Designing great data products

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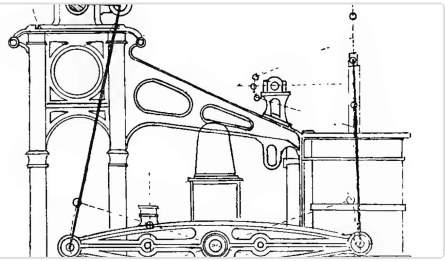
Designing great data products

In the past few years, we've seen many data products based on predictive modeling. These products range from weather forecasting to recommendation engines to services that predict

https://www.oreilly.com/radar/drivetrain-approach-data-products/



Many data products based on predictive modeling: recommendation engines

These products are still just making predictions, rather than asking what action they want someone to take as a result of a prediction.

To jump-start this process, we suggest a four-step approach that has already transformed the insurance industry. We call it the Drivetrain Approach

Inspired by the emerging field of self-driving vehicles: Great predictive modeling is an important part of the solution, but it no longer stands on its own; as products become more sophisticated, it disappears into the plumbing.

sophisticated data products need a systematic design approach.

Objective-based data products

We use data not just to generate more data (in the form of predictions), but use data to produce actionable outcomes.

Once we have specified the goal (or objective), the second step is to specify what inputs of the system we can control, the levers we can pull to influence the final outcome. The third step was to consider what new data they would need to produce such a ranking.

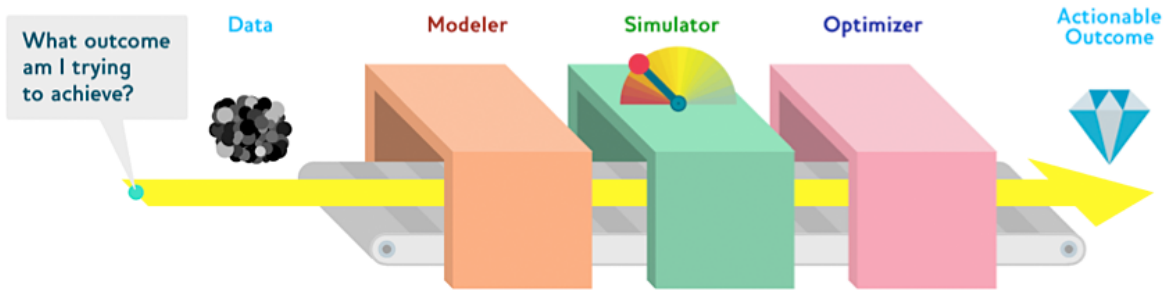
Only after these first three steps do we begin thinking about building the predictive models.

Our objective and available levers, what data we already have and what additional data we will need to collect, determine the models we can build.

Step 4 -The Model Assembly Line

The Model Assembly Line: A case study of Optimal Decisions Group

Optimizing for an actionable outcome over the right predictive models can be a company's most important strategic decision.



Drivetrain Step 4: The Model Assembly Line. Picture a Model Assembly Line for data products that transforms the raw data into an actionable outcome. The Modeler takes the raw data and converts it into slightly more refined predicted data.

This new suite of models is not a final answer because it only identifies the outcome for a given set of inputs. The next machine on the assembly line is a Simulator, which lets ODG ask the "what if" questions to see how the levers affect the distribution of the final outcome.

the Simulator runs the models over a wide range of inputs. The operator can adjust the input levers to answer specific questions like: "What will happen if our company offers the customer a low teaser price in year one but then raises the premiums in year two?"

They can also explore how the distribution of profit is shaped by the inputs outside of the insurer's control: "What if the economy crashes and the customer loses his job?..."

The Simulator’s result is fed to an Optimizer, which takes the surface of possible outcomes and identifies the highest point. The Optimizer not only finds the best outcomes, it can also identify catastrophic outcomes and show how to avoid them.

Drivetrain Approach to recommender systems

Marketing: let’s design an improved recommendation engine using the Drivetrain Approach, starting by reconsidering our objective.

