



Analysis of Predictive Scoring Model Optimization A Case Study

The Importance of Dynamic Modeling in an EDU Lead Scoring Solution

The following analysis is based on actual Client data from an Online University located in the Western U.S. The outcome comparisons illustrated herein are based on the scoring results of a recent “refresh” of their LeadScorz Scoring Model.

These summarized results are shared here anonymously with the Client’s approval.

LeadScorz® implemented its 2nd generation release of the LeadScorz cloud-based, EDU Lead Scoring solution for this Online University in July of 2016. Since that time, the Client has “refreshed” their custom LeadScorz predictive scoring model 3 times. Each iterative refresh leveraged the Client’s historical lead & enrollment data to update their model, resulting in consistently improved correlation of lead scores to enrollments of incoming Students.

The following analysis documents the comparative accuracy of their scoring results produced from the 2 most recent model refreshes. This analysis evaluates the accuracy of both “*True-Positive*” and “*False-Positive*” outcomes for both “Converters” (Enrollments) and “Non-Converters” across the lead population.

A unique aspect of the LeadScorz® service is the real-time nature of its score processing methodology, combined with a bi-directional integration with the Client's CRM system (in this case, SalesForce.com). When fully integrated with a Client's lead-generation sources *and* their lead processing CRM system, the result is a fully-integrated lead management solution designed to drive both higher conversion rates *and* higher quality lead acquisitions.

The Process of Building (and Refreshing) a LeadScorz Scoring Model

Step 1: LeadScorz® copied key Lead Data stored within the Client's CRM system, importing it to the LeadScorz back-end database.

Step 2: The LeadScorz Model-Builder® function was then used to identify the optimal set of Model Input Variables used to create the Client's custom scoring model.

Step 3: The Client data was then combined with hundreds of "Life-Data" attributes, appended to each lead by the LeadScorz platform, to create their scoring model.

Step 4: The model was then tested and proven within the LeadScorz Client Control Dashboard, before being deployed within the Client's systems environment to score new incoming leads in real-time.

Letting the Data Tell You When It Is Time To “Refresh” – or Not

Each decision to test the efficacy of a model refresh was based on the Client’s assessment of the LeadScorz “***Model Performance Dashboard***”. The dashboard enables Users to monitor the performance of their production scoring model algorithms, and compare that performance to results of a potential new model created with more recent outcome data from the Client’s CRM funnel.

LeadScorz Model-Builder® takes the guesswork out of determining which Inputs build the most accurate models.

The Client's latest refresh was completed on April 1, 2017 (prior refresh was on October 27, 2016). The Client was able to "Pre-Test" the accuracy of a proposed Refresh Model by using the **LeadScorz Model-Builder** tool and the *LeadScorz Analytics Dashboard* (illustrated on following slide).

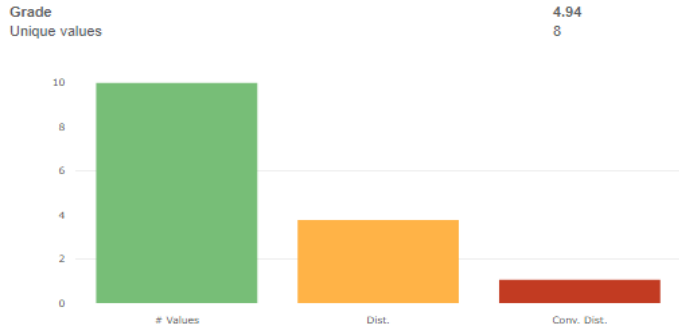
Leads	Conversions	Conv. Rate	Hints
125554	16513	13%	

Field Analysis

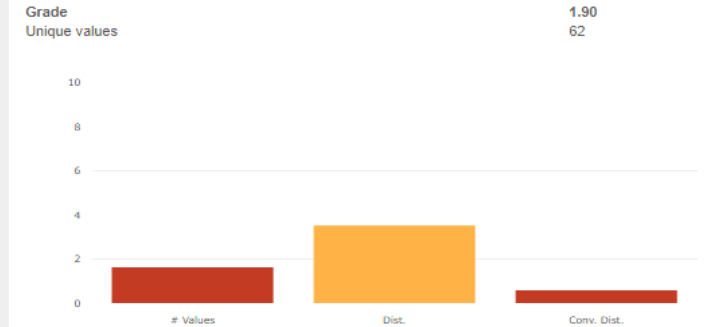
Required Fields

- fields.city
- fields.middle-name
- fields.last-name
- fields.zip-code
- fields.country
- fields.primary-phone
- fields.secondary-phone
- fields.address-1
- fields.address-2
- fields.state
- fields.first-name
- fields.email

