



Healthcare & Life Sciences

**Leverage external data to improve pricing and underwriting decisions**

## The Big Picture

A leading health insurer believed it could better predict claims experiences using external data, as supplement to internal claims data. The organization wanted to leverage the predicted claims experience to improve pricing for new business, by considering external data in addition to internal factors such as age, gender and region.

## Transformative Solution

As an initial objective, a rating modifier was proposed to be built leveraging expected claims experience that is informed based on external data.

### Two key considerations for designing the solution were to

- validate the business case under consideration through external studies before investing in the use case, and
- to achieve a decent lift over and above the claims experience informed by age, gender and location factors.

With these considerations in mind, the approach began by performing a discovery to ascertain the validity of the use case. Upon completion of discovery, several external variables that were predictive of the claims experience were identified, and were mapped to the client's external data ecosystem for further validation. This included factors like buying behavior, socio economic and financial indicators, and health interests.

Post validation of the use case in discovery, several hypotheses were identified to create a set of 200+ features from external data to validate factors that could potentially predict claims experience. The variables were created to represent various behavioral aspects and characteristics of members, using external lifestyle census data, zip data, and account level variables.

The approach explored multiple traditional and advanced machine-learning techniques to predict claims experience (loss) at member level. The model that was built identified meaningful drivers for the claims experience of a member. Several key insights were uncovered, such as individuals with prime time television usage associated with lower loss amount.

To adjust rating factors, the expected loss (claims experience) at member level was rolled up to the group level to create a group level rating modifier. The rating modifier created by leveraging external data reduced the gap between predicted and actual loss.

## The Change

As a result, this rating modifier, which leveraged the external data, ended up reducing the gap between actual and predicted risk. Adjustments were then proposed to the quotation process for incorporating the new modifier into pricing of new group policies.

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