The objective of a recommendation engine is to drive additional sales by surprising and delighting the customer with books he or she would not have purchased without the recommendation.

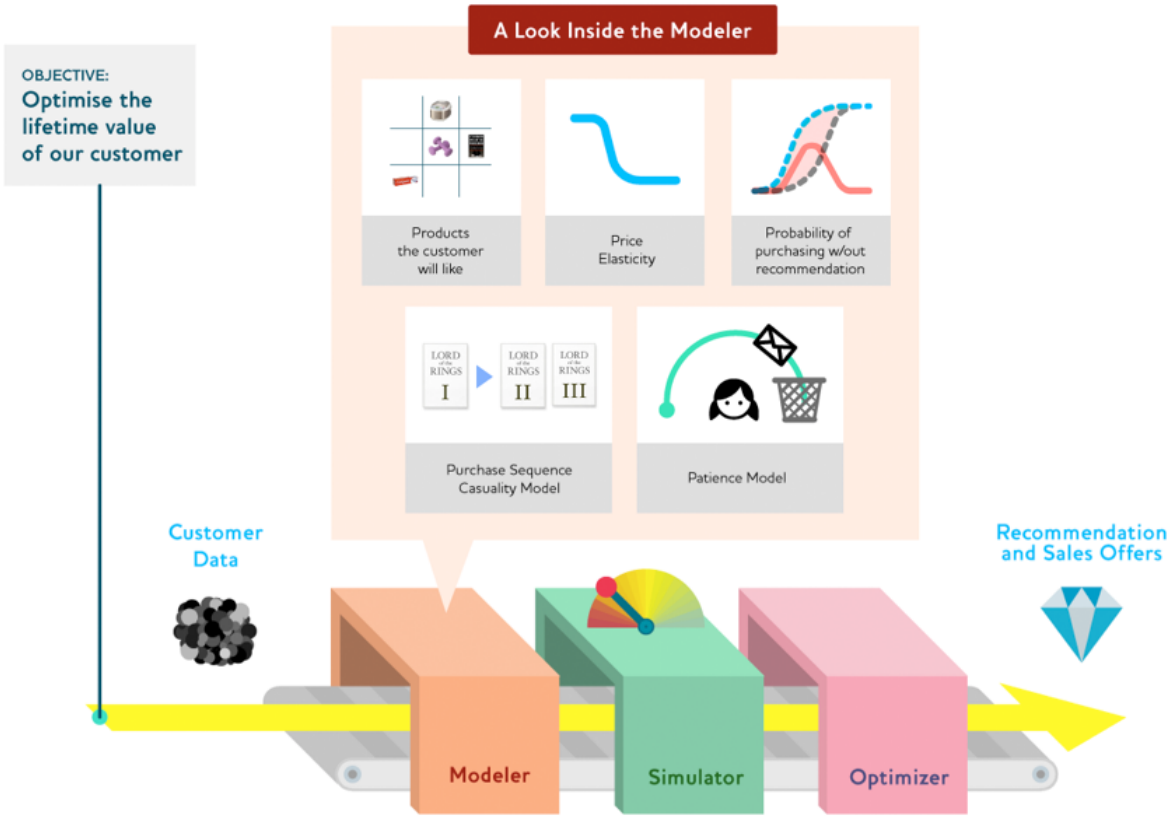
The Strand bookseller made a brilliant but far-fetched recommendation probably based more on the character of Morrison’s writing than superficial similarities between Morrison and other authors.

helpful recommendation will be buried far down in the recommendation feed, beneath books that have more obvious similarities to “Beloved.”

The objective is to escape a recommendation filter bubble, a term which was originally coined by Eli Pariser to describe the tendency of personalized news feeds to only display articles that are blandly popular or further confirm the readers’ existing biases.

Optimizing lifetime customer value

the interactions that a retailer has with its customers outside of the actual buy-sell transaction, whether making a product recommendation, encouraging the customer to check out a new feature of the online store, or sending sales promotions.



engineers who designed these data products didn't start by building a neato robot and then looking for something to do with it. They started with an objective