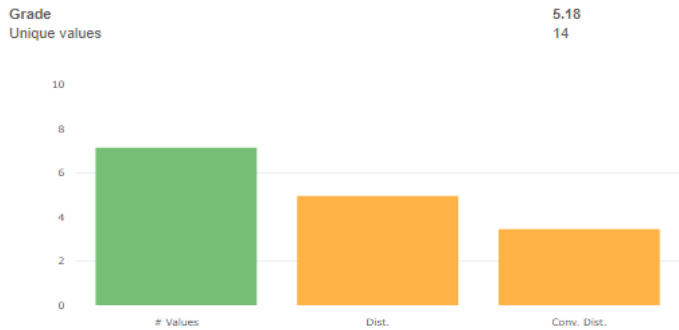
planned-enrolment-date



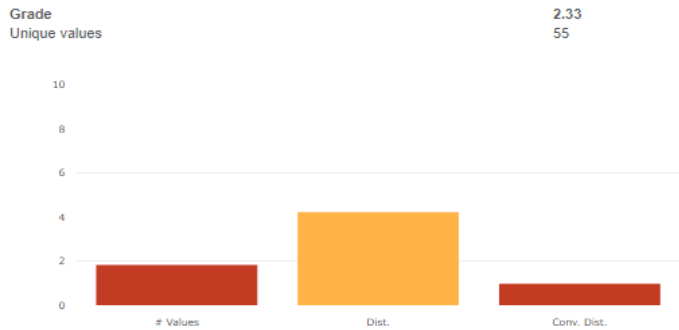
hs-grad-year



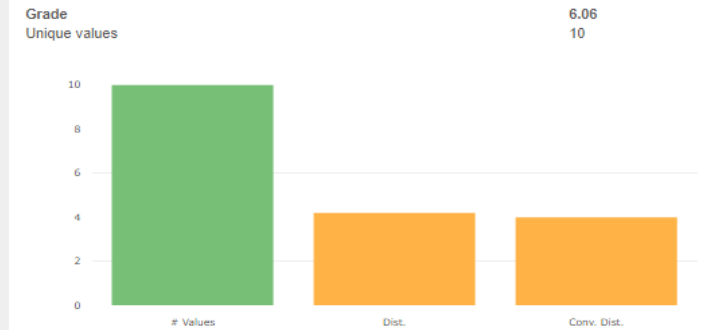
military-status



sfdc-campaign-type



highest-level-of-study



Actual Client Data – Online University

Top: Illustrates that the lead scores were normalized across a normal distribution with regard to quality – on a scale of (1-100) unique score values.

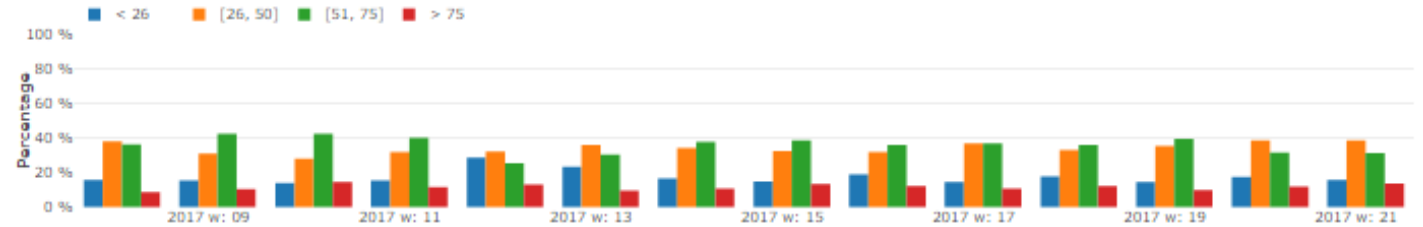
Middle: Illustrates that LeadScorz accurately predicted the highest number (and percentage) of Converters to be within the highest scoring quartiles – and scored a consistently decreasing percentage of enrollments in the lower quartiles.

