Reactive Data to Proactive Intelligence – the Way Forward for Telcos

Vineeta Gupta*, Saurav Bhatia**

**MBA, IIM-Lucknow, Ericsson India Global Services, Bangalore, Karnataka, India.*
E-mail: vineeta.gupta@ericsson.com

***MBA, IIM-Lucknow, Ericsson India Global Services, Gurgaon, Faridabad Road Gwal Pahari,Gurgaon, Haryana, India.*
E-mail: saurav.bhatia@ericsson.com

Abstract

Earlier this year Wall Street valued Facebook over hundred billion dollars. Google, one of the biggest giants of Internet, earns close to ten billion dollars in a quarter year. So what makes Facebook or Google so valuable is – the data assets that these companies have compiled over years coupled with analytics providing insights in to their user's lives. Traditionally telcos have been providing services such as voice, messaging, data and other value added services to customers globally. While providing these services telcos have built a mountain of information generated by subscriber's usage. The data asset that telcos have accumulated is complete with respect of subscriber's personal information such as gender, age, location, demographics etc. Are there real opportunities for telecom operators to cash in the existing data assets?

In this paper we have represented data monetization opportunities for telcos in the 2X2 matrix, with existing and new data assets along the vertical axis and downstream and upstream customers along the horizontal axis. Quadrant formed between existing data assets and downstream customers will have opportunities such as CEM, tariff plans, cross-selling and customer micro-segmentation. Opportunities in other quadrant, formed between new data assets and upstream customers, will be offerings in sectors such as healthcare, transportation, insurance and government. This paper creates a framework for telcos to understand their current position and strategize their desired position as part of recommendation. It also touches upon the challenges of using user data and the legal policies around it.

Keywords: Business Intelligence, Data Monetization, Data Analytics

1. Introduction

With major upheaval going on in the telecom industry, one major challenge telcos face is the decline in their traditional fixed-line businesses and maturing mobile voice services. And the impending threat looming from Over The Top (OTT) players and now with outsourced networks affecting the core assets of telcos, the threat is cropping up not only from over but even from under the floors players!

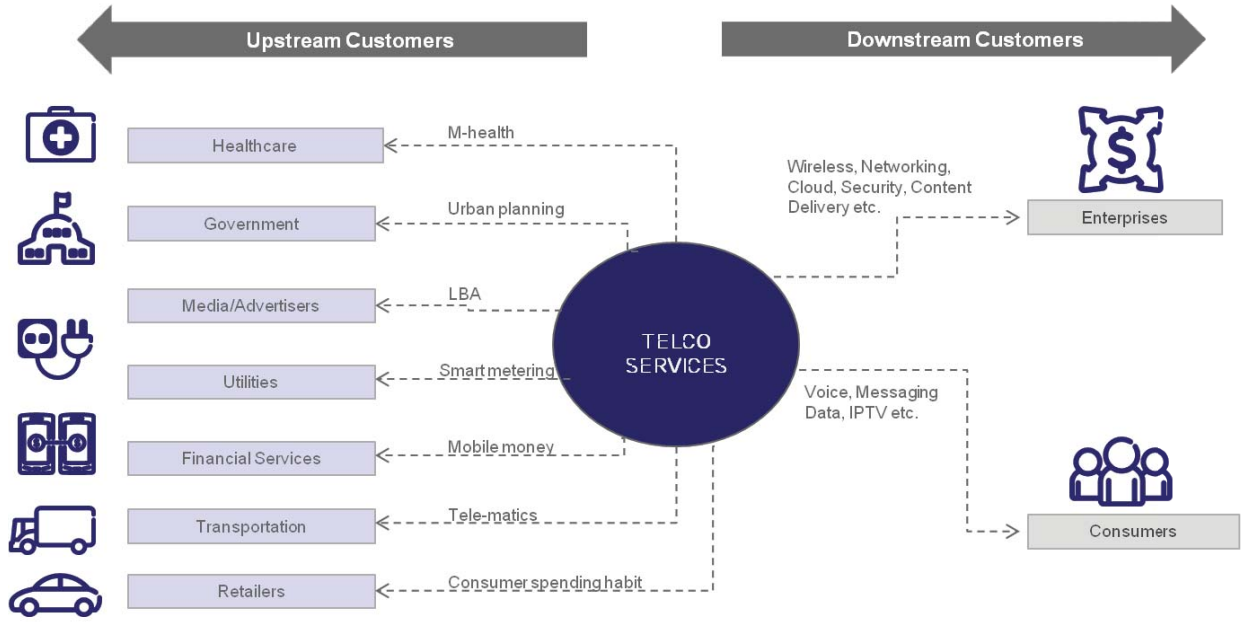
At the point at which many operators, at least in Europe and North America, are seeing the services opportunity ebb away, and ever-greater dependency on new models of data connectivity provision, they are potentially cutting off (or being cut off from) one of their real differentiators – the huge pile of data sitting in their system. The richness of the consumer data that flows through telco networks is far greater than anything Google or Facebook has.Also as per Ericsson Traffic and Market data Report, Nov 2011, mobile data traffic is projected to increase 15 times by the end of 2017. With all the talks on big data cropping up from all the corners, telcos still do not have any proper direction on how to approach this big data puzzle.

This whitepaper entails an approach which provides a four pronged strategy on monetizing the big data. Here, we list the various dimensions of customer data present with the telco in petabytes of size. Examples include:

"Personal Data, Bills & Service Data, Contacts, groups & apps data, devices data, internet data, contracts & products data, context data, content data, etc."

