
Software review

Social network analysis in the Telco sector — Marketing applications

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SYNOPSIS

This paper explores the use of social network analysis in the Telco sector. Rather than focusing on the analytical techniques (many of which are proprietary and covered by patents), it focuses on the types of results that have been achieved to date and their business application in marketing.

BACKGROUND

My previous paper, 'The role of social networks in marketing' in the *JDM*, stimulated many enquires about the subject, and as a result I have decided to focus this paper on the use of social network analysis in the telecommunications sector. Based on my international experience, this is probably the sector that is the most mature in the business application of social network analysis in marketing.

DEFINITION

For the purposes of this paper

Social network analysis

Social network analysis is concerned with the analysis of the influence of an individual within a social network on product purchase and service usage.

Social network

A social network is a group of people who are connected through their use of mobile communication services.

Concept

A concept is a behaviour, for example, new product usage or an idea, that moves through the social network.

Wave

A wave is the measured way in which a concept flows through a social network.

Connection

A connection is the link between two individuals within a social network. The link may have a number of attributes to describe it, for example, direction, strength and concept flow speed.

An individual may be connected to one or more individuals within the social network.

Influencer

An influencer is an individual who stimulates a concept (eg behavioural change) to flow through a network.

INTRODUCTION

The use of social network analysis is not new; it has been used in a number of areas including social science for more than 80 years. But it is only in the last few years that social network analysis has been seen in marketing. I have been working with US and European cellular service providers that have been experimenting with the subject for the last 18–24 months. It is only in the last few months that I have seen solutions going into production, often after pilot programmes.

One of the reasons that we are starting to see production deployments of social network analysis in the Telco sector is the emergence of technology designed to meet the specific needs of marketing. In many cases this technology was originally developed to meet the needs of the anti-terrorist organisations in the military and security sectors. A natural step for these vendors has been to move into the fraud sector. A few have targeted the marketing arena from the start.

WHY THE EMERGENCE OF SOCIAL NETWORK ANALYSIS IN THE MOBILE TELCO SECTOR?

There are two key business reasons why the Telco sector has been an early adopter of social network analysis. These are

- Availability of data
- Business pain

The following section explores these in more detail.

Availability of good data

The mobile telecommunication sector is unique in that they have access to detailed call records made between individuals. This call data includes

- Caller number
- Caller handset identifier
- Receiver number
- Start time of the call

- End time of the call
- Day of week of call
- Time of day of call
- Duration of call
- Caller cell location
- Receiver cell location
- Receiver on or off network status

Similar types of data are available for text messaging.

This call data significantly simplifies the definition of the social network and influencers.

In addition:-

In the case of the caller (or receiver if on network) the organisation has access to

- Customer profile data
 - Comprehensive for contact customers, limited for pre-paid
- Account data
- Handset data
- Product involvement data
- Services usage data
- Inbound contact history, for example, call centre
- Marketing contact history and response data

This data allows us to understand the flow of concepts through the social network.

This breadth of data makes the Telco sector data rich for social network analysis.

There is one issue that still has to be addressed by most of the vendors and that is the volumes of data that need to be processed. To effectively analyse the flow of concepts through a social network means the solution has to process years worth of call data. In the US this means billions of call records.

BUSINESS PAIN

The second reason that the Telco sector has been the incubator for social network analysis in marketing is the presence of significant business pains.

These include

- *Persistent problems with churn in the contract customer segment*
 Much work has been done to manage churn in the contract customer segments, in terms of both predicting customers who are a risk and developing effective marketing tools to address the churn. But there are still persistent problems with churn.
- *Rapidly rising churn in the pre-paid customer segment*
 The last two years has seen a significant rise in churn in the pre-paid customer segment. The general decline in the price of voice services is further contributing to this problem. Unlike the contract customers the Telcos often have limited and in some cases no personal data on these pre-paid customers. This has significantly reduced the available retention tools. It has also made it difficult to measure real churn in this sector because customers swap phones within the same provider.
- *Need to increase revenue (ARPU) from data and other value added services*
 As price pressure from the competition on voice services is driving down revenue, the Telcos are looking at data and other value added services to grow monthly revenue per subscriber. Managing the cost of selling these new products and services is becoming pivotal to success.

These two factors — available data and business pain — have driven the Telcos to explore the use of social network analysis in a number of areas.

