



## The Role of Business Analytics in Social Media Customer Sentimental Analysis

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**Abstract:** *The purpose of this paper is to point out the role of Business analytics as explained in both business and Information Technology. Business analytics (BA) refers to the skills, technologies, practices involving exploration and investigation of past business performance to gain insight and drive business planning. The paper examines the role of Business Analytics Approaches in marketing research and its implications on the business decision-making processes.*

*Although companies conduct a variety of research methods in an offline environment, this paper aims to stress the importance of Web opportunities and how to determine customer satisfaction as well as collecting any viable information to make customer experience better through conducting the Web segmentation and collecting customer data. Using social media, customer sentimental analysis, enterprise social computing, promotion optimization, segmentation, customer profitability, click stream analysis, CDR processing, multichannel interaction analysis, loyalty program analytics and churn prediction. Due to the existence of different perceptions concerning the role of Business analytic approaches, this paper tries to emphasize its effort of an interactive channel that serves the function of not only an informational nature, but as a powerful research tool as well. Several data collection and analysis methods/techniques are discussed that would help companies to take advantage of the various Business analytic approaches as a significant corporate resource.*

**Keywords—** *Customer sentimental analysis, enterprise social computing, CDR processing, segmentation, customer profitability, click stream analysis.*

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### I. INTRODUCTION

The development of business analysis as a professional discipline has extended the role and responsibilities of the business analyst (BA). Increasingly, BAs are engaged at an early point. They investigate ideas and problems, formulate options for a way forward and produce business cases setting out their conclusions and recommendations. As a result, the responsibility for advising organisations on effective courses of action lies with BAs, and their work precedes that of the project manager. (James Cadle, p.1. Business strategy and objectives)

Business analytics focuses on developing new insights and understanding of business performance based on data and statistical methods. Business analytics makes extensive use of statistical analysis, including explanatory and predictive modeling, and fact-based management to drive decision making.

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### II. PURPOSE

This study is about the role of Business Analytics in Know everything about your customer to improve customer-clients relations through social media (customer sentimental analysis, enterprise social computing, promotion optimization, segmentation, customer profitability, click stream analysis, CDR processing, multichannel interaction analysis, loyalty program analytics and churn prediction).

### III. THE ROLE OF BUSINESS ANALYTICS IN SOCIAL MEDIA CUSTOMER SENTIMENTAL ANALYSIS

#### A. Opinion mining:

This also called sentiment analysis, involves building a system to collect and categorize opinions about a product. Social media analytics is the practice of gathering data from blogs and social media websites and analysing that data to make business decisions.

The major aim for this is that we want to know what your customers think, your employees, partners and field staff. Opinions and experiences are expressed on websites and in communication centres. But they are buried in emails, forms, surveys, internal files and reports. If you know the opinions, you can better communicate, highlight the positive, identify issues and spot trends before they balloon into bigger concerns.

The emergence of Internet-based social media has started a new channel of conversation among consumers and companies, challenging traditional ideas about marketing and brand management while creating new opportunities for organizations to understand customers and connect with them instantly.

This can be witnessed from the way customers and companies are able to write comments on web social media like face book, LinkedIn, Skype or post a blog on twitter. Customers planning a vacation, a night out, or a country tour can turn to customer review sites like Trip Advisor and Yelp. Meanwhile, on multimedia sites like YouTube, companies can post promotional clips, while disgruntled consumers can capture scenes of poor service or damaged products on their smart Phones and quickly upload the video.

The growth in use of these channels is equally astounding, companies never had the opportunity to talk to millions of customers, send out messages, get fast feedback, and experiment with offers at relatively low costs. And never before have millions of consumers from all social classes had the ability to talk to each other, criticizing or recommending products. Without the knowledge or input from a company. "Conventional marketing wisdom long held that a dissatisfied customer tells ten people. But...in the new age of social media, he or she has the tools to tell millions."

While the channels for conversation on the Web have evolved, a huge amount of information is becoming available that could be extremely valuable to companies in fostering relationships with customers, developing new products, and monitoring their competition. So companies might rightfully be anxious to understand who is talking about them on such channels and what are they saying, as well as trying to understand how their own social media efforts are perceived.