With the four pronged data monetization strategy detailed in this whitepaper, we segregate the data as existing dataset and new datasets. Existing datasets are formed from the traditional services. New datasets are still not huge in size and are created from new services such as

Figure1



This Figure illustrates various services offered by Telco to its (upstream & downstream) customers
See Rochet and Tirole [2] on the further examples on two sided markets

M2M, mobile payments, m-commerce, etc. These data sets are then intersected with downstream as well as upstream customers and the four pronged approach (2X2 matrix) is created.

More details on upstream and downstream customers are shown in the below picture.

The 2X2 matrix formed out of the existing and new data assets intersected with upstream and downstream customers is shown below.

With the help of this 2X2 matrix (four pronged approach),telcos can deal with the big data scenario with more systematic approach. Each quadrant of this matrix is explained in detail in further sections with potential opportunities listed with each quadrant. Along with the approaches to using big data more systematically, this whitepaper also underlines the legal aspects of customer data use. The last section provides the recommendations of various monetization strategies and the way forward.

Quadrant I (New Data Assets, Upstream customers)

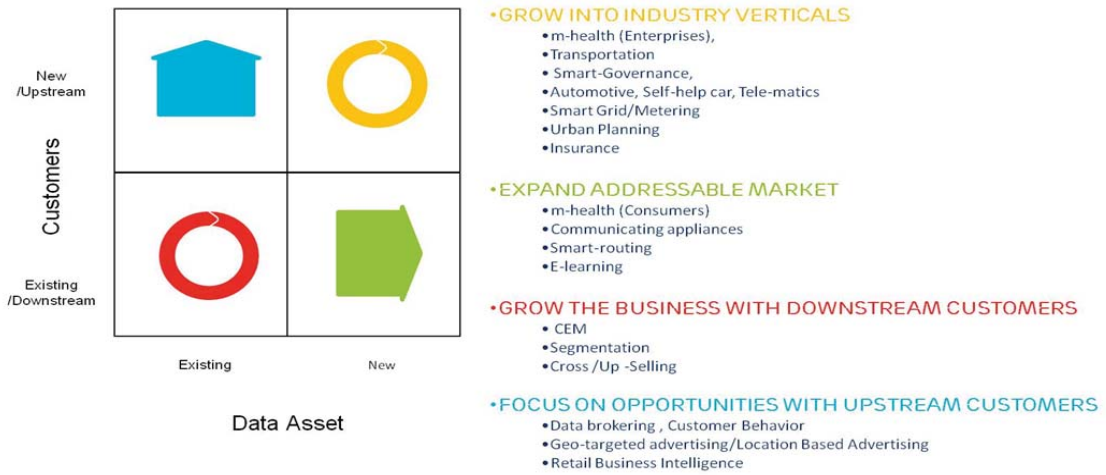
Harbor Research study estimated that 15 billion connected devices will move 35 trillion gigabytes of data at a cost of $3 trillion annually – all by 2015. Developments in M2M, mobile payments, m-commerce and other such services will drive the creation of data in the coming years. Growing into industry verticals is a strategic step for telcos to monetize the newly created data asset. The monetization opportunities in this quadrant arising out of new data asset will be primarily focused towards upstream customers in different industries. An illustration of this is shown in figure4 below.

As shown in the above figure 4, we have new data assets getting created from services like Smart Metering, Smart Grid, Automotive, Smart Homes, M-commerce, M-payments, M-health and many more. These data assets when churned using analytics can provide useful insights.

For example, someof the offerings to industry verticalsare:

1. **Carbon Credits:** Organizations are striving to earn carbon credits with go green initiatives. With smart metering data, telcos can provide intelligent analytical reports on electricity utilization by the organization and how can they improve the wastage.
2. **Less Energy consuming appliances:** Appliances manufacturers can provide with real time usage examples for appliances using lesser energy based

Figure2



This figure illustrates 2X2 matrix with the existing and new data assets intersected with upstream and downstream customers (Developed by author for illustration purposes)

on the smart metering data analytics provided by Telcos.

3. **Urban Planning and Billboard Strategy:** Using telematics in automotives, intelligent analytical reports can provide information about highly commuted area in the city. These reports can be sold to government for road/commute planning. Government can also use this report to understand how fast a city is developing in terms of traffic. A city level planning can also be initiated based on such reports. Also, it can be sold to advertisers who based on the traffic and the segment can place the billboards accordingly.
4. **Insurance company pricing strategy:** With car telematics, telcos can track driving habits of commuters and can sell that data to insurance companies to plan the pricing strategy for individuals. Progressive, a US based car insurance company, provides personalized rate to its customers by tracking their driving habits.
5. **Cars performance:** Also with car telematics, based on the number of repairs required for the cars, the manufacturers can highlight as a real time example of their cars performing well.
6. **Consumer Spending Habits:**The data available to telcos using mobile money and mobile payments can reveal significant insights in to consumer spending habits. Such information can be used by various upstream customers starting from retailers to manufactures and advertisers. Google, the internet giant, also launched its wallet service to track consumer spending habits.
7. **Epidemic alert/Disease Pattern:** Based on the m-health data, telcos can sell intelligent reports to government to provide with various disease patterns existing in the city. Any new epidemic occurrence can be handled efficiently if the details are known in advance. Such data can also help medical researchers todelve deeper into the disease patterns emerging in the country.

