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Perfectly planned business operations with machine learning marketing forecasting

Are you aware of how inaccurate marketing forecasting influences your business outcomes? Inaccurate forecasting can be very, very, very expensive for your company and let me here give you a few examples from real occurrences:

- **Walmart:** Even though Walmart had regularly records sales, inaccurate forecasting kept them from unleashing their full revenue potential. They were not able to handle their inventory properly leaving them with a **fatal out-of-stock problem**. The inaccurate marketing forecasting left **clear damage on the reputation and quality** of Walmart leading Forbes to write an article with the title “Why Are Walmart Stores Such a Mess?” (Loeb, 2013).
- **Nike:** Nikes \$400 million initiative to unify the enterprise system to overhaul the supply chain intelligence took a negative turn due to inaccurate marketing forecasting. The new system was not able to predict the necessary information for the supply chain resulting in more than **\$100 million in lost sales**. After they learned the lessons and recovered, the CIO magazine went on to write “Nike Rebounds: How (and Why) Nike Recovered from Its Supply Chain Disaster” (Koch, 2004)

Whether you are trying to forecast the market size, future market share, the sales figures of the next month or some other financial outcomes, accuracy matters. Forecasting problems can be solved today easier than ever before with the right machine learning methods. In this article I will outline to you the current status of forecasting methods and how you can leverage machine learning for the following marketing forecasting problems:

1. **Market Size Forecasting:** When making a highly strategical decision about entering a certain market, forecasting the market size realistically is crucial for choosing the

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right investments.

2. **Decision Forecasting:** Imagine you must anticipate the decision of a government regarding a certain law or understand possible reactions of your competitors to your actions.
3. **Market Share Forecasting:** Are you assessing how your new marketing strategy might affect your market share? Then predicting the outcomes will help you finetune your strategy.
4. **Sales Forecasting:** Forecasting sales is crucial for allocating your resources and staff.
5. **Financial Forecasting:** This can involve forecasting the profits or other outcomes such as hire and retire.

The Business Case: A clear ROI for improving marketing forecasting accuracy



Business improvements associated with accurate marketing forecasting

A well-working machine learning pipeline for marketing forecasting offers advantages in many areas within the company. While there are clear cost-savings associated with implementing machine learning, it also has spillover effects on many other areas: shareholder confidence, staffing, manufacturing, logistics and more.

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The message for management is clear. Improving only marketing forecasting, a single process at the core of the corporate web will substantially improve many business outcomes, because many other corporate processes depend on it. There is a clear ROI with little investment.

On top of it, today many cutting-edge technologies such as neuronal networks exist that you can leverage to improve your marketing forecasting. In the following section, I will give you an overview of the state-of-the-art marketing forecasting techniques. I can bet that your business will identify with the methods that I outline there.

Current State: Qualitative and statistical methods dominate



Marketing forecasting methods currently in use

Armstrong and Brodie, two US researchers, have investigated the various forecasting methods used in the forecasting world. Their analysis shows that there are two main families of methods used in marketing forecasting:

1. **Judgment Methods:** These methods are based on qualitative data by taking advantage of expert opinions and analyzing the main actors.
2. **Statistical Methods:** These methods are based mainly on quantitative data and leverage statistical as well as econometric models such as time series regressions or

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decision trees to make future predictions.

However, there is one fact that businesses have neglected so far. Since the computational possibilities, the amount of available data and the quality of available data have improved substantially, a third powerful family of marketing methods is emerging: machine learning methods.

The Future: Marketing forecasting with machine learning



The future of marketing forecasting with machine learning

Machine learning methods bring in a third powerful toolbox for building marketing forecasting pipelines by maximizing the precision of forecasting. While machine learning maximizes precision, they lose their explainability, e.g. a person cannot explain how the machine learning model came to its predictions.

Machine learning methods will not defeat qualitative and statistical methods, but rather will augment the other two families leading to the trend of augmentation through machine learning. Here are the three strategic shifts that machine learning methods will introduce to marketing forecasting:

- **Augmentation:** Judgement methods, statistical methods, and machine learning

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methods will be combined to create a more precise and understandable picture of future scenarios. While understanding the causal drivers of your marketing forecasting with judgment and statistical methods, machine learning will maximize the precision of predictions.

- **Automation:** Machine learning methods will automate the marketing forecasting in such a way that they can be easily accessed in real-time over a simple web-browser. There will be no need to gather data, to do the manual computation and to publish the results.
- **User experience:** The focus will shift to maximizing the end-user experience that the marketing forecasting will be available through an elegant web browser to all key employees. Great user experience will ensure the acceptance and trust of the stakeholders. Your employees will believe and trust in your future predictions.

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