



I want my latte medium, extra hot with no-fat milk— ABP in action





Attribute Based Planning (ABP) is all about choices. It is about selecting what you want exactly the way you like it, i.e. customization as we know it today. First a simple question: how many possible combinations are there for a simple order of beverage from Starbucks? 10? 50? Or 100?

The answer is at least 1600. After you consider type of coffee, size of container, temperature (hot or extra hot or iced), amount of fat in the milk, flavors etc. it easily multiplies to the above number of combinations. For more complex products, the combinations can be in millions and in many cases hundreds of millions as is the case with electronic gadgets.

More importantly, some combinations are hard to define. Examples of the latter are texture of fabrics, where a range is specified, or operating ambient temperature of electronic components.

Products and every industry have thousands if not millions of different properties associated with it. In addition, every company has their own business rules associated with how they use such properties to make more money for the business.

For example, McDonalds serves more Teriyaki beef in Japan and more Salad in California! Keeping track of all such variations depending on customer, region, weather conditions, and diet trends is truly a daunting task.

Exploiting such complexity can mean incredible opportunity in increasing profits and reducing unnecessary costs. We are not talking about Business Intelligence, we are referring to the ability to define attributes of products, regions, customers, the environment etc. in order to be able to take advantage of what to sell, when to sell, what to make *and how to allocate resources* in various regions.

Attributes help to differentiate products from mere commodities hence higher prices can be dictated. The bottom line is how do I plan the supply chain based on attributes.

Having a different SKU for each attribute variation is NOT a viable option since the combinations are too many!

Customers demand for what they need when they need it at the lowest cost. Attributes can help to deliver the goods on time in situations when, in their absence, it would not be possible.

For example, in pharmaceutical industry there are regional and governmental regulations for every drug. Hundreds of different rules regarding where they are made, type of ingredients used, how they were tested, serialization etc. attributes ensure from the very beginning of production and/or even suppliers, the products made for the intended demand meet the customer's requirements.



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Even the temperature in which the medication needs to be stored at in the warehouse is part of the planning process. ABP is more than just the finished goods matching of supply and demand. The attributes follow every stage of the production including where and how it is made and what ingredients used and how it is stored until it is delivered to the end customer.

It must be emphasized that attributes are more than “fields” in a database. Generally adding fields enables better reporting. Just adding mere fields cannot be used actively by the system to make decisions or define business rules. Attributes as defined here are actually used as *intelligent constraints* for planning engine in both the *supply side* and demand side.

They are deployed to make decisions about sourcing, making, storing and delivering goods. Attributes are active part of every stage of the supply chain as are business rules and they are taken into account when plans are generated. Attributes are not just for finished goods! *With ABP, an unlimited number of attributes at every stage of supply chain can be defined and used for planning purposes!*

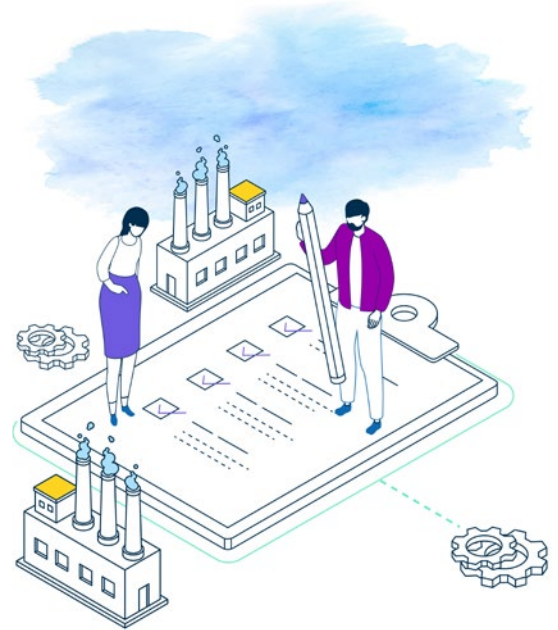
Your business rules change all the time. In many systems such rules are hard coded into the system or take many years of consulting effort to develop and embed such rules into the system. *With attributes, rules can be changed and attributes can be added as needed by the end users. Hence the system constantly molds itself into the new business environment.*

From a technology perspective, attributes enable a more efficient operation of the system. i.e. faster with less memory requirements. Consider the above coffee example, without attribute, one would need to generate at least 1600 possible configuration of the end products, or SKUs.

Needless to say that products are changing all the time and new ones may need to be added or deleted. With attributes a simple hierarchical representation would reduce the number of SKUs by orders of magnitude, and therefore memory requirements, improving the scalability of the system!

In the absence of ABP, many existing systems use tags for each product name and substitution which leads to an explosion of SKUs. This approach leads to unacceptably slow or very rigid representation of the supply chain.

Attributes help to maximize profits or even reduce your carbon footprint. As an illustration, consider a chemical product that uses oil as one of its basic ingredients. As the price of oil increases, the margin drops and at some point in time, the more is sold the more money is lost for the company.



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By having price of oil and elasticity of price in different regions as attributes, one can plan based on oil price attribute or carbon footprint of the product. This simple approach would result in significantly higher profits.

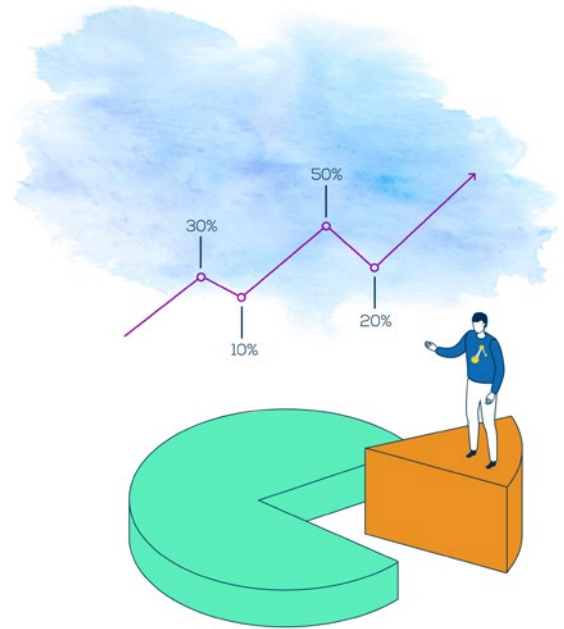
As a very interesting case study, we devised an Available-to-Promise system for one of the top global car makers in Europe. The car buyer enters the car and options. The system checks for inventory or capacity and availability of material etc and then returns a delivery date based on allocation of resources.

On the surface one might say what is so special about this? Yes, but this was not all! The ATP system would not only return a promised delivery date, but it would also come back with alternatives. For example, if the promised Date was 2 weeks from now, the system would also provide alternatives (color, engine size, price, location) that can be delivered a lot sooner and or less expensively at a later date! In the absence of such attribute based pegging, the user would have to do thousands of trial and error to figure out what is acceptable to them!

Next time you are looking for a demand planning system, a supply planning system or even a factory planning system, perhaps you should ask: *Is the system attribute based? Not just for finished goods but for the entire supply chain at every stage of production.*

We would love to receive your comments or request for more information on the topic send us and email to info@adexa.com

Let's make **accurate** plans together!



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