HOW IS SOCIAL NETWORK ANALYSIS BEING USED?

The following section explores how social network analysis is being used in this sector.

My colleagues and I have been involved in a number of social network analysis

projects and the following are examples of how social network analysis is being used in the Telco sector across the world.

The business applications include

- Improving churn prediction
- Improving customer value management
- Improving churn measurement
- Improving up sell campaign performance

The business applications are described in more detail below.

Improving churn prediction

In this case, the following data types were used to identify the social network for contract customers. A wide range of data were used that included

- Customer
- Account
- Handset
- Product and service usage data
- Detailed call record data
- Event history
- Channel usage

Historical data covering a number of years was used.

The social network analysis process generated a range of social network parameters at the customer and social network level. These parameters were then used as input variables in the current churn modelling process (regression).

The social network parameters

- Increased the model performance by a factor of ten or more
- Appeared in the list of top ten predictive variables in the model
- The retention campaigns saw an even better uplift (10–25 times)

The new model was then used to enhance the churn retention process.

This process was repeated for pre-paid customers and produced even better results.

IMPROVE CUSTOMER VALUE MANAGEMENT

In this case the Telco had a complex process to calculate the historical and near-term future value of a customer. This customer value had been embedded in a number of key business processes including

- Customer retention
- Customer recovery
- Customer experience management in call centre and stores
- Price plan development

As in the previous example a wide range of data were used to define the social networks and to identify customers who were influencers for a number of key concepts.

The customer values for the individual customers were combined to produce a customer level social network value. The customer and social network values were compared for customers on the base. The results showed that over 18 per cent of the customers in the current lowest customer value band were actually part of high value social networks. In addition about 7 per cent of the low value customers were identified as influencers. Across all segments the penetration of influencers varied between 7 and 18 per cent.

The Telco is now in the process of embedding the new social network value and influencer indicators into a number of core customer management business processes. The initial results of the changes in the retention management processes are proving very valuable.

IMPROVING CHURN MEASUREMENT

It had proven hard in the pre-paid segment to accurately measure 'revolving churners'. These are customers who cancel one product and then replace with a new product from the same network. In the case of contract customers name and address data can be used to monitor a customer's

purchases over time. In the case of pre-paid customers many organisations do not collect personal details and therefore find it very difficult to track these revolving churners.

One vendor I worked with has developed what they call 'social network finger printing', in this case they build the social networks and look to map new customers into existing social networks where one or more individuals has left (cancelled or gone dormant).

In one case they were able to identify 26 per cent of the churning customers as revolvers. The organisation has now created a new category of customer that they monitor on a regular basis.

The consulting partner is currently working with the organisation to develop more effective retention marketing tools for these revolving churners.

IMPROVING UP SELL CAMPAIGN PERFORMANCE

In this case the Telco has used information on influencers to target a range of direct marketing campaigns to influencers only. These campaigns included

- Hand set upgrades
- Price plan migration
- Data packages and bundles
- New hand set launches

The basic principle is not new to anyone who has run viral marketing campaigns. But in this case the proposition is sent to influencers only. The other members of the social networks receive no communication.

In some cases incentives are used and in other campaigns no incentive is used.

The influencer has effectively been used to promote the product or service to other members of the social network.

The results have been quite surprising.

- The influencers do promote products and services even if they do not buy themselves

- One influencer stimulates between 2 and 17 other individuals in the social network to respond
- On average one influencer stimulates five–seven individuals in the social network to respond
- The campaign lifecycle (length of time people respond) doubles
- In some cases the response curve is bi-modal as concepts flow through the social network

The overall impact was that return on investment was more than five times better than the current campaigns.

Influencer campaigns are now becoming a standard part of the marketing mix in the Telco.

They are also looking at how to market to the social network as micro-segments but they are in early stages.

These activities are now being called one to one to many marketing.

CONCLUSION

The marketing teams of the telecommunications sector have been an

early adopter of social network analysis, primarily because of the availability of rich data and the desire to address key business pains.

The emergence of new technologies from the anti-terrorist industries that can be scaled to meet the data volumes and demands of this industry is now allowing social network analysis to become a production solution.

It is still early days and there is little experience globally in business applications in marketing. I, however, do see a time in the near future when social network analysis, social network finger printing and one to one to many marketing are all common terms that we use. I believe social network analysis will have made a positive contribution to marketing in both the Telco and other sectors.

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