And many such opportunities exist that can be monetizedwith the new data assets getting created in the telcodatabases.Some of the operators are already trying to achieve this kind of data monetization. Such examples include:

1. AT&T knows the location of a phone to within a mile radius at the time each CDR was generated, making it possible to determine the distance traveled from home by each cell phone every day. The group found that, on average, people living in Manhattan travel 2.5 miles most days, compared to five miles in Los Angeles. “But we also found that

Figure 3

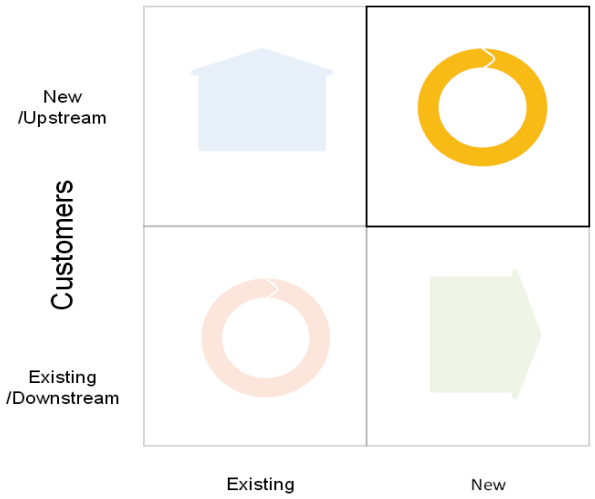
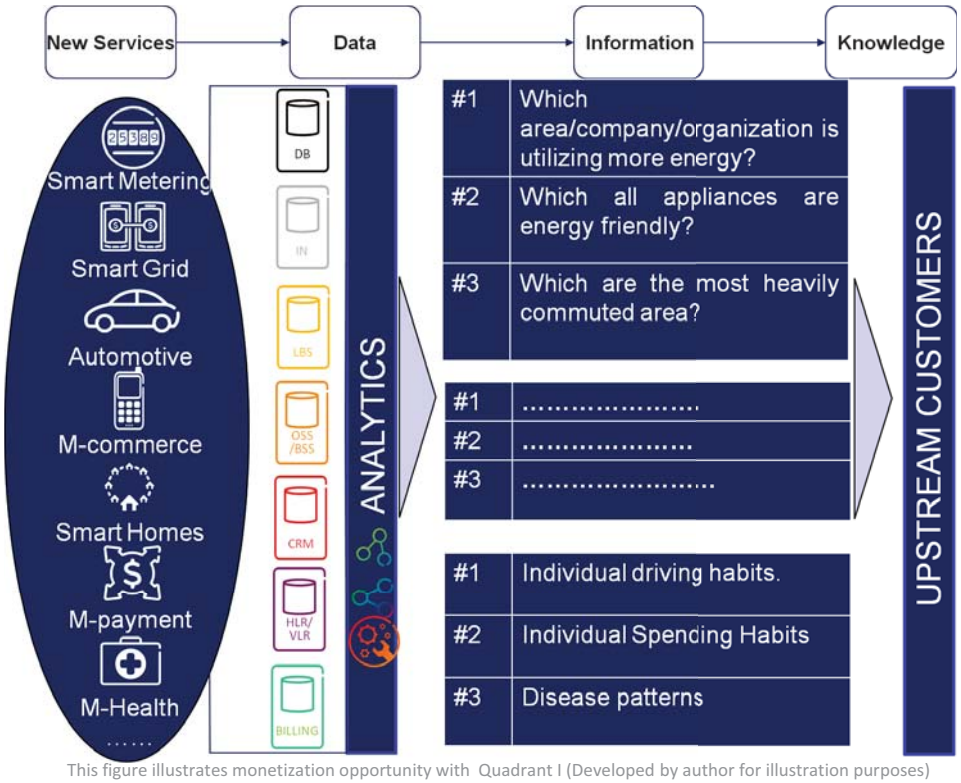
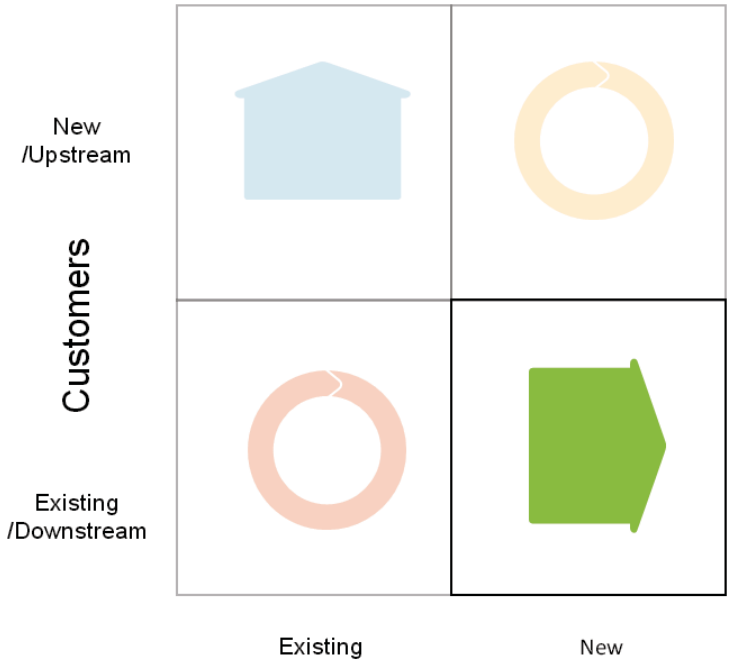


Figure 4



This figure illustrates monetization opportunity with Quadrant I (Developed by author for illustration purposes)

Figure 5



when you look at the longest trips people make, people that live in New York go significantly further, 69 miles on a weekday compared to 29 in Los Angeles. This information can be used with city planners, who would usually have to resort to expensive and limited surveys to gather such information. "This kind of data can help them decide how to invest resources, for example if they want to know where to build a new train or subway station," he says. The AT&T work was presented at a recent workshop in Cambridge, MA, earlier this month as part of the NetSci conference on network science.