### ***B. Gain competitive advantage***

Social media analysis (SMA) can help an organization gain a competitive advantage because it facilitates a better understanding of their brands: how their customers use their products and services, what problems customers have with their products and services, and how society views the company. In addition to tracking an organization's own portfolio, SMA helps organizations track competitor activity and how their customers are using their products and services, problems with products and services, how that organization is viewed, etc. It's helpful to know what the competition is doing even if they are doing it poorly, which we hope they are. Having this data integrated with other business intelligence systems provides an organization a competitive advantage by better understanding how their brands are perceived, used, etc. in comparison to their competitors.

### ***C. Market innovation***

Some SMA tools provide deep natural language processing (NLP) and/or semantic analysis of social media. These tools can be configured to discover capability gaps in a market as a whole. For example, the minimalist innovation in the running shoe market was partially fueled by user feedback desiring lighter, cooler (not hot) running shoes, nice and comfy shock-absorbing padding. Implementing SMA can help an organization mine those hidden treasures, which helps enhance existing products and services as well as customer support, better target marketing efforts, innovate new markets, and, in general, gain a competitive advantage thus leading to market innovation.

### ***D. Learn from your customers***

The Internet has created opportunities for organizations to grow their customer base through social marketing and online sales efforts. However, the Internet has also created an environment where organizations compete with their customers in that customers are providing solutions to an organization's problems to their other customers, and many vendors desire to provide the one-stop-shop or use this customer support opportunity for expanding product offerings.

For example, I recently bought a China Nokia phone and had issues configuring and downloading WhatsApp, not because I am green at these things, of course, but because of poor documentation. I checked the vendor's online knowledge base, but found nothing relevant to my particular problem. After searching the Internet for *a week*, I found another customer that had a similar problem, and solved it after hours of trial and error. His solution was not successful for me. Had this vendor leveraged SMA technologies correctly, they should have been able to mine this customer solution, which had their product and the problem identified, and have included it in their knowledge base, as well as train customer support on this issue.

### ***E. Better target marketing efforts***

Most organizations want to optimize their marketing efforts. Recent innovations in SMA are providing organizations timely information on demographic and psychographic characteristics for product and service usage. This information can be used to target marketing campaigns including Internet-based marketing campaigns based on SMA-derived information.

### ***F. Enhance your products and services***

This is one of the top reasons organizations implement SMA. With millions of blogs, tweets, comments, etc. containing consumer sentiment about products and services, more often negative than positive which an organization can mine to understand issues and problems that consumers experience with their products and services that can help make them better. SMA identifies who is to blame, and then presents a few options to resolve the problems. But SMAs provide cheaper alternatives to customer queries.

#### IV. THE ROLE OF BUSINESS ANALYTICS IN ENTERPRISE SOCIAL COMPUTING

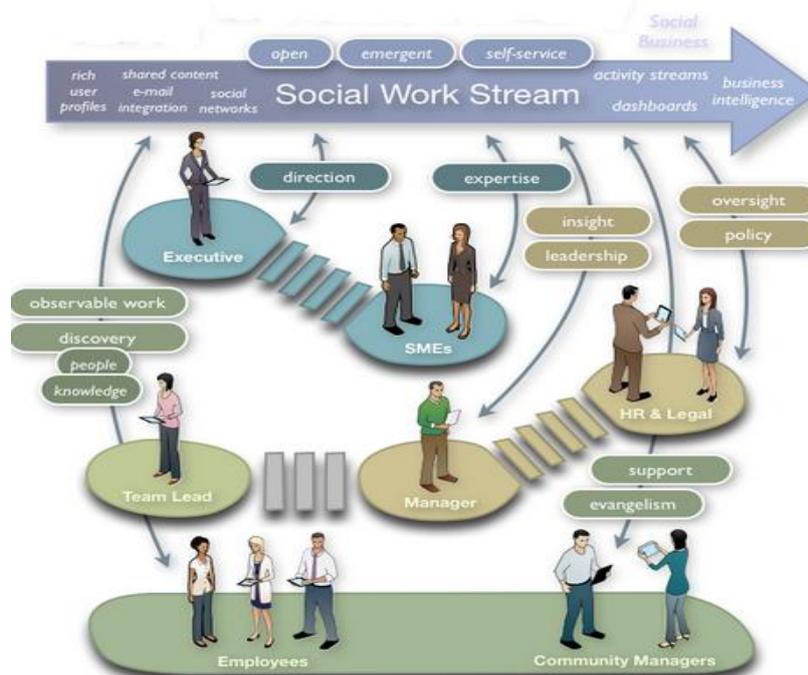


Fig 1: The social enterprise work force engagement for the 21<sup>st</sup> century

Source: <http://ebizq.net/blogs/enterprise> by Dion Hincliffe

Though it's clear that the old organizational chart isn't going away, a social workplace does work differently and through doing so achieve benefits that were not easy to reach before. Fig 1 conveys at a high-level how social work streams which everyone can see and participate in confer a number of essential benefits that are often underappreciated, especially by those looking at their intranets through the old lens of well-defined and fixed content inside formal information architecture but social computing helps create informed decisions.

