CASE STUDY – USING IDIRO'S INSIGHTS TO RETAIN CUSTOMERS

INTRODUCTION: THE PROBLEM OF CHURN

In today's mobile telecoms market, market saturation and the arrival of new operators including MVNOs has made churn the most important issue for many mobile operators. Much effort has gone into developing churn prediction models, with some success. Traditional churn prediction models examine data related to the individual customer in order to predict churn. Examples of churn indicators include reaching the end of a contract period, an increase in calls to off-network customers, or a series of calls to the helpdesk.

This document describes a radically new approach to churn prediction which mobile operators are combining with traditional churn prediction tools to deliver real benefits in customer retention.

This document also outlines how one Western European mobile operator customer of Idiro Analytics has achieved an **ROI of over 27 Million Euro** by deploying Idiro SNA for retention.

CHURN CONTAGION

In the same way as people share information about new products with their friends, individuals tell others if they are unhappy with their service provider or if they have changed network because they have received an attractive offer from an alternative provider.

Idiro Analytics has developed a solution to predict churn based on community behaviour. By analyzing a selection of the mobile operator's call records, Idiro's powerful algorithms build a 'social network model' of the operator's customer base. This shows the communities in the customer base and the levels of influence each individual has within their community and also their level of influence across the wider network.

Subscribers who are in the environs of recent churners will experience increased pressure from these individuals to move networks. This 'contagious churn' phenomenon has been demonstrated numerous times with a large variety of mobile phone companies.

Fig. 1 (below) shows a typical community of mobile users. The subscribers shown in orange can be influenced to churn not only by subscribers to whom he/she is directly connected (e.g. A & B), but also by others more than two or even three links away (e.g. C).
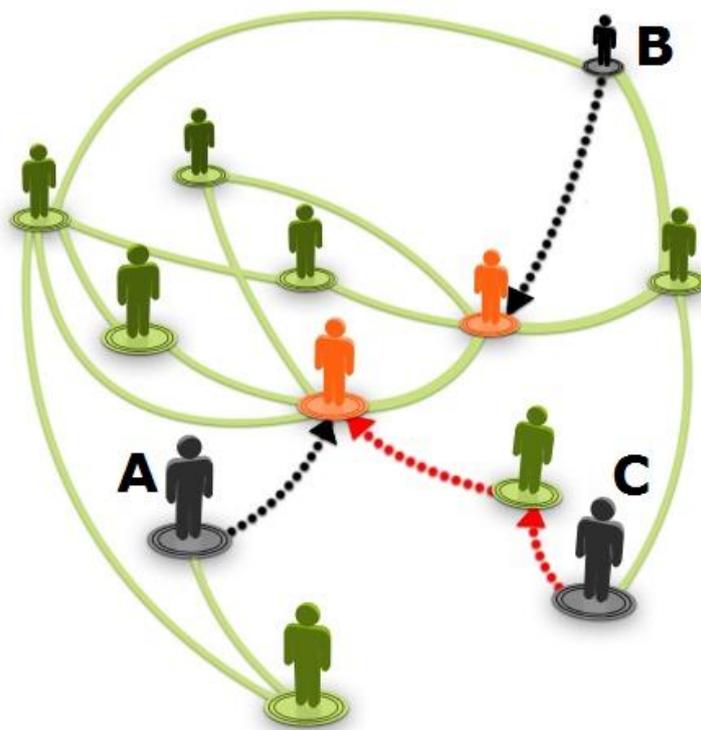

Fig. 1: A community of mobile users.

PREDICTION OF CHURN CONTAGION - A NEW CONCEPT

Experience by Idiro Analytics in numerous mobile markets has shown that the level of contagious churn varies from 21% to 25% of total churn.

Contagious churn cannot be detected using traditional data mining tools; to understand and predict where contagious churn is going to occur within your customer base, you must take a new approach to customer insights within your organization. Idiro Analytics has developed a technology suite based on the well-established principles of *social*

network analysis (SNA). Idiro's SNA-based analytics service enables mobile carriers to accurately predict the viral diffusion of churn (as well as other products and services) across their customer bases.

