Data Powered Supply Chain is a Data Audit, i.e. the process understanding what data you have, where it is and what its intrinsic business value is. This is no easy task as the number and complexity of data sources, i.e. cloud databases, cloud-based services etc., have never been greater.

B. Data Integration

Once you have completed your Data Audit the next step is determining what tools you need to view all the data in a single integrated view.

Because your data will likely originate and come from a variety of disparate systems within your supply chain, a unified data management and data science platform is essential to making this happen.

A software-based, cloud-centric platform that maximizes agility and minimizes complexity is ideal, giving you the ability to look at your data from all angles, in real-time. Lacking this real-time visibility means you are likely to spend more time and money “herding cats” than harvesting insights.

C. Data Analytics

Because the ultimate goal of a Data Powered Supply Chain is an endless digital loop of actionable insights and learnings, Data Analytics is the centerpiece of your solution.

Regardless of whether you build or buy, your Data Analytics platform should be infused with Artificial Intelligence (AI) or Machine Learning (ML) capabilities.



This will help drive faster and more accurate decision-making based on new, larger data sets—without having to hire large numbers of data scientists, analysts and systems management personnel. AI, ML, automation and other algorithmic-based tools and processes are force multipliers for modernized, data-driven supply chains.

The data science layer in your architecture must be able to derive insights which are both more predictive—allowing to see trends—and prescriptive being the source of a past event.

D. Data Visualization

The value produced from your Data Powered Supply Chain can only be realized if the decision makers on your team can use the insights (patterns, trends and outliers) the data finds.

However identifying these insights, can be challenging, particularly for team members that aren't data scientists.

This is why data visualization is so important. Data visualization, translating information into a visual context (graph, charts etc.), makes data easier for the human brain to understand and pull insights from, particularly in large data sets. This in turn will make your data accessible to a larger swath of your team, further increasing data usage collaboration and coordination on data driven decisions.



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CHAPTER III

Opportunities & Challenges



Your Data Powered Supply Chain has the power to transform the way your supply chain operates. The opportunities are almost endless but making them a reality means overcoming some challenges in what tools you choose and how you use them.

A. Increasing Decision Making Windows

Speed to Act - In today's data intense world, the vast sums of data your business generates provides the opportunity to leverage data in almost every business decision. However, failure to use and leverage the right tools can lead to delayed decision making.

Overcoming this challenge requires having the right Data Analytics and Data Visualization tools, and making sure that the power, sophistication and complexity of those tools matches the skillset of your team.

When these two are well matched, decision data points can be

identified, understood and acted on much more quickly than a data free solution.

B. Wider Adoption of Data Throughout the Organization

Most companies have a constant stream of relevant supply chain data. Many, in fact, are flooded with data. What determines the scope of this opportunity is the degree to which you can leverage it across your organization.

The challenge is finding and putting in place tools that can effectively be used by all the decision makers (technology, marketing, IT and business leaders) whose decision impacts or are dependent on your supply chain.

Once that is in place you can look at Supply Chain data from all pertinent angles: from procurement and manufacturing to development, distribution, sales, marketing, third-party logistics and back-office functions.

C. Efficiency



As we discussed above, when designed properly, your Data Powered

Supply Chain architecture gives you the opportunity to infuse your Supply Chain decisions with AI and ML. This, assuming you meet the challenge of finding the right AI partner, will drive efficiency by enabling fast accurate decision-making based on new, larger data sets—without having to hire large numbers of data scientists, analysts and systems management personnel.

AI, ML, automation and other algorithmic-based tools and processes are force multipliers for efficiency.

D. Cost



The tools and practices outlined in this e-book will require investment,

and one challenge in building a business case is that ROI opportunities are based on future efficiencies and insights.

For example powerful predictive Data Visualization and Data Analytics means a better understanding of the data points within your supply chain to more accurately demand predictions.

In addition to benchmarking and the study of best practices, vendors can often assist in helping understand the potential ROI opportunities.

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CHAPTER IV

Use Cases



A Data Powered Supply Chain is valuable only if it delivers a return on the investment required to put the tools and personnel in place. Fortunately there are a wide variety of places you can put these tools to work. Below are a few use cases.

A. Forecasting

A Data Powered Supply Chain can be valuable both for demand and supply forecasting. For example, one can leverage AI to forecast the demand with improved accuracy reducing issues like the over or under stocking of inventory. As for the supply side, the global nature of today's supply chains can lead to surplus, or undersupply.

Negating these forces requires that all your information resemble one entity rather than silos. Your Data Powered Supply Chain will provide significant insights from your changed information to better plan your supply procedures.

A. Service Levels & Delivery

Today's supply chains, with their myriad of just in time global suppliers are more complex than ever. This is particularly true for global organizations that have decentralised operations. At the same time customers demand low cost, high quality and always available products.

This combination is driving a never-ending increasing demand for higher service levels. Your Data Powered Supply Chain can provide the best possible supply and demand scenarios based on intelligent algorithms and machine-to-machine analysis of your big data sets, optimizing the delivery of goods resulting in a balancing supply and demand and higher service levels.