In this new socially engaged workplace there are several strategic changes, primarily cultural and behavioral ones. This pin points *the role of Business Analytics in enterprise social computing as follows;*

- Social computing enables collaboration, while business analytics provide actionable intelligence from an overwhelming amount of structured and unstructured data. There is a significant paradigm shift under way. The past has been about operational excellence and cost optimization. The future is about value and revenue generation. Strategic technologies and the role of IT are on a collision course with customers and revenue generation. Social computing and business analytics are at the heart of future customer, value creation and revenue generation strategies.
- At a time when companies in many industries offer similar products and use comparable technology, many of the previous bases for competition are no longer viable. The bases therefore for future competitive advantage is **innovation, execution and smart decision making**. These business imperatives – innovation, execution and smart decision making – place a premium on excellence in two key areas: collaboration and the use of all available intelligence. Collaboration must expand to include the entire community that affects a business; including employees, partners, customers, consumers, citizens, government, universities, and other stakeholders. As business processes expand to incorporate the community and its **collective intelligence**, enabling technology becomes even more critical. Social computing technology represents an enabler for one of the biggest business challenges of the next decade. By expanding the community and effectively enabling collaboration, all three business imperatives are addressed. When the collective intelligence of a community is tapped, new forms of innovation emerge and the speed of that innovation forms the foundation for future competitive advantage.
- **Social networks amongst workers.** The formal social capital of the Facebook era is moving into the workplace. The connections you have and with whom determines your sphere of influence and ability to get things done as much, if not more, than the tradition. It's also becoming increasingly critical for most knowledge workers to build and maintain over their careers. From a practical standpoint, for those that don't use the tools personally, the manifestation of a social network on an intranet typically consists of rich user profiles that maintain a worker's connections to other workers. The list of who you are following in your profile then determines which updates and live work streams are visible in your news feed.
- **Observable work.** Just like people are narrating their lives to their friends and family today via consumer social media, this same process is what employees are beginning to do in their daily work. Instead of sharing their interim efforts infrequently in big chunks via e-mail or worse, have them entirely hidden in obscurity, more and more of what workers are actually doing is being shared live inside enterprise social applications today. For example, projects, tasks, documents, and collaboration sessions can now be conducted in social environments on

the intranet that are open and participative. These can be joined by others in the organization as they see fit and the resulting collaboration leaves artifacts behind for other workers to discover, learn from, and reuse in their own work.

## V. ROLE OF BUSINESS ANALYTICS AND OPTIMIZATION

“Firms are seeking competitive advantage through chain management to stay competitive in today’s global market” (Youquin et al, Intelligent Agent technology in supply chain)

To achieve the objective, business analytics and optimization presents the following roles:

- Integrated Analytics: Next wave of decision support will enable holistic contextual decisions driven by integrated data mining and optimization algorithms
- Big Data and Real-Time Scoring: Data continues to grow exponentially, driving greater need to analyze data at massive scale and in real time.
- Social media is dramatically changing buyer behavior. It is also providing an opportunity to get deeper insights into attitudes and behaviors, and build more accurate predictive models.
- Time and Spatial Dimensions: Instrumentation and mobility are creating opportunities for more accurate context-aware decisions – right place & right time.
- Micro-targeting and Privacy: Move towards personalization and behavioral analytics is accelerating, as consumers move selectively from opt-out to opt-in, controlling their privacy based upon the value proposition.