The Idiro SNA-based analytics service can be used (in addition to its many other applications) to provide mobile operators with two scores used in combating churn: the Idiro Churn Pressure™ Score (CPS™) and the Idiro Churn Influence™ Score (CIS™). These address different facets of customer retention, and are described in the following pages.

THINKING DIFFERENTLY ABOUT CHURN: THE *IDIRO CHURN PRESSURE™ SCORE*

Idiro Analytics' Churn Pressure™ Score takes the approach of asking:

> "How is Subscriber A likely to be influenced by recent churn behaviour in their social group?"

In other words, how is the subscriber affected by their close ties with others who have already recently churned in their neighbourhood? Obviously, this effect varies considerably depending on the relationship between the subscribers. Fig. 2 shows an intuitive example of churn pressure. If the two subscribers which are circled were to churn, then the subscriber in orange who is linked directly to them has a much higher probability of being infected with churn. We describe this phenomenon as 'churn pressure'.
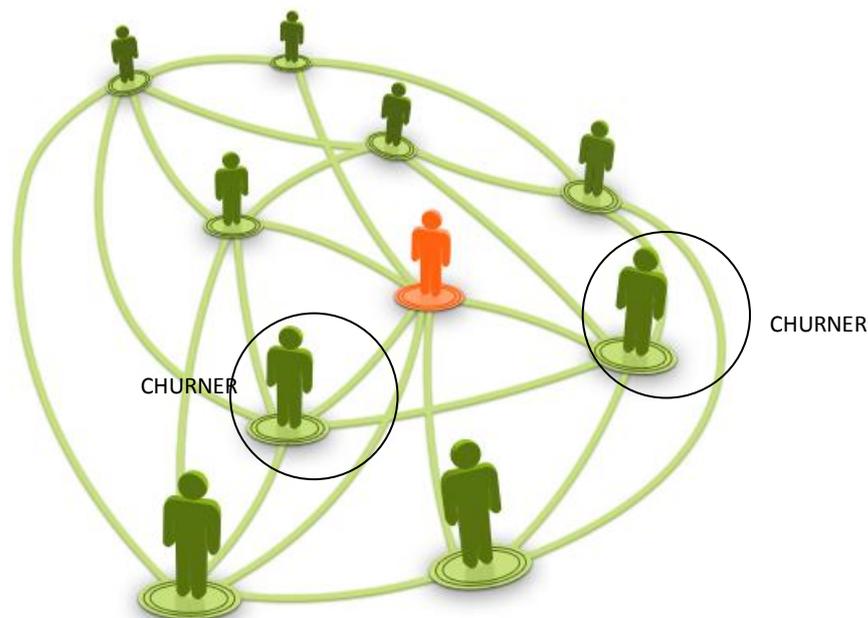
Fig 2: Subscriber under high churn pressure within a community

Note: Proximity alone is not enough to determine the pressure an individual is under to churn. The key to determining the churn pressure exerted on a subscriber is the strength of relationships linking them to churners as well as their own position within the social group.

UNDERSTANDING HOW CHURN SPREADS IN COMMUNITIES

A number of recent customer cases have confirmed that subscribers under high Churn Pressure are statistically more likely to churn, and that the Churn Pressure™ Score is a valuable churn predictor. Therefore, by including predicted churners selected using the Idiro Churn Pressure™ Score in retention and save activities; mobile operators can significantly improve churn rates.

