

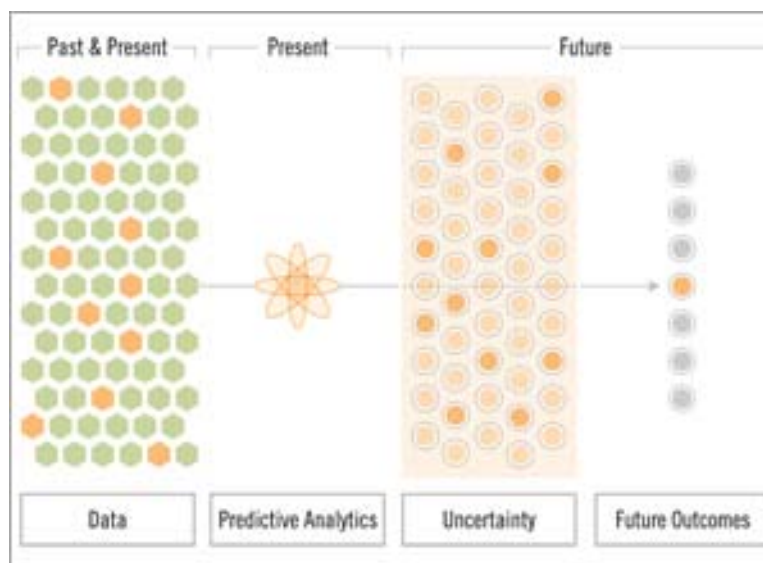
Analytics: The Predictive Power Behind Enterprise Decision Management

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Companies that can make better decisions than the competition and get them into production faster are more likely to win in the today's marketplace. Superior decisioning is thus a competitive weapon and Enterprise Decision Management (EDM) is designed to enable superior decisioning. Measuring the effectiveness of decisioning requires a new approach – **Decision Yield**. This involves considering Precision, Consistency, Agility, Speed and Cost. The lack of analytics can particularly affect the precision, and therefore the quality, of decisions. Sometimes superior decisioning does **not** require analytics.

Take the Database of Motor Vehicles (DMV) for example. There is no uncertainty in input – Does the car have insurance and smog? What is the car make and model year? What is the car's value? –and the outcome is well defined –a license fee. The rules are driven by external regulation and the response of a consumer to the system does not impact subsequent decisions. No analytics are required to do a great job of decisioning in this case. However, take a cell phone provider's collection department. In this case each customer has a different plan, level of debt and likely response to different actions by the company, as well as a different ability to pay. There is uncertainty (from the company's perspective) as to the probability of a given customer to pay and it is likely that rigid rules about calling customers will be less than effective. In addition the response to each action taken will impact future interactions. Analytics will be required to ensure great decisioning here. So when should you add analytics into EDM systems?

The main trigger is **uncertainty**. To decision for the future, businesses must make the most informed decisions with the best predictions of the future -What will the future usage of a cell phone be? What is the risk of offering a credit card to a particular applicant? Analytic models can resolve these uncertainties into probabilities and outperform people in finding patterns in complex data.

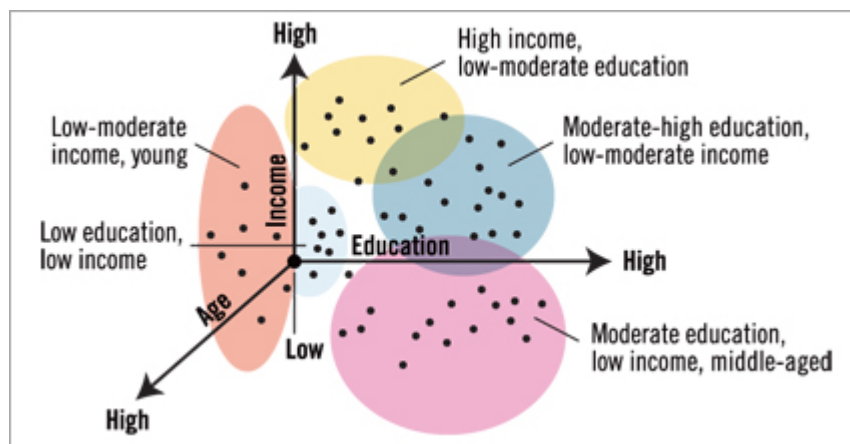


When a bank is offering a credit card to an applicant, for example, they need to know if the applicant will pay back the loan and how much money they can make from the applicant. They can

use analytic models to assess if applicants similar to this paid back their loans and how much money they have made from similar applicants. Analytic models also helps businesses manage uncertainty created by the large numbers of entities they manage. Models can also resolve uncertainty relating to trade-offs -if I make this offer (which costs me less), what is the likely impact in terms of customer retention. These kinds of trade-off models often have many constraints and "what-if" implications also.