C. Perfect Order Rates & Stockouts

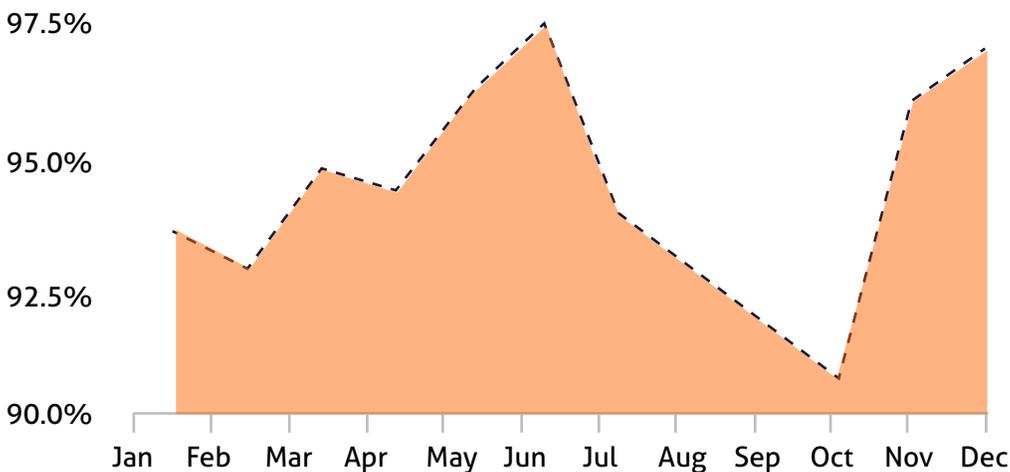
Perfect Order Rate measures how many orders you ship without incident (ie. damaged goods, inaccurate orders, late shipments etc) and so it is a key metric for many Supply Chain groups, and organizations as a whole as it indicates organizational efficiency and high customer satisfaction.

Stockouts measure the number of items that are out of stock at the time a customer places an order, i.e. your ability to meet customer demand.

It is important for your organization to be able to anticipate what items are most popular. Like Perfect Order Rates, Stockouts indicate organizational efficiency and customer satisfaction.

Both Perfect Order Rate and Stockouts involve data sourced from a variety of groups within your company, and from third parties (such as logistics partners) Perfect Order Rate requires a Data Powered Supply Chain Strategy that enables you to add third party sources quickly and easily. This can often mean a third-party vendor.

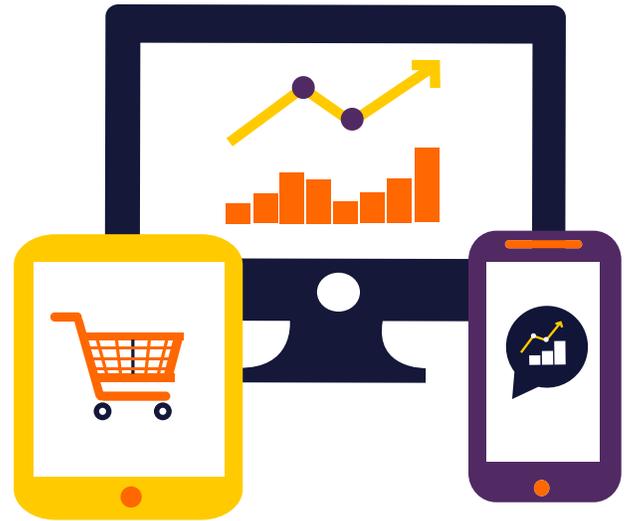
Perfect Order Rate Example



C. Digital

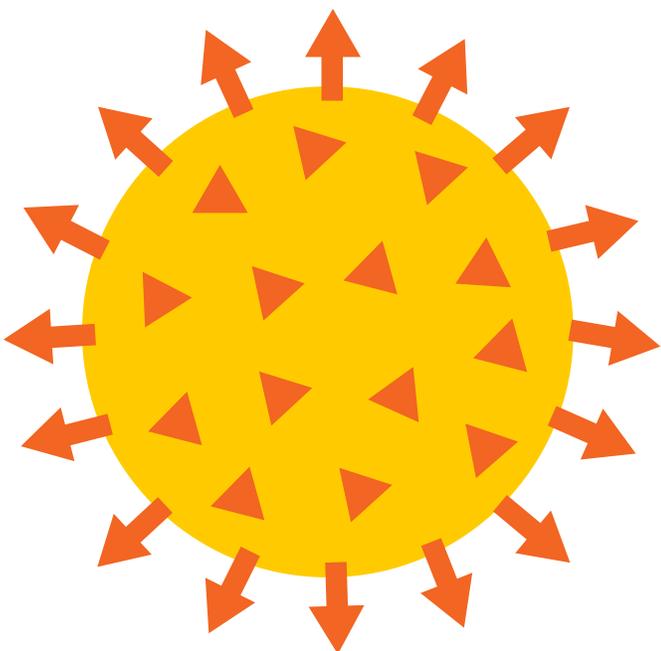
The Coronavirus is exposing the limits of the non-digital aspects of Supply Chains – things like raw material producers, factories, shippers, distributors, delivery and end consumer shippers are either severely delayed or shut down altogether.

The pandemic and resulting lockdowns have led to factory closures, millions of lost jobs and a spiraling global economy.



While digitizing more aspects of your supply chain would not have entirely insulated you from the pandemic's impact, a digitized Data Powered Digital Supply Chain provides visualization and insights that give answers, trends and predictions to both supply and demand situations, prescribes the next best actions, and ultimately solves logistics business problems.

All this while the system is continuously self-learning to improve the process and outcome.



Conclusion

Supply chain fluctuations, manufacturing changes, and demand changes constantly. It's particularly powerful to apply data analysis to supply chains to consider data from your suppliers, products, points of sale, etc.

Transforming this opportunity into results requires the visibility provided only by a unified and comprehensive view of your data, and the tools that allow your decision makers to be proactive, not reactive.

Outlier's automated business analysis approach takes your Data Powered Supply Chain data to the next level by using Artificial Intelligence to automatically analyze billions of data points and convert them into insights personalized for the roles of leaders and managers in your organization.

Less time processing and analyzing data means more time devoted to value added decisions leading to new opportunities to improve efficiency, improve customer experience and gain a competitive advantage.



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