In the case of one Western European mobile operator customer of Idiro, a predictive accuracy of churn was achieved as shown in Fig. 3 below.
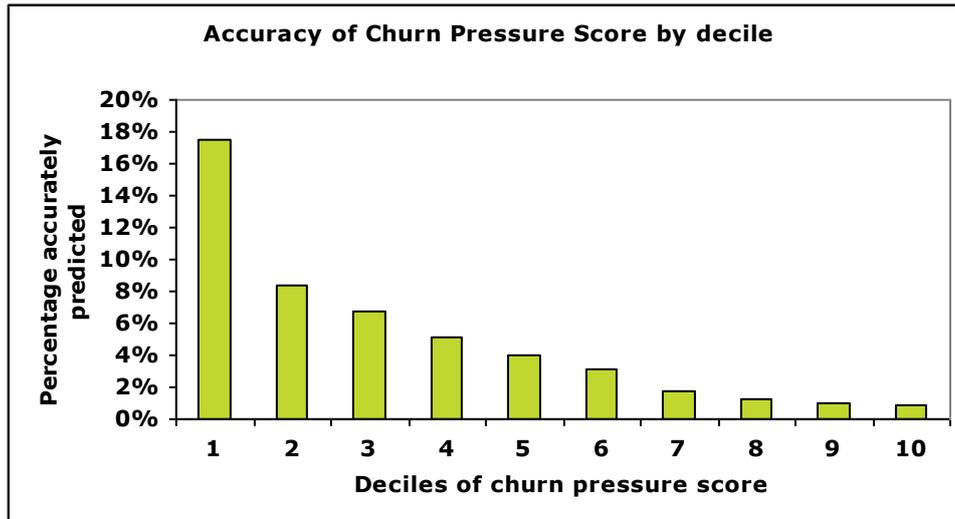
Fig. 3: Churn propensity varies according to Churn Pressure™ Score.

Question: *What is the above graph telling me?*

Answer: *The concept of "churn pressure" is real and is a highly accurate measurement of a subscriber's propensity to churn. Over 17% of the subscribers in the top decile (furthest left) churned within 3 months of being flagged by Idiro as being under high churn pressure.*

Subscribers who are under churn pressure are usually not detected by traditional data mining tools as they do not exhibit signs of individual churn behaviour – e.g. changes in their usage patterns - making them virtually impossible to detect under standard churn propensity models. Fortunately, they can be identified using the Idiro Churn Pressure™ Score and retained.

Churn prediction using Idiro Churn Pressure™ Score works alongside an operator's existing churn models. Experience has shown that the predictive accuracy of Churn Pressure™ Score in identifying churners is similar or better than that of operators' own churn prediction models, and the overlap between the Idiro and existing models is quite low – usually less than 12%. This means that Idiro CPS™ should be used in combination with other existing churn models.

SOME SUBSCRIBERS ARE MORE INFLUENTIAL THAN OTHERS

Some churners are more influential in their social groups than others. It has been demonstrated that the more influential a churner is in his / her community, the larger the number of friends that he / she is likely to influence to follow him.

The more central a subscriber is in a given community the higher the levels of influence they have; particularly when compared to those subscribers who are at the extremities of their community.

Fig. 4 gives an overview of the concept of the Churn Influence™ Score. It can be clearly seen that if subscriber A were to churn, she would potentially cause significantly more subsequent churn than would subscriber B
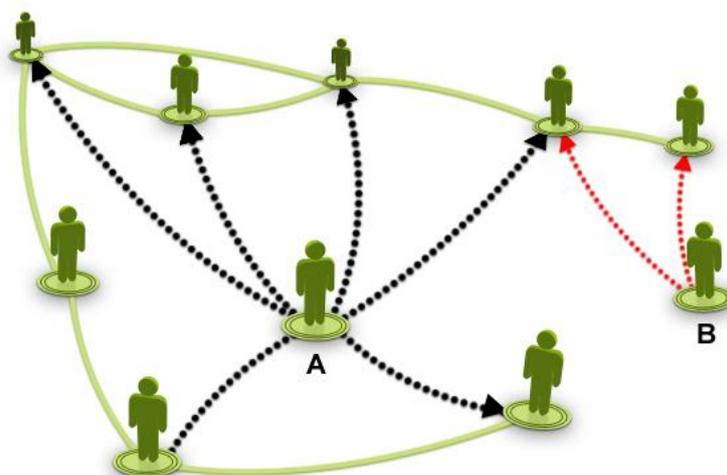

Fig. 4: Churn Influence concept (simplified)

The Idiro Churn Influence™ Score allows the mobile operator to identify the subscribers who, if they churn, will cause the most collateral damage by causing others to churn. If the mobile operator takes steps to retain those with a high Churn Influence™ Score, it will reduce the churn in the longer term caused by these influential individuals.