2. Expand Addressable Market

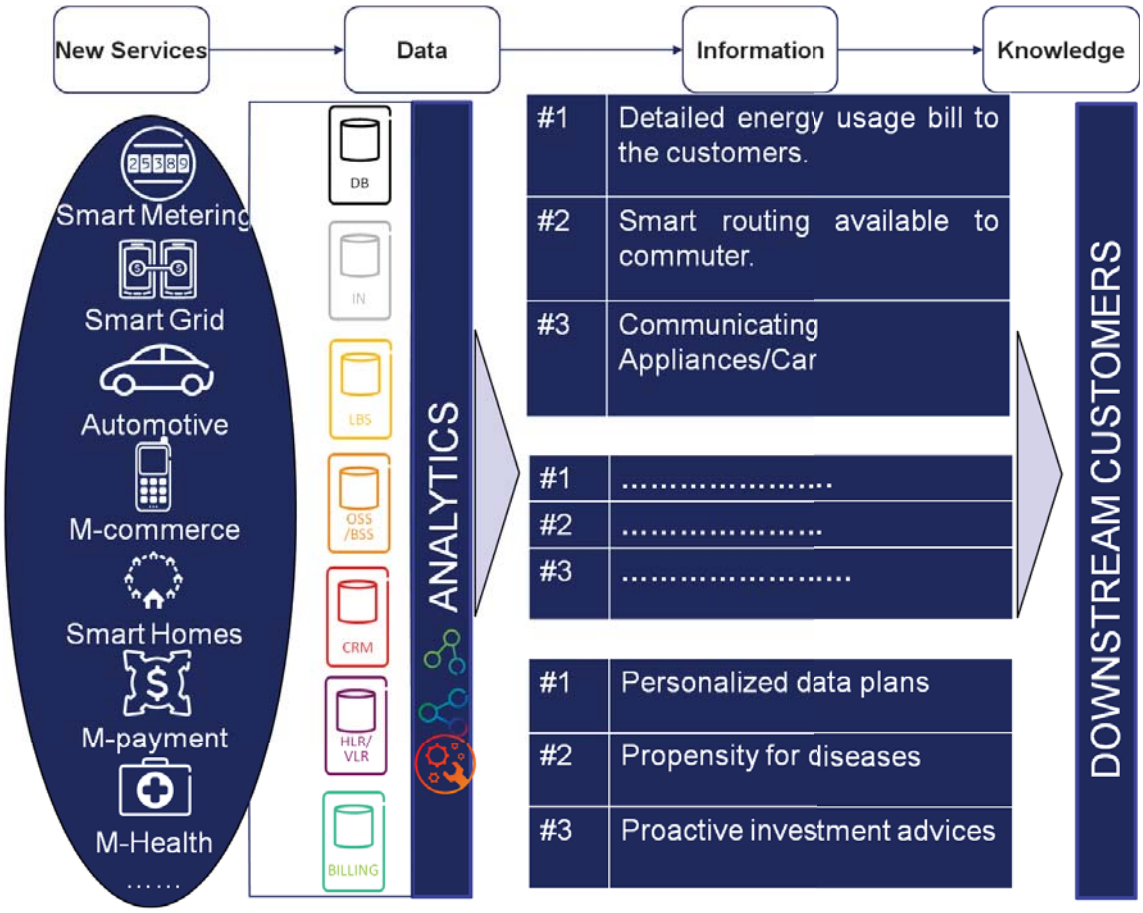
As mentioned in the section above those recent developments in M2M, Mobile payments, m-commerce and other such services will create petabytes of new data. Providing new offerings to downstream consumers is a strategic step for telcos to monetize the newly created data asset. The monetization opportunities in this quadrant arising out of new data asset will be targeted towards reaching downstream customers with new offerings. An illustration of this is shown in figure6 below.

Figure 6As shown in the above figure 6, we have new data assets getting created from services like Smart Metering, Smart Grid, Automotive, Smart Homes, M-commerce, M-payments, M-health and many more. These data assets when churned using analytics can provide useful insights.

For example, some of the new offerings focused towards downstream customers are:

8. **Personalized Energy Bills:** As telcos will have the data for individual houses from the smart metering devices, telcos can sell that data to provide with detailed personalized bill to customers providing details around what time of the day more energy is being used and if required even details about which appliances are consuming more energy.
9. **Smart routing applications for commuters:** In other words, imagine receiving up-to-the-minute (even second) information about accidents, sched-

Figure 6



uled roadwork, and congested areas and then changing your "route" to optimize travel time. From a road warrior standpoint, this is great news as we all benefit from less travel time and perhaps a smaller gas bill. But when you look at this on a global scale the benefits are mind boggling. According to McKinsey:

