



Buying Intensity IndexTM

Improves the accuracy of monthly trend-based forecasts

www.ObjectiveInsights.com

Buying Intensity IndexTM (BII)



- The Buying Intensity Index[™] (BII) is a set of weights or indices intended for application in monthly trend-based demand forecasting
- The BII is produced using a proprietary statistical process developed by **Objective Insights**
- BII can be easily incorporated into your existing forecast process and models OI provides BII weights for both past and future dates Customized by market segment/therapeutic area



BII Rationale

- Not all months are equal in a monthly short-term forecast
 - Differing total number of days
 - Even months with the same number of days have other factors leading to variations in demand
- Such variations produce forecasting error that can artificially drive the trend up or down
- How to reduce the variability in monthly weights?
 - Total days in month? Business days per month?





Monthly Weight Comparison







Days per Month by Method



BII Filters Out Noise in True Demand...



TRx per Day Noise

5



Noise Based on TRx Measure



... Producing Smoother Data for Trending





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BII Real-World Experience

- BII originally developed to address excessive month-to-month forecast errors
 - Approaches by other vendors delivered only slight improvements over using calendar days for weighting
- Results in real-world use have demonstrated that the BII improves short-term forecasting accuracy
 - Significantly superior to using calendar or business days
 - Bll accuracy is most consistent ____
 - » Other weights may come close to BII in one period but be much worse in another







OI BII Testing Methodology

- BII was tested against other weighting methodologies using a series of 6-month holdout periods
 - Other periods also included that had proven especially problematic
- Entire market was projected using Holt exponential smoothing in Objective Insights Short-Term Forecaster model
 - Only the raw trend was considered (no events included)
 - Exponential smoothing coefficients were optimized
 - Monthly market TRx were transformed to TRx per "day," trended, then re-projected to TRx per month





BII Superior at One-Month Ahead... OI



9



One-Month-Ahead MAPE

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...And One Quarter Ahead



ΟΙ





Three-Month-Ahead MAPE

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ΟΙ BII Results Consistent Across Markets





Average Three-Month-Ahead MAPE by Therapeutic Area



OI BII Benefits

- Improves trend-based forecasting accuracy
- Less month-to-month variability in trends
- Easily incorporated into your existing forecast process
- Customized for each therapeutic segment
- Can be updated over time to incorporate shifting demand patterns
 - BII results are tested using holdout samples to determine optimal historical period to use (e.g., last three years, last five years)