Fig. 5, based on the same Western European mobile operator as described in the previous case, shows a clear correlation between an individual's Churn Influence™ Score and the number of other subscribers whom they infect.
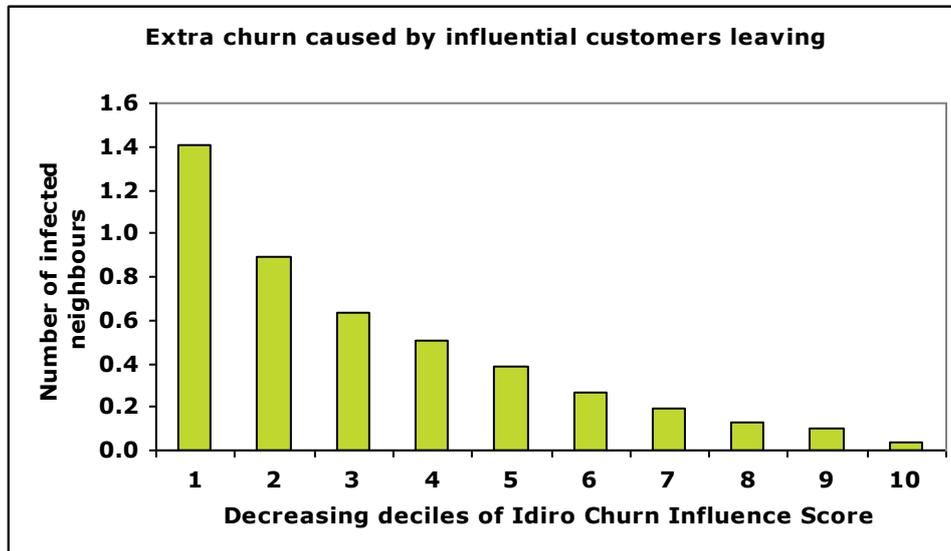

Fig. 5: Churn Influence™ Score as a predictor of churn infection

Question: *What is the above graph telling me?*

Answer: The more influential a churner is the more people they are going to influence to churn. The above graph (from a European operator) shows that the most influential churners (decile furthest left) influenced on average an additional 1.4 subscribers to churn with 3 months of the date that they themselves churned.

Churn Influence™ Score revolutionizes how a mobile carrier values their subscriber base.

NETWORK VALUE - A NEW WAY TO VALUE SUBSCRIBERS

Because the Churn Influence Score describes the value (albeit negative) that the subscriber has by virtue of his community, mobile operators use it to add a third dimension to customer lifetime models, as shown in fig. 6 below.   On the vertical axis is the individual's value – typically expressed in ARPU or lifetime value. On the horizontal axis is the churn propensity as expressed by the Idiro churn pressure score and/or other

churn prediction model scores. On the 3D (diagonal) axis is the customer's network value (i.e. the financial impact of them leaving on their community) as represented by the Churn Influence Score.
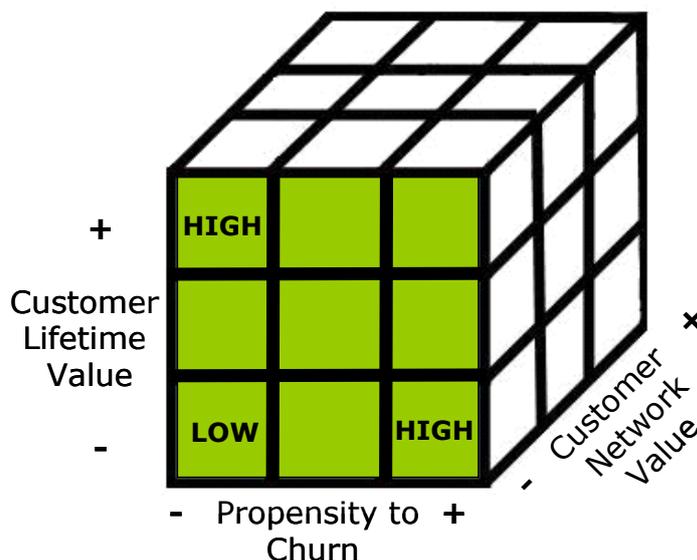

Fig. 6: Three dimensions of customer value.