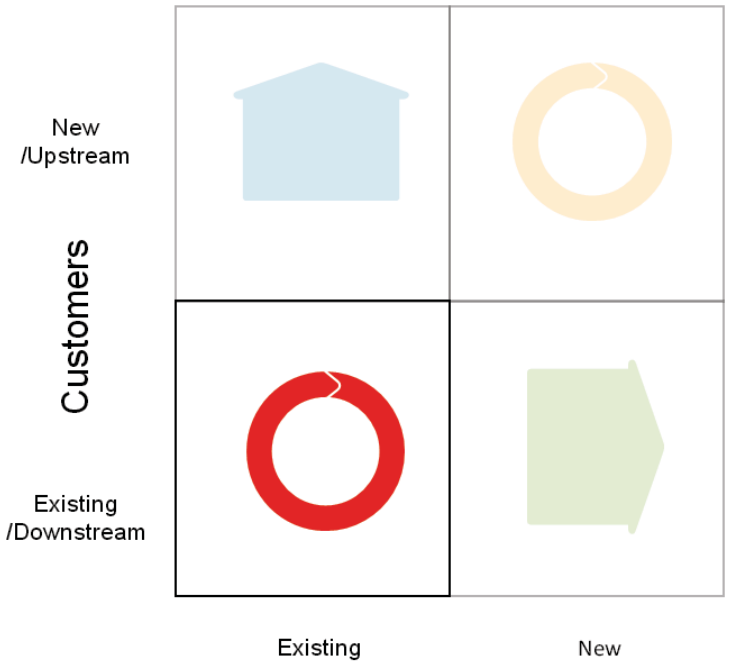
"*All told, we estimate the potential global value of smart routing in the form of time and fuel savings will be about $500 billion in 2020. This is the equivalent of saving drivers 20 billion hours on the road, or 10 to 15 hours every year for each traveler, and about $150 billion on fuel consumption. These savings translate into an estimated reduction in carbon dioxide emissions of 380 million tonnes, or more than 5 percent a year.*"

10. **Communicating Appliances /Cars:** Cars or appliances can provide real time update about the health of their engine. Customers can get real time updates of such M2M devices on their mobile phones using M2M apps.
11. **Predictive health alerts:** Based on the disease/ health patterns coming out of M-health data, Telcos can provide customers with health alerts about an individual. If the previous history shows that an in case of such epidemic alert in future.

3. Grow the Business with Downstream Customers

The data asset existing with a telco includes subscriber's personal data, tariff plan, call usage details, data usage, websites browsed, services used, handset data, location etc. Based on the existing data sets the opportunities arising out of this quadrant primarily comprise of Customer

Figure 7



experience management, User profiling, Segmentation and Marketing. An illustration of these opportunities is shown in figure 8 below.

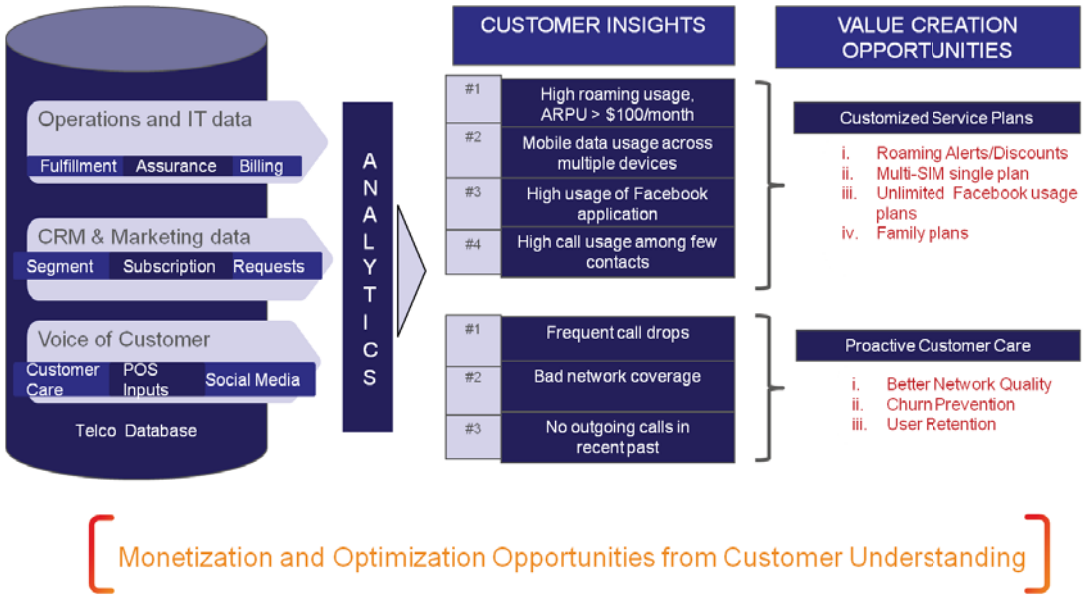
The above figure showcases integration of data from CRM, IT & operations with Voice of Customer to gain customer insights. Customer insights gained by analyzing the aggregated data from various sources can help the telco to identify value creation opportunities such as:

1. **Customized service plans**: There could be customer segments that wouldn't understand their data usage needs, and would prefer paying for applications such as Facebook rather than paying for fixed volume of data so Telcos can offer unlimited application usage plans to such customers. European Operators have started offering multi-SIM single plan propositions for mobile data shared across two different device or even two different users.
2. **Proactive customer care**: With a proactive customer care CSPs can increase their ROI by taking proactive action on KPIs related to network quality, user retention and churn prevention. These KPIs are important focus areas of CSPs owing to subscriber acquisition cost, customer loyalty, customer LTV etc. According to a report published by Analysys Mason, CSPs are increasingly moving towards customer self-service because it has proven to reduce customer care costs by 20% and increase ARPU by 18%.