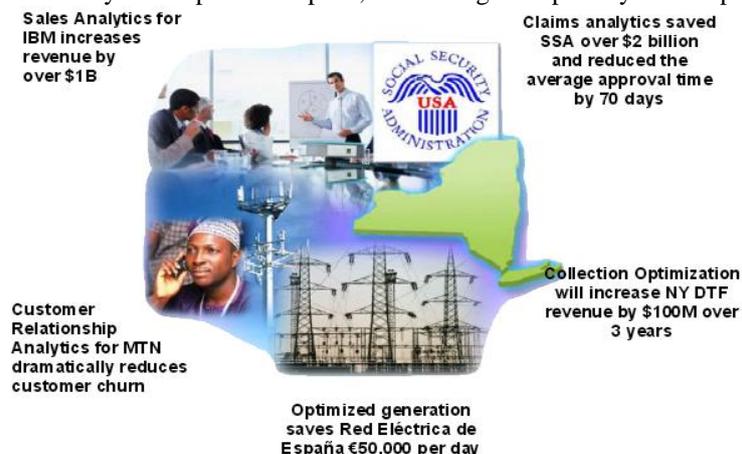


Fig 2: Data Mining has helped us to provide competitive advantage in business

Source: *The Role of Data Mining in Business Optimization Chid Apte, IBM Research*

## VI. THE ROLE OF BUSINESS ANALYTICS IN SEGMENTATION

To increase the profitability of marketing efforts, and avoid losing current and future customers, financial institutions are increasingly taking advantage of sophisticated segmentation to more effectively reach target audiences. As a starting point, businesses can use data mining to separate customers into customized groups based on demographics, attitudes, buying behavior, and more. However, this approach is rarely enough to ensure you align the right message with the right people, at the right time. To increase marketing effectiveness and boost potential return on investment companies should develop a predictive analytics program to target messages with more precision. Below is how customer segmentation can benefit your business.

- Message Development: The design and development of marketing messages is one way segments are vital in business and marketing strategy. Informing customers about your products, persuading them of your advantages relative to competitors and reinforcing brand value over time are general objectives of marketing communication. To create ads that accomplish your goals, you need to research the needs, likes, dislikes, feelings and interests of your market segments. Gaining greater insight into what types of images and copy will impact them helps you better deliver persuasive messages.
- Media Selection: Selecting the right media to deliver your ads is largely based in market segment efficiency. In other words, you want to find the ideal medium or media that reach your target customers with as little wasted investment in reaching outer lying audience members. If you have a large audience, TV may make sense because it normally has a wide reach; it is relatively expensive, though. For local companies, radio and newspapers are generally more affordable ways to reach general audiences. If you have a niche audience and you want optimum efficiency, magazines are a good way to connect with selective customers since there are so many and they are very topic-driven.
- Results-Oriented Research: While you research prior to ad development and delivery to generate impacting ads, you research afterward to get feedback from your core customers. Evaluating the results of ad campaigns is important to see whether your strategic choices and executions impacted your customers. If you want to increase brand awareness in a local market with a particular demographic group, you can do follow-up surveys to figure out whether a higher percentage of people recognize your brand or products than did before a marketing campaign.

## **VII. THE ROLE OF BUSINESS ANALYTICS IN CLICK STREAM ANALYSIS**

“The effective use of streaming analytics from real-time network, service, device and consumer data can have a significant impact on operational expenditure and customer experience are the two key business drivers for today’s service providers.” ( SQL stream, p.5. Streaming analytics for CDRs)

Most service providers now agree that real-time operations are key to delivering against their business objectives.

On a Web site, clickstream analysis or clickstream analytics is the process of collecting, analyzing, and reporting aggregate data about which pages visitors visit in what order, which are the result of the succession of mouse clicks each visitor makes (that is, the clickstream).

Traffic analysis operates at the server level by collecting clickstream data related to the path the user takes when navigating through the site. Traffic analysis tracks how many pages are served to the user, how long it takes pages to load, how often the user hits the browser's back or stop button, and how much data is transmitted before a user moves on. E-commerce-based analysis uses clickstream data to determine the effectiveness of the site as a channel-to-market by quantifying the user's behavior while on the Web site. It is used to keep track of what pages the user lingers on, what the user puts in or takes out of their shopping cart, and what items the user purchases.

- One way to use clickstream analysis is in testing. As people interact with a new program or website, looking at the way they navigate can provide important information. The clickstream may indicate a component is broken or does not work as expected, suggest certain adjustments should be made to the navigation, or show that people are not using the site or program as intended. Software testers and people testing websites before they are made public are told to explore their options as much as possible, and sometimes to attempt to deliberately break the program or site. A clickstream analysis can provide important information about how they interacted with the computer during their session.
- For marketing analysis, looking at clickstreams is very important. People use click stream analysis on e-commerce sites to find out what makes consumers opt in or out of deals, and to see how to streamline the process. The goal is to encourage as many visitors as possible to complete transactions. While the site can be designed to appeal to people from a search engine optimization and aesthetic perspective, which ensures that people find the site and like what they see, if it is difficult to complete a transaction, potential customers can be turned off. Click stream analysis provides information about how potential customers interact with the site and shopping cart, allowing people to implement new features and improve the navigation.

