JEMIN.AI

AI Digital Twins for Measuring Price Sensitivity

About Us

Jemin.ai make digital twins that model and understand the real world in fine detail, because we realize that everything and everyone is unique. Since 1988, our AI experts have been building digital twins of the real world using neural network Artificial Intelligence. This example is based on work we did for a luxury goods manufacturer.

Business Analysis

Quantifying customers sensitivity to price changes is difficult, especially when other factors are influencing sales at the same time. But knowing this sensitivity, when combined with knowledge of fixed and variable cost, allows the profit maximizing price to be determined. This kind of analysis also applies to other incentives such as targeted discount coupons.

Data Design

As with all digital twinning, the first task is to frame the question in a way that artificial intelligence can answer. This usually comes down to identifying how data can be broken down into comparable units and understanding what drives the differences between them. In advertising, the comparable units are sales over time, and perhaps by target group if different prices can be set for different target groups. The performance measure is sales units, and the driving factors include price, price relative to competitors, seasonal factors and target demographic. A data table is then designed with each row being a time period and the columns being sales units and the driving factors.

Data Sourcing

Data may need to be combined from various sources. Most data will be available in-house, but probably not all in the same database. Other data, such as time of year and number of days in the month, need to be created separately.

Cleaning & Filling

Data is rarely clean on arrival. Some will be missing, but can be interpolated or even estimated as a digital twinning process in its own right. Data will also be subject to errors, noise and known exceptional circumstances. While artificial intelligence techniques can identify many exceptions, charting the data and eyeballing it is often the easiest solution.

Data Mapping

The last data pre-processing stage is mapping. Text data must be converted to categories. Highly skewed data must be squashed so it is more evenly distributed. Data may need to be adjusted to make the rows directly comparable, for example measuring the price relative to the competition rather than our price alone.

Build Twin

Finally, the AI is ready to do its work. Our neural network algorithms, which we have perfected over three decades, excel at extracting insights from real-world data, no matter how ugly and ill-conditioned. A digital twin of sales growth is created, and also a triplet, the digital twin of uncertainty, which indicates how believable the results are.

Delivering Results

Once the digital twin is built, it can be interrogated: What will happen if I increase my prices? What is the profit maximizing price? Do different segments exhibit different price sensitivities? The twin and triplet can be exported as a C++ or Excel function for integration into an overall return on investment model.

Return on Investment

Typical duration	Daily rate	Total	Typical output	My revenues	My RoI
5 days	$2K	$10K	Profitability up 10%	_____	_____

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