CALCULATING THE BUSINESS VALUE DELIVERED BY IDIRO CHURN SCORES

Each of the two Idiro churn-related scores (Churn Influence™ Score and Churn Pressure™ Score) delivers value to the mobile operator. A churn prediction trial can deliver a business case for Idiro scores.

Calculating the business value added by the Idiro Churn Pressure™ Score is straightforward, and is carried out as follows:

1. Measure the number of additional churners predicted each month by the combined 'Idiro + Operator' churn prediction, over the 'Operator only' prediction as shown below in Fig. 7.
2. Multiply by twelve to give an annual figure.
3. Multiply by the Operator's 'save rate' to give the number of customers saved.
4. Multiply by the average lifetime value of customers saved to show the annual value delivered by Idiro Churn Pressure™ Score.
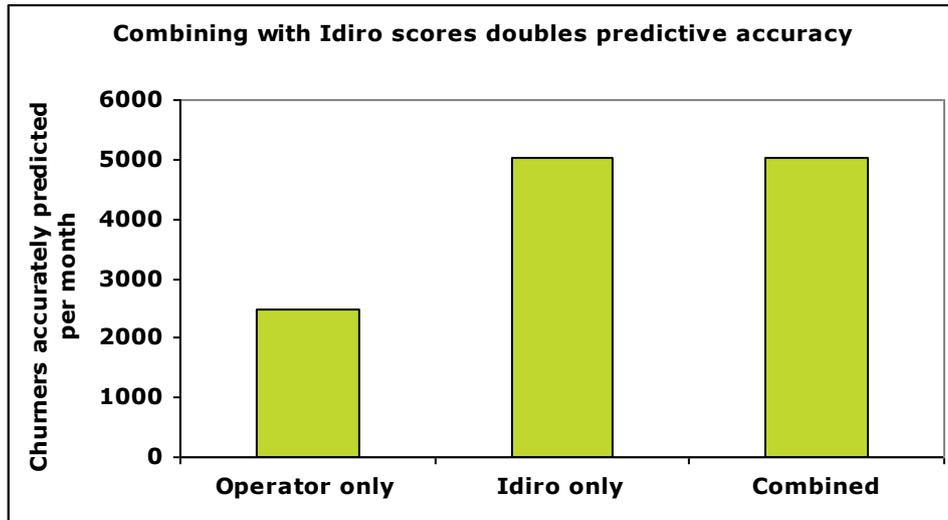
Combining with Idiro scores doubles predictive accuracy

Fig. 7: Calculating the value added by Idiro Churn Pressure™ score.

Calculating the value delivered by Idiro Churn Influence™ Score is more complex. However, Fig. 5 shows that for each churner with the highest Churn Influence™ score, 1.4 additional subscribers leave. If the average Life-time value for these customers was €2000 then losing subscribers in the top decile actually cost the mobile carrier €2000 + (€2000 x 1.4) = €4800 per churner. Saving these customers is therefore a lot better than saving customers who are not influential. The average churner in Fig. 5 only costs the customer €2000 + (€2000 x 0.4) = €2800.

The Idiro SNA-related data inputs required for these calculations can be measured as part of the Idiro trial process.

> **One of Idiro's customers recently calculated a Return on investment of over €27 Million per year from using Idiro Churn Pressure Score and Idiro Churn Influence Score in retention targeting.**

Summary and conclusions

Churn is an increasingly important problem for the mobile phone industry, and many operators have achieved partial success in churn prediction and retention / save of predicted churners. However, there is much scope for further improvement.

Idiro's SNA-based analytics solution offers a radically new approach to churn prediction. The benefits of this approach have been proven and can be applied in almost any mobile operator.

Further information

Many more of our case studies cannot be published due to confidentiality. For more information about these, or about how Idiro can help your business, contact us at info@idiro.com.