The clickstream can also provide information about productivity and efficiency. More clicks usually mean that people are having to step through several layers of options to get to the places they want to go. Making material more accessible and organizing information in more logical ways can cut down on the amount of time people spend navigating, increasing the amount of time they spend actively working. Internet service providers may maintain information on the clickstreams of their customers, and can sell this information, with identifying information stripped, to companies interested in doing clickstream analysis. Servers also maintain clickstream data, allowing people to track activities on a given website.

## **VIII. ROLE OF BUSINESS ANALYTICS IN CDR PROCESSING**

A call detail record (CDR) in voice over IP (VoIP) is a file containing information about recent system usage such as the identities of sources (points of origin), the identities of destinations (endpoints), the duration of each call, the amount billed for each call, the total usage time in the billing period, the total free time remaining in the billing period, and the running total charged during the billing period. In today’s market conditions it is essential for network operators to achieve maximum utilisation from the capital investment in their network infrastructure and at the same time be ready to extend the network in a timely fashion to meet future demand. The roles are among the following:

- **Call routing validation** is used to produce optimum call routing plans. CDR Analysis provides a very quick and effective means to identify and correct the problems of overloaded links resulting in calls regularly overflowing and being routed sub-optimally due to mistakes in the routing tables.
- **Inter connection rate negotiation:** By providing detailed and accurate information on current and predicted future call volumes to specific destinations, CDR Analysis allows an operator to confidently negotiate interconnect rates, which often depend on an operator’s ability to guarantee to maintain a minimum level of calls in terms of minutes per month.
- **Call Failure Analysis:** Lower-than-expected ASR rates on a trunk, highlighted by traffic Analysis, are indicative of problems in routing calls. However, there may be problems for specific destinations only, or for specific call types which are masked by the overall volume of traffic on a trunk. CDR Analysis provides detailed reports which allow you to identify such problems and to take remedial action. By analysing the failure codes in the call records, CDR Analysis can report the specific reasons for call failure, allowing you to determine the root cause of the problems, such as congestion in the local, terminating or transit networks, or problems with specific carriers. Call failure analysis can also identify problems such as incorrect routing tables or fraudulent attempts to access the network.
- **Carrier Performance:** Calls to specific destinations or call types (e.g. fixed or mobile) can be analysed to see how well each interconnect partner is performing. ASR rates may change between carriers at different times of the day. Use CDR Analysis to determine which carriers are best at specific times of the day and route calls accordingly to maximize revenues and limit customer complaints.

## **IX. THE ROLE OF BUSINESS ANALYTICS IN MULTICHANNEL INTERACTIVE ANALYSIS**

Businesses and organisations today are challenged to find just the right communication channel mix to keep customers happy while lowering costs. The key, however, is to deliver an exceptional customer experience regardless of the channel. While voice may be the most popular channel, user demands for mobile and digital self-service channels are growing in importance.

To stay competitive, leading organizations are looking to implement a multichannel contact center strategy, one that integrates live agent, Interactive Voice Response (IVR) systems, Web, Mobile, Fax, email and other channels into one seamless hub.

Price water coopers (PWC) p.2. June 2013, *Multichannel Strategy* state that “In the increasingly competitive business scenario, the end-to-end customer experience and delight has become a new area, which no one can afford to neglect. It is of paramount importance to deliver superior services with differentiated experience, while aligning with the ever-changing customer preferences and needs. Thus, a multichannel strategy comes into play in this information-rich age.”

While a multichannel environment can lower costs and improve the customer experience, it takes more than advanced self-service technology to make it successful. Before jumping to overhaul your channel mix, consider these questions:

- Who are your customers?
- What channels do they prefer?
- How do your customers move across channels?
- What is your strategy for improving the customer experience and cost level across these channels?