Some of the operators are already trying to achieve this kind of data monetization. Such examples include:

1. Vodafone Italy offers second stick to share data allowance with primary stick. TelefonicaMovistar offers plans based on speed, data, time and application to target different customers segments.
2. Operators such as Mobily Saudi Arabia, Virgin Mobile Chile, 3 Hong Kong, Digi Malaysia and Reliance Communications (RCOM) India have launched a mobile broadband (MBB) offering whereby subscribers are allowed unlimited WhatsApp usage and have a fixed-size data bucket for the rest of their applications.

Figure8



However, data monetization has raised various issues for sharing customer data without their consent. One such example is of Carrier IQ:

1. Last year a controversy came to lime light when it was exposed that CSPs in US are using the data provided by a company named Carrier IQ, a company that secretly collated data from devices. The CSPs had pre-installed an IQ agent on the devices sold to customers, the IQ agent secretly collected phone usage information such as application issues, battery performance, calls dropped etc from handsets. The CSPs were accused of using the information to target offers. Now, the Verizon and AT&T are seeking permissions from consumers for using the data, which may just be the critical difference in the eyes of the consumer.

4. Focus on Opportunities with Upstream Customers

Traditionally the business model telcos have adopted is to charge consumers in return of services provided. However, with the dawn of internet more and more businesses have moved away from being paid directly for services. Companies such as Google, Yahoo have developed newer business models where instead of charging consumers for their products and services have found innovative ways of earning money. With newer business models the telcos can use existing data assets to expand its customer base focusing on upstream customers and develop newer ways of earning money.

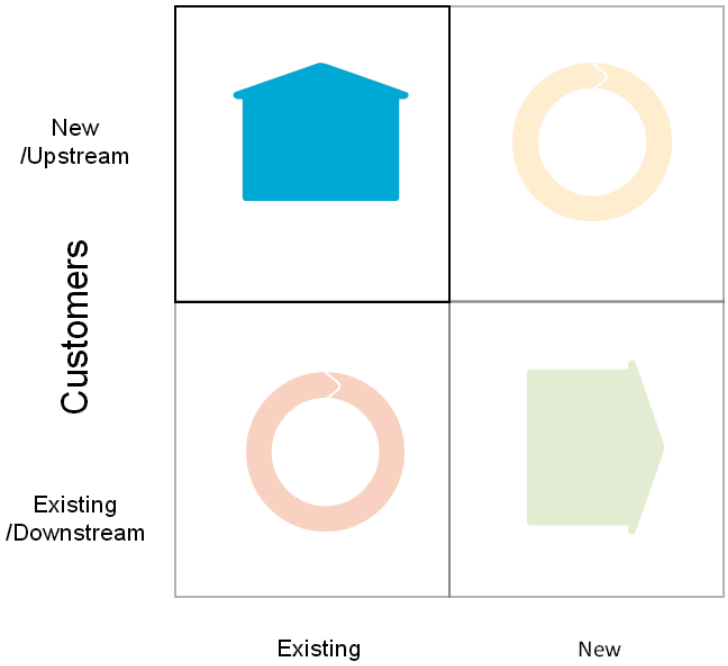
The opportunities arising out of this quadrant will consist of Location based advertising (LBA) and Data brokering. These opportunities are detailed as follows:

4.1. Location Based Advertising and Marketing

Among various other channels in marketing media, mobile channel is set to increase owing to increasing smart phone adoption and mobile internet growth. Berg Insight estimates that the real-time mobile LBA will grow at a compound annual growth rate of 90.9 percent, the real-time LBA market is forecasted to be worth € 4.9 billion in 2016, corresponding to 28.3 percent of all mobile advertising and marketing. This means that location-based advertising and marketing will represent more than 4 percent of digital advertising, or 1 percent of the total global ad spend for all media

The location of the mobile user when coupled with other marketing variables such as behavior and demographics can reveal important insights. These insights can be of utmost importance for businesses and brands looking to target the right audience. An illustration of this concept is shown in the below figure.

Figure 9



The customer's real-time location can be appropriate targeting variable for business such as restaurant, brands or a movie-theater. Products and services offered by such local businesses are more likely to be purchased on impulse at a location closer to customer's real-time location.

However, customer's residence location can be the most appropriate targeting variable for local businesses such as gym chain, a car servicing center or a hairdresser. Products and services offered by such local businesses are more likely to be purchased at a location closer to customer's residence.

4.2. Data Brokering

Telcos can also broker the consumer's personal data, interests and behavior to companies willing to target the right audience. Doing so will require shift from traditional business model of charging for services to newer business models such as free services or discounts in return for consumer's personal information. An illustration of this concept is provided in the diagram below:

Advertising spending on smart phones and tablets has more than doubled to $650 million annually over the last five years, according to EndiMaran, senior VP at Nielsen techn and telecom advertiser solutions.

Almost sixty percent of advertising expenditure on smart phones went to TV from 2011 to the second quarter of 2012, according to Michael Winter, managing director for digital strategy at media buying firm PhD Network. Around one-third went to print and only 9 percent went to the Web. The above illustration showcases the use case where Telcos can mine insights on Customer Buying pattern, refer illustration 11 above, and earn a chunk of the marketing spend by OEMs.

Some of the operators are already trying to achieve this kind of data monetization. Such examples include:

1. O2 Media's You Are Here campaign for Fitness First, gym and health club chain, enhanced Fitness First's top line by almost £400,000. Fitness First targeted O2 customers with location-based messages offering a free two-day pass and details of the nearest club. The campaign resulted in over

Figure10

one thousand recipients signing up as new members of Fitness First.