Three basic kinds of analytics are used in EDM. They can be used together and often are Descriptive models, Predictive models and Decision models.

Descriptive models can identify relations, but they don't make predictions. Descriptive models can be used to categorize customers into different categories –which can be useful in setting strategies and targeting treatment. For Example, sort customers into groups with different buying profiles or find the products that are frequently purchased together. Analysis is generally done offline, but the results can be used in automated decisions –such as offering a given product to a customer based on their profile.



An example of clusters

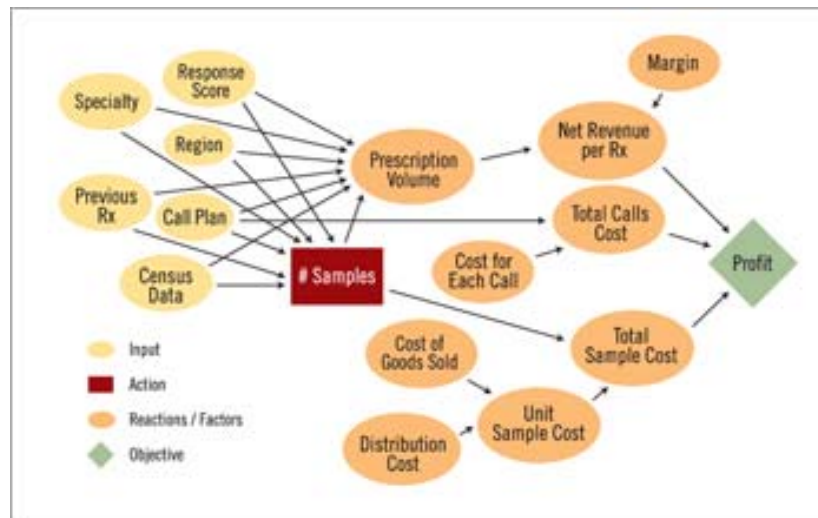
Predictive models can calculate risk or opportunity in real time. Predictive models often rank-order individuals. For example, credit scores rank-order borrowers by their credit risk –the higher the score, the more "good" borrowers there are for every "bad" one. For Example will the customer pay me back on time or respond to this offer? Is this transaction fraudulent? Models are called by a Business Rules Engine to "score" an individual or transaction, often in real time.



Rank ordering model showing the number of "goods" for each "bad"

Decision models are used to design more effective rules. A decision model maps the relationships between the data available to a decision, the decision itself, the outcomes of the decision and the business objective. It is ideal for balancing multiple objectives and constraints. For example

identifying how much money to spend on each marketing channel to maximize sales in a given timeframe and budget. Decision models are used offline to develop rules, which can then be deployed to operate in real time.



A decision model showing the wide range of data that impact a decision

There are a few practical considerations when embedding analytics into rules. Firstly you must avoid the “black box” analytic model. If a customer is denied a loan they might want to know why. If two customers are offered different interest rates regulators might want to know why. If a customer portfolio fails to provide the necessary profit then management will want to know why. Simply saying “the analytics told me to” will not work. However, many kinds of models make it easy to explain what’s behind a score and these should always be preferred. Secondly deploying analytics can be labor-intensive and time-consuming so you want to aim for integration of development and deployment systems to reduce the time and effort to go from model to deployment.

Incorporating the full potential of analytics into the enterprise requires better analysts, better analytic techniques and better operationalization of the models. Analytics in EDM focuses on developing sophisticated analytics that will work in the real world that can also be rapidly operationalized to deliver faster, better decisions to the front lines of customer interaction. Analytics and EDM are the foundations for creating the decision-centric enterprise.