### ***Role/Benefits of multi channel***

- **Improve Customer Experience:** Giving customers the ability to meet their goals in their preferred channel, whether self-service or agent-assisted, improves the customer experience. In a well-designed hosted multichannel environment, self-service channels allow customers to get in, get out and get on with their business quickly. If they choose to opt into the contact center, a well-designed multichannel environment ensures that their account information travels with them. This eliminates the need to re-answer a litany of questions from a live agent, making for a much happier customer experience.
- **Reduce Costs:** Self-service channels offer companies the ability to handle more customer contacts faster and much more cheaply. It is estimated that “While Web self-service can cost as little as a few cents per contact, telephone customer service typically costs \$6 to \$12 or higher per contact.
- **Increase Sales:** A well-integrated multichannel solution drives revenue growth. Customers are more comfortable using their preferred channel which helps to increase the rate of sales completion over a shortened sales process. Meeting customer needs in one shot will also help to boost the customer experience, loyalty and purchasing frequency.

## **X. THE ROLE OF BUSINESS ANALYTICS IN LOYALTY PROGRAM ANALYTICS**

Whether you own a personal or private business or a worldwide software consultancy, customer loyalty is very valuable to you. Customer loyalty can be loosely defined as the predisposition of any given customer to purchase your goods or services over comparable ones available in the marketplace. Investing time and energy in promoting customer loyalty should be an integral component of any business' marketing strategy.

While expanding your business' customer base is a crucial undertaking which you must work towards with clearly defined goals, the importance of retaining existing customers mustn't be overlooked. Working toward promoting customer loyalty (or brand loyalty) is critical to your goal for many reasons. A few of the most important reasons why customer loyalty is important to your business are outlined below.

- **Repeat Business:** Loyal customers, almost by definition, will purchase your goods or services again and again over time. Depending on what type of business you have and what the sales cycle is like, you may end up selling more to one loyal customer in a year than you might to even 10 first time customers.
- **Greater Volume:** As you build relationships with your loyal customers, it will become increasingly easy to sell to them in higher volumes. This may happen naturally, or you may choose to incentivize the process for your customers. In any case, higher volumes mean greater sales, which translate to higher overall profits.
- **Cross-selling Opportunities:** Customers who exhibit brand loyalty have a relationship with your business. They trust you to provide quality products and customer service. This creates a great opportunity to fulfill more of your customers' needs than the traditional ones you currently meet. What does this mean? You can make sales to loyal customers across product lines and thus increase your overall sales volume without needing to focus so much on attracting new customers.
- **Protects your business from the Competition:** The more loyal your customers tend to be, the safer you will be from the draw of the competition. Establishing strong brand loyalty can make you practically immune to competitive forces. This is especially important in places where new players enter the marketplace often.
- **Word-of-Mouth Marketing:** Loyal customers can also bring you new customers. Customers that have great relationships with businesses tend to talk about it. Happy and satisfied customers who keep coming back to you are very likely to refer others who may need your product and services.
- **Benefit of the doubt:** Things go awry sometimes, even in the best businesses. Sometimes we get an order wrong, don't meet a deadline, or are not able to deliver on promises made to customers. In today's economy, it's

even easier for little hiccups such as these and others to take place in business. These types of mistakes can damage your business' reputation in the eyes of a new customer. A scheduling error can make your firm seem disorganized and unreliable. This is a very easy way to lose customers. However, loyal customers are much more likely to give you the benefit of the doubt and/or overlook errors. If you maintain the level of customer service and quality that it takes to achieve brand loyalty in the first place, your customers will be willing to forgive you when bad things happen.

## **XI. THE ROLE OF BUSINESS ANALYTICS IN CHURN PREDICTION**

"Churn Rate" is a business term describing the rate at which customers leave or cease paying for a product or service. It's a critical figure in many businesses, as it's often the case that acquiring *new* customers is a lot more costly than retaining *existing* ones.

Customer churn (also known as customer attrition, customer turnover or customer defection) is a term used especially in the world of subscription based businesses to describe loss of customers. For example, if 10 out of 100 subscribers to an Internet service provider (ISP) cancelled their subscriptions, the churn rate for that ISP would be 10%. Or "The propensity of customers to cease doing business with a company in a given time period" can be defined as customer churn (Chandar, Laha, & Krishna, 2006).

Companies aim at getting more and more new customers. Nevertheless, the ratio (new customers/ churners) tends towards one over time. The impact of churn becomes then markedly more sensitive (Lejeune, 2001).

