Slide 1:

While the rest of us were consumed by the March madness, Google attempted something audacious: predict a set of events in near real-time. During the Final 4, they predicted a series of outcomes in the 2nd half during the half-time. That is as real-time as it gets. Let’s take a look at the Art of the Possible.

Slide 2:

Just imagine what data and technology is making possible. Before we explore possibilities, let’s step back and take a look at how the discipline of forecasting evolved.

The most basic method is INTUITION – the producer would take an educated guess of future demand based on what she knew about the market. This obviously required expertise – and even then, it was fraught with risk.

As we started using computers, things got better – NAÏVE Forecasting: we used simple time-series methods to extrapolate the past history into the future.

And things continued to get better - technology and data, ERP systems etc. enabled TIME SERIES Forecasting. This enabled us to incorporate factors like Seasonality, long-term trends etc.

From there, we went to CAUSAL methods – incorporated factors like macro-economic factors, Product Lifecycles etc.

We have seen an improvement in the overall forecasting accuracy for sure – but is this good enough? Should we just accept the Forecast Ceiling?

Slide 3:

Why do most organizations hit a Forecast Ceiling?

1. Unexpected Events create shocks in the system -> Think of an unexpected weather event in a market/store that upsets demand patterns; in a highly networked world, some trends tend to go viral very, very rapidly. Then there are supply shocks – a supplier factory shuts down, the labor unions go on a strike etc. All these cause the forecasts to go off plan
2. If there is one area where complexity has risen steadily over the last few years, it is Product Assortment: There are multiples SKUs within the same sub-category, each with a different stage in the lifecycle – especially in Electronics. And then demand patterns at a SKU level are markedly different from the sub-category. This problem is acute in categories like Apparel
3. Increasingly fickle customer behavior -> the traditional ideas of well-defined customer segments is increasingly challenged – online customer behavior is different from in-store. And it is increasingly difficult to predict customer behavior

Slide 4: Can we break the Forecasting ceiling?

This is where Demand Sensing comes in -> let’s now see what this means

Slide 5:

1. Go beyond the POS data to look at demand signals from external sources like social media; For Supply signals -> look at real-time data from the Supply chain
2. Build algorithms that compute forecasts at the most granular level – go beyond allocation mechanisms from aggregate forecasts
3. Build forecasting solutions at every level in the Supply Chain -> use causal factors at each level, as opposed to a single forecast
4. It is not enough to create granular forecasts – integrate them into the operating processes by automating publishes, triggering exceptions to enable faster decisions

Slide 6: Why now

1. Data, data -> explosion in data and the ability to capture and process at a cost that is economically feasible is making this possible
2. Computing power -> The cost of computing makes it possible to crunch through large datasets at a rapid rate
3. And the third and most important leg – Algorithms. AI and ML have created a huge opportunity to mine through the datasets and generate insights that can be rapidly turned into action

Slide 7: How to make it happen?

At the core, we need to build the right system architecture

1. Invest in improving the baseline forecasting solutions – there is a whole world of methods, experiment constantly
2. Capture data
3. Build an Anomaly Detection and Rules engine that is sensitive to signals in real-time
4. Learn from the Anomalies to adjust forecasts on a continuous basis. Put your machines to work!!

Slide 8: Adopt a Transformation journey mindset

1. Most orgs are at the Basic Demand Mgmt stage – forecast accuracies are very low at the SKU level; even more so with volatile classes – fresh produce; weather sensitive products etc.
2. Invest in better forecasting solutions – put the mechanisms in place by taking a portfolio approach,
3. And the next stage – build an Integrated Demand Sensing System; bring together the Data, Technology and AI/ML; integrate into the business processes; adopt a strong measurement and improvement mindset

Slide 9: in summary – self explanatory