

CASE STUDY:

TELCO

CLOUDAPPS **OUTPERFORMS**
GOOGLE AND **SALESFORCE**
FOR NEW SALES AND
CUSTOMER CHURN
PREDICTIONS

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PROBLEM STATEMENT

Back in 2009, one of the world's largest Telecommunications companies placed a large Customer Relationship Management (CRM) dataset into the public domain. The **Orange group**, who recently posted results showing €42 billion of revenue, wanted to provide the **ability for anyone to practise their AI skills on a real-world CRM dataset to test and deploy machine learning techniques** that would predict with as much accuracy as possible the following 3 important CRM business cases:

- 1) Propensity of customers to switch provider (churn)**
- 2) The probability of buying new products or services (appetency)**
- 3) Likelihood to purchase upgrades or add-ons (up-selling)**

To date, many hundreds of individuals and companies have taken up that challenge. Initially, **Orange Labs ran a competition ([the KDD Cup](#))** lasting 5 days, but in the years since many software companies have used this dataset to benchmark the performance of their commercial offerings for **Sales & Marketing use cases.**

At CloudApps, **we are CRM domain specialists and these three scenarios are core to how we produce insights and predict sales, customer service improvements and marketing initiatives**, so this was the perfect dataset to benchmark the performance of our own product.

The reference point Orange provided was to **outperform their in-house system developed by Orange Labs which was built to deal with a very large database that includes heterogeneous noisy data** (numerical and categorical variables), along with unbalanced class distributions

HOW DO THE TOP PERFORMERS COMPARE?

CatBoost, LightGBM and **XGBoost** are all from the same family of machine learning algorithms that are based on ensembles of decision trees. **Traditionally, this approach has been thought of as being the best means for solving problems** involving tabular data and, to date, it has been the dominant approach for tabular data (i.e. the type of data that is prevalent across all CRM systems). The reason for this is that it is very interpretable and easy to train. The downside is its speed in operation and inability to accurately extrapolate for scenarios it has not been trained on. As a result, **this approach is not great in situations such as the COVID-19 pandemic where circumstances change in a significant way.**

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Sensai from CloudApps and also TabNet (which is used by the Google Cloud AI Platform), both make use of **Deep Learning which imitates the workings of the human brain in creating patterns and learning from neurons for use in decision making.** Also known as deep neural learning or deep neural networks, these are the first solutions to use deep learning on tabular data. The Deep Learning approach has **a significant performance advantage over ensembles of decision trees** and this is a

key factor in scenarios where understanding sequences of actions are relevant, i.e. when **guiding a sales rep on the next best action to perform. The breakthrough CloudApps made was our ability to combine this higher performance with an ability to explain each score in real time, and to also guide reps with recommended next best actions to perform.**

THE PROOF OF THE PUDDING...

The **CloudApps Deep Learning solution scores better across all performance metrics for both Appetency (New Business Sales) and Customer Churn**, and a close second on the Upsell metrics. No other single solution - or even a combination of solutions - was able to match the breadth and performance achieved by CloudApps with our standard out-of-the-box Deep Learning AI platform called: 'Sensai'.

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TabNet, which is available for the Google Cloud AI platform, reported decent scores, but **none were able to match the results achieved by CloudApps**. CatBoost is one of the best-respected ensemble learning

methods and this did equal best on the Upsell metrics (along with XGBoost) which is one of the algorithms used by Salesforce Einstein.

The other important factor to note is that the Orange KDD dataset does not include any time sequenced data. **Deep Learning solutions - Sensai especially - come into their own when non-sequenced data is augmented with time sequenced data.** The CloudApps reputation is built upon generating behavioural insights from CRM data and, if sequenced data had been included within the dataset, it is highly likely that the performance of Sensai would have been even better!

WHAT DOES THE FUTURE HOLD?

The use of Deep Learning on tabular data is only in its infancy. Applying deep learning to Computer Vision (CV) and Natural Language Processing (NLP) has revolutionised these fields in the last few years. The development of new architectures and training techniques, only possible because of the inherent flexibility of the neural network, has accelerated performance beyond what was previously thought possible. By contrast, the development of decision trees is at a dead end. The CloudApps results demonstrate that we are at a point of inflexion where the use of deep learning on tabular data is now outperforming decision trees and is a trend that is set to continue and become the defacto choice just as it has in CV and NLP.

[\(Find out more about the Sensai AI Platform with this Datasheet\)](#)

It's no wonder why CloudApps does well in the telco vertical, having a number of blue chip telco companies such as Vodafone, BT and Proximus

already embedding CloudApps Sensai AI platform into their core CRM projects, **accurately predicting churn rates, identifying renewal opportunities in advance, and forecasting whether new opportunities will close or not.**

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[\(VIDEO: Overview of CloudApps Sensai AI Platform\)](#)

Fundamentally, **CloudApps differs from all other AI applications for CRM as the platform not only works on tabular data, but also takes into account time sequenced data with deep neural networks** (although sequenced data was not included in the current case study) and has proved to be over 95% accurate in forecasting and sales efficiency.

About CloudApps.

We are the world's leading AI sales effectiveness & accuracy technology specialist, helping sales executives predict and improve sales results using artificial intelligence and behavioural science. We are the first and only providers of 'Deep Learning' powered AI in the CRM sector, bringing our customers real-time, continuous, and meaningful improvements to sales activities.

Book a demo of our platform [here](#)

**Delivering sales growth for some of the world's
most successful companies.**