Bottom: Illustrates the conversion rate within each quartile of leads that were scored, by score quartiles. The goal is to achieve the highest % within the highest scoring quartiles (ranges 51-75, 76-100)

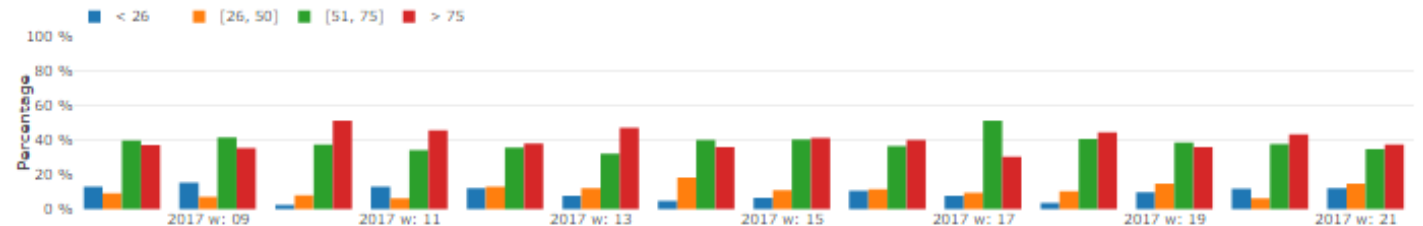
**each 4-color stack represents 4 Quartiles of the Scoring Range for 1-week during the selected period.*

MODEL PERFORMANCE

SCORE DISTRIBUTION - ALL LEADS



ENROLLMENTS BY QUARTILE



CONVERSION RATE BY QUARTILE



	Previous Model	Refreshed Model
# of Records	17,023	17,023
# of Converters	1,964 11.54%	1,961 11.52%
# of Non-Converters	15,059	15,062
Ave Score-All	50.61	53.80
Ave Score-Conv	65.83	81.71
Ave Score-Non Conv	48.60	50.17
Score Delta	17.23	31.54 45%

Converter Data Metrics

- Average scoring of converters was much improved in the Refreshed Model.
- Refreshed model provides 31.5 ppts difference between average Converter score and average Non-Converter score – a 45% improvement vs previous model.

Refreshed model was built from actual Client records from April 2016 through March 2017. The holdback (truth-test) data was for leads from April of 2017 through July of 2017

Current model had been in place since October of 2016

When evaluating the accuracy of its current scoring model, the Client assessed not only the average relative score of “Converters” (in this case indicating a Student was successfully approved for enrollment), but also the incidence of both “*False-Positives*” (those Applicants who were scored in the higher deciles, but did NOT enroll), and “*False-Negatives*” (those Applicants scored in the lower deciles, but DID enroll).

The following slides illustrate a comparison of the Client’s existing “Production” model in use at the time vs. the results of a Refresh Model based on actual enrollment outcomes for the prior year.

For the purpose of this Performance Analysis, scoring results were parsed into 3 segments;

High Scoring = a score of 71-100

Mid Scoring = a score of 31-70

Low Scoring = a score of 0-30

Previous Model

Refreshed Model

Converter Data Metrics

- Refreshed model provided a sizable increase in accuracy among Converters. 90% of all Converters within top 3 deciles vs. ~52% from previous model.
- Compared to previous production model, refreshed model has fewer conversions coming from middle 4 deciles.
- Those now include only ~9% of all conversions, with significant reductions in number as scores diminish (~50% decrease per decile step)
- Client saw significant improvement with Refreshed Model with respect to Converters placed in lowest 3 deciles (False-Negatives)
- Refreshed Model places only .2% of conversions within this score range, a total of 4 Applicants, compared to over 11% with current model

Conv in 10th Decile (91-100)

Conv in 9th Decile (81-90)

Conv in 8th Decile (71-80)

Totals

Conv in 7th Decile (61-70)

Conv in 6th Decile (51-60)

Conv in 5th Decile (41-50)

Conv in 4th Decile (31-40)

Totals

Conv in 3rd Decile (21-30)

Conv in 2nd Decile (11-20)

Conv in 1st Decile (1-10)

Totals

195	9.93%
355	18.08%
464	23.63%
51.63%	

194	9.89%
1096	55.89%
479	24.43%
90.21%	

345	17.57%
187	9.52%
117	5.96%
77	3.92%
36.97%	

93	4.74%
46	2.35%
22	1.12%
6	0.31%
8.52%	

103	5.24%
81	4.12%
40	2.04%
11.41%	

4	0.20%
0	0.00%
0	0.00%
0.20%	

Previous Model

Refreshed Model

Non-Converter Data

Non-Conv in 10th Decile (91-100)