2. In 2011,Zain Kuwait launched its AdZone service, this service enables advertisers to send and receive ads on their smart phones with relevance to their location. Earlier this year, SingTel bought Amobee, a mobile advertisement company, to diversify its strategy and foray in to mobile marketing.

4.3. Data and its Challenges

Over the past two decades, mobile operators have been sitting on the pile of detailed information about their users including their identity, location, preferences and what not. A recent change to the laws requiring user consent for cookies speaks a lot about the changing awareness in users about their control over their own data.

Figure11

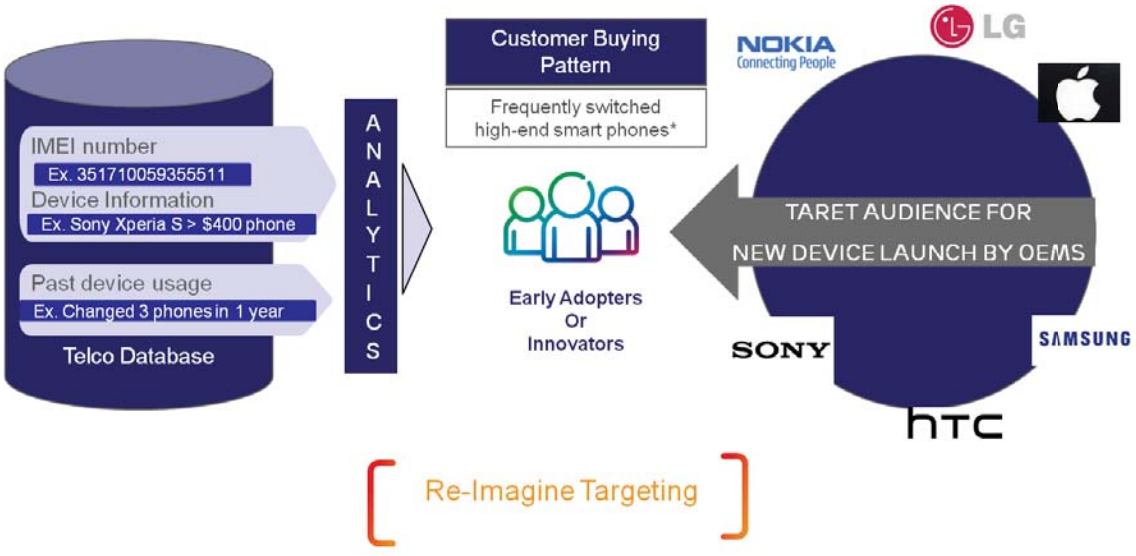
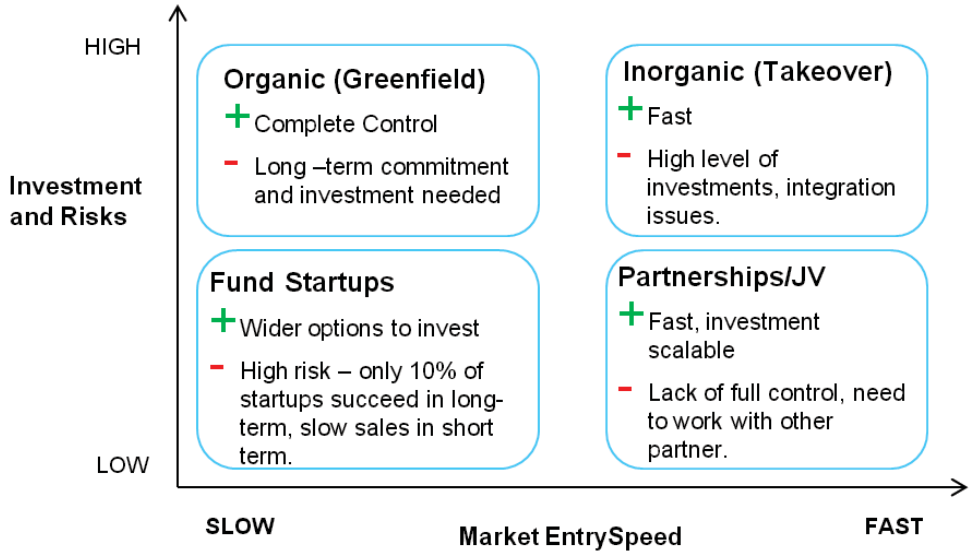
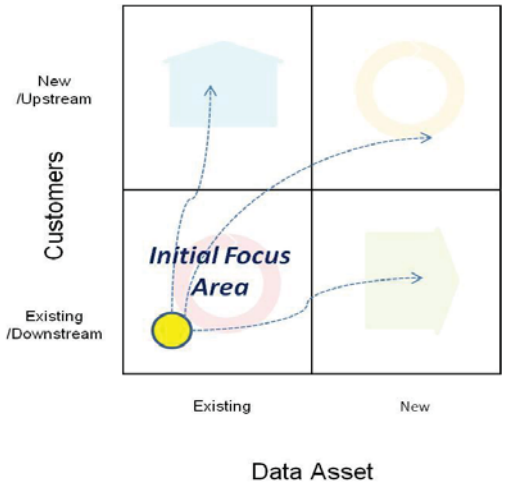


Figure12



Therefore, controlled usage of customer data that is abiding to the security laws of a country has become must. Similar maturing in attitudes in the mobile world also seems to be emerging.