According to Lejeune (2001) the concept of churn is often correlated with the industry life-cycle. When the industry is in the growth phase of its life-cycle, sales increase exponentially; the number of new customers largely exceeds the number of churners, but for products in the maturity phase of their life- cycle, companies put the focus on the churn rate reduction.

Customer churn figures directly in how long a customer stays with a company and, in turn, the customer's lifetime value (CLV) to that company (Neslin, Gupta, Kamakura, Lu, & Mason, 2006), which is the sum of the revenues gained from company's customers over the lifetime of transactions after the deduction of the total cost of attracting, selling, and servicing customers, taking into account the time value of money (Hwang, Jung, & Suh, 2004).

"Delivering an exceptional customer experience isn't just about becoming more customer centric it also involves maximising the opportunities that come from every interaction a customer has with your business over the duration of their relationship, throughout their customer journey." (Helena Schwenk, p.1. Strategic Insight Analytics and the customer journey: Driving greater loyalty and profitability.

Premium Advisory Report, January 2011)

- The customer status acts as a partial mediator between some churn determinants and customer churn. Specifically several churn determinants are found to be significantly mediated by customer status.

The effects of the following variables on the probability of customer churn are partially mediated by the customer's status change: number of complaints, loyalty points, billed amounts, gender, calling plan and hand set Internet capability. They affect the probability of customer churn both directly and indirectly through a customer's status change. Among other factors, the mediating effects of the number of complaints and loyalty.

From a service failure recovery perspective, this can be interpreted in two different ways. *First*, the company's current customer complaint management programs may not be adequately designed and implemented, thus, complaining customers are leaving rather than staying.

*Secondly*, rather than immediately churning, at least some complainants are found to change their status into non-use beforehand. This discovery will help a service provider with additional information that some complaining customers are churning through their status changes into non-use, therefore, the service provider can focus on and actively appease, those who have become non-users and at the same time, especially those who have complained to its customer service center. Loyalty point rewards have a negative impact on both the probability of churn and the probability of being suspended, which also in turn increases the probability of churn. Considering that loyalty points are accumulated based on both usage level and account tenure, this result implies that as customers gain more service experience in terms of usage.

- Intensity and longevity, they are less likely to churn voluntarily. Furthermore, they are also less likely to be churned involuntarily in the sense that they may not be suspended by the service provider because these experienced customers are less likely to be troubled with payment problems.
- Service usage: Heavy users are more likely to churn is in line with Madden et al.'s 1999 argument that customers with a high amount of expenditure are more price-sensitive and likely to churn for even a small discount as their usage level grows. Also, it is suggested that heavy users with accumulated service experiences may explore more advanced new services, such as mobile internet, location-based and entertainment services, beyond what their current service provider can offer.
- Also non-paying customers are not likely to churn directly. They can be suspended by the provider if the number of unpaid monthly bills exceeds a pre-specified limit. Furthermore, they cannot churn either voluntarily or involuntarily unless they pay off a significant portion of their unpaid balances. Therefore, even the non-paying customers among churners can have lower unpaid balances because they must have already cleared off their debts to some extent. It also demonstrates that the effect of the number of unpaid monthly bills on the

probability of churn can be better understood with the consideration of its indirect effect through a customer's status change.

To reduce the scenario in which the unpaid balance increases the possibility of becoming non-users or being suspended, a number of managerial actions can be imposed. Customers with bad credit can be screened out when they apply for service. Some companies use credit scoring models to make their screening decision. Secondly, some usage threshold can be set up for certain customers so that their billed amounts do not exceed what they can afford to pay. By taking these actions, customer churn can be managed better.

## XII. CONCLUSION

Technology and the internet represent an efficient medium for communication between business and clients. It serves the important role of attracting and retaining the clients users/customers and, in that way, managing the long-term customer relationships. It is a new marketing tool offering companies access to technological advancements and direct communication with users, as well as enabling marketing managers to quickly and continuously update the database of their customers.

This research discussed the role of Business Analytics and how to know everything about your customer using the current trends in technology like social media customer sentimental analysis, enterprise social computing, promotion optimization, segmentation, customer profitability, click stream analysis, CDR processing, multichannel interaction analysis, loyalty program analytics and churn prediction

Special emphasis is put on the importance of business analytics and client relationship as well as how to use technology tools and techniques to get new clients, retain old ones and how to keep them satisfied. That enables the identification of needed information to certain target groups. From this perspective, new innovations can be achieved.

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