501	3.33%
999	6.63%
1346	8.94%
Totals	18.90%

76	0.50%
1642	10.90%
1851	12.29%
Totals	23.70%

Non-Conv in 9th Decile (81-90)

Non-Conv in 8th Decile (71-80)

Non-Conv in 7th Decile (61-70)

Non-Conv in 6th Decile (51-60)

Non-Conv in 5th Decile (41-50)

Non-Conv in 4th Decile (31-40)

1606	10.66%
2684	17.82%
2370	15.74%
1857	12.33%
Totals	56.56%

1618	10.74%
1997	13.26%
1985	13.18%
2111	14.02%
Totals	51.20%

Non-Conv in 3rd Decile (21-30)

Non-Conv in 2nd Decile (11-20)

Non-Conv in 1st Decile (1-10)

1616	10.73%
1039	6.90%
905	6.01%
Totals	23.64%

2707	17.97%
1083	7.19%
13	0.09%
Totals	25.25%

- Refreshed Model placed more Non-Converters into highest 3 deciles. This does not necessarily mean those leads will not convert, or that they were not high quality leads, only that they did not enroll at this school
- This outcome could be used as justification for investing more resources in working highly-scored leads, rather than being viewed as False-Positives.
- It should be noted that the Client's overall Conversion Rate for current year vs. prior year improved from 11.5% to 13.3%
- A less significant delta is seen in difference between scored Applicants in middle 4 deciles for Non-Converters, although Refreshed Model does report fewer Non-Converters within this score range (~5 pct pts)
- Refreshed Model provides a noticeable shift in placement of Non-Converters towards the lower deciles
- Both models place a similar number of Non-Converters in lowest 3 deciles, although the refreshed model does provide ~1.6 pct pt improvement over previous model

Summary & Conclusions

The LeadScorz® Predictive Scoring Solution proved itself as a powerful, technically sophisticated and accurate lead-scoring system. LeadScorz provided the University the ability to create customized Predictive Models from their own historical data combined with hundreds of appended “Life-Data” attributes. The University monitored the accuracy of their models in real-time, and automatically “refreshed” as-needed.

The LeadScorz Scoring Solution was easy-to-integrate, and enabled the Client to better prioritize their Student leads by “learning” from past results. The real-time feedback loop between the Client’s CRM and the LeadScorz platform essentially enabled them to monetize their historical leads & admissions data in a way that was not possible with legacy systems.

Due to the accuracy of their lead scoring, and the integrated systems environment, the Client benefitted from a self-optimizing “feed-back loop” that enabled their Marketing Dept to monitor in real-time the predictive accuracy of their custom scoring model. The client “refreshed” their model as-needed to retain optimal accuracy of quality scoring across their entire lead flow.

Their Marketing and Admissions teams now have the ability to leverage dynamic CRM data to not only continually optimize their scoring results, but also to subsequently optimize the allocation of media spend to bring higher quality leads into their funnel.





ABOUT ORCA ANALYTICS LLC

dba LeadScorz®

Orca Analytics, LLC is the developer of the LeadScorz® Lead Management & Predictive Scoring solution. Developed by CEO Patrick Murphy, who has designed and marketed several successful Online Business Applications since 1992, LeadScorz leverages “Big Data” & state-of-the-art Predictive Modeling technology that helps customers acquire higher quality sales leads at lower cost, prioritize incoming leads, and to better manage their funnel and close more sales.

Orca Analytics was spun off in December 2016 from Vega Performance Marketing, Inc., a successful 6-year old Digital Agency and Microsoft Vendor owned by Mr. Murphy and Co-Founder Judd Boone. Orca Analytics develops and markets its cloud-based applications through both direct sales and Channel Partners to several verticals within the U.S.

LeadScorz’ infrastructure design and data-integration features, combined with a highly-skilled team of Data Analysts, have proved to provide key operational advantages and superior performance over legacy players in the Lead Scoring segment. The Strategic Partnership between LeadScorz and Versium Analytics, Inc. provides the all-important “data advantage”, superior processing speed, and a “One Stop Service” for clients, setting LeadScorz apart from other scoring services.

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