Figure 13



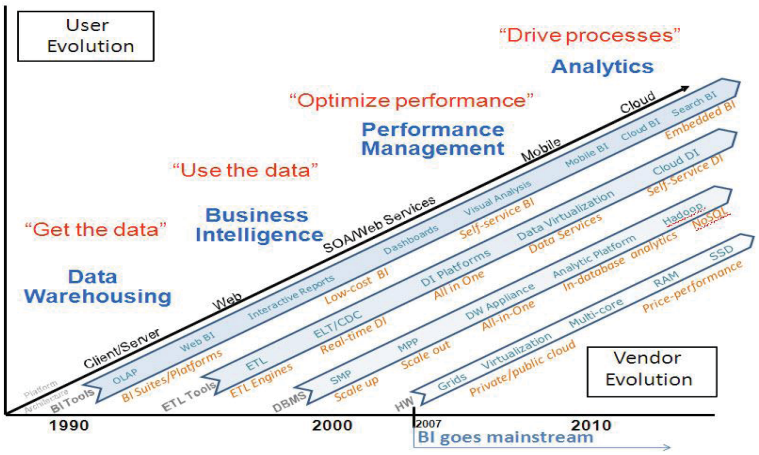
The Telco2.0 report goes on to say: "There are differing legal frameworks and approaches globally...and little commonality of approach, although there is increasing commonality in legal outcomes with rights of individuals' privacy winning over rights of commercial organizations keeping data."

Therefore, it means that the administrative burden on CSPs to comply with the legal aspects of data is going to increase.

End user data can be managed and used by operators if they can get the educated consent of the end users. However in practice, the consent depends on various factors including type of data, apparent value in return and risk associated with the handling of information. Moreover there are legal laws emerging in different countries on handling such data. For example post the terrorist attacks in London in 2005, EU reevaluated its position and made it mandatory to hold the transactional data for legal purposes. EU directed that personal data to be retained for between six months and two years (Directive 2006/24/EC).

Therefore, rather than a blanket agreementCSPs need to adopt a more comprehensive and transparent data handling systems that even makes end users secure about the control over their personal information.Better transparency is fundamental to safeguard end users against potential abuses. It essentially means that people will be able to see what information is held about them, who has access to it and under what circumstances and be able to withdraw or adjust itand the way it is used.

Figure 14



5. Recommendations

Telcos have long been sitting on this pile of data with no proper direction on how to use and where to start. This whitepaper gives a heads up to the telcoson the four pronged data monetization opportunities.Further telcos should analyze each opportunity based on its market attractiveness and relevance to telcos business. Once the telcos have the direction it is equally important to understand the monetization strategy for each quadrant.

Based on the type of data monetization opportunity telcos decide to explore, they will have to choose either one or combination of the strategies listed above such as organic approach, funding startups, inorganic growth or fostering partnerships.The choice of strategy will be based on three dimensions namely investment required, risk appetite, and market entry speed (as shownin the figure 12).

To start withtelcos can move with first quadrant where existing data can be utilized for different monetization options for existing customers as shown in the figure 13.However there are many challenges such as segregated data bases across diverse legacy systems, data analytics and data management capabilities requirements. This makes it challenging for telcos to even use their existing data sets. However in order to achieve a unified understanding of existing structured data, organizations need to answer these key questions:

1. What are the *original data sources*?
2. What *granularity* does the information have?
3. Where is the delivered information *stored* into?
4. Is the data *integrated*?
5. Are there Data *silos*?

And in the process of answering these questions, organizations will have to get the alignment of data sources, data stores, analytics services and delivery services in place which will in turn help in creating/ transforming their BI capabilities with or without big data capabilities as shown in the above figure.

Bibliography

Ericsson. (2012). *Traffic and Market Data Report,* Retrieved from http://www.ericsson.com/news/1617338

Rochet, J. C., & Tirole, J. (2003). Platform competition in two-sided markets, *Journal of the European Economic, 1(4), 990-1029.*

Andersson, R. (2010). Location based advertising and marketing. *Location based advertising and marketing*, 188.

Media, O. (2011). *O2 media*. Retrieved from Weve: http://www.weve.com/

Retrieved from http://www.privacyrights.org/500-million-records-breached

Retrieved from https://www.javelinstrategy.com/brochure-158

Retrieved from http://online.wsj.com/article/SB10001424052748703957804575602730678670278.html?mod=WSJ_hp_MIDDLETopStories

Mortensen, M. H. (2012). Webinar. *Customer Care Multi Client Briefing* .

Retrieved from http://www.businessweek.com/globalbiz/content/oct2009/gb20091014_194752.htm

Report, T. 2. (2012). *UTF Players*. Retrieved 2012, from UTF Players - Threat or opportunity: http://www.telco2research.com/articles/EB_under-the-floor-players-threat-opportunity_Summary

Authors Profile

Vineeta has over 8 years of working experience in India and US as business and functional consultant specializing in ERP/CRM transformations. Vineeta is working as a Lead Consultant in Ericsson and has completed her MBA from IIM Lucknow and is an engineering graduate in Computer Science from Nirma Institute of Technology, Ahmedabad.

Saurav has close to 8 years of experiences working with Sony Ericsson and ST Microelectronics (now ST-Ericsson) and HCL Technologies. He has specialized in smart phone technologies and has worked across various stages of PLC working with Operators, Vendors and OEMs. He is currently working as a Lead Consultant with Ericsson and has completed his MBA from IIM Lucknow and Computer Engineering from DCE, Delhi.