



C Spire 2014 Marketing Analytics Leadership Award Submission

Company and Industry Profile

C Spire is an integrated, telecommunications-based technology leader. Spanning several business units and markets, C Spire offers a wide variety of technology and communications solutions, including:

- Consumer 4G LTE+ wireless service over a world-class nationwide network
- 1 GBPS Fiber to the Home including internet access, cable TV and home phone
- Home security and automation solutions
- Business landline and wireless voice and data solutions
- Hosted IP Voice solutions for businesses of all sizes
- Government wireless communications (including being the exclusive wireless provider to State of Mississippi)
- Commercial access to the only Tier 3+ data center within 250 miles of our operating markets

C Spire has its roots in providing excellent communications services to rural Mississippi markets from the 1940s onward. Beginning in the 1980s, then operating as Cellular South, the company began to provide wireless cellular coverage in areas other companies largely ignored.

The company grew rapidly as consumer adoption of wireless technology grew through the 1990s. A ubiquitous wireless network coupled with outstanding customer service and operations drove dramatic growth through the mid-2000s, culminating in a heroic response to the devastation of Hurricane Katrina in 2005. C Spire led the wireless industry by bringing to market ground breaking unlimited voice and data offerings which drove C Spire customers to have 2x-3x the national average voice and data usage. C Spire also led the way in smartphone adoption, surpassing the 50% smartphone take rate mark well before other carriers. In 2011, C Spire became the 4th US carrier to launch Apple's iconic iPhone, beating T-Mobile to the punch.

Today, C Spire has the pleasure and challenge of competing in one the most dynamic and intense industries in the technology field: wireless service. Roughly 80% of the company's customers and revenue come from consumer wireless sales and service. The remainder comes from enterprise and government sales of wireless, fiber connectivity and other technology services.

The wireless market has passed the 100% penetration mark, meaning that any wireless carrier's continued growth depends on luring away competitors' customers. Persuading consumers to leave one carrier for another is a very different and more difficult task than persuading them they need wireless

service in the first place. C Spire's main competitors are the four national carriers: Verizon, AT&T, Sprint and T-Mobile.

C Spire is the country's largest, privately held wireless carrier and the 6th largest domestic wireless carrier. As such, the company declines to release financial and operation metrics to the public. However, as a measure of past success, C Spire enjoys a 20%+ wireless market penetration position overall and a 45% penetration in legacy markets.

Situational Assessment

C Spire views analytics as an internal differentiator and a key to being able to compete in our core business going forward. Our ability to make smarter decisions quickly at every customer interaction is what sets us apart – and lets us counter the marketing budgets of our competitors, all of which are larger than C Spire's total annual revenue.

Carrier	2012 Media Spend (\$MM)
Verizon	\$1,193
AT&T	1,250
Sprint	810
T-Mobile	887

Table 1: Competitive Media Spend

Current Analytics Program

C Spire has been actively engaged in scientific, predictive analytical marketing since 2010. The program started from an initial attempt to statistically model factors that drive customer attrition – a churn model. Early success coupled with the realization that analytics could help us compete in the marketplace more effectively fueled investment and focus. Today, the company's marketing analytics program is integrated into every customer touch point and reaches every customer and sales and service employee.

Analytics Team Structure

The company's Analytics team currently consists of five FTEs who plan, execute and optimize each step of every customer-impacting targeted marketing campaign. Working together through each stage of a campaign, this group handles all direct marketing to current customers.

Figure 1 illustrates the organizational structure and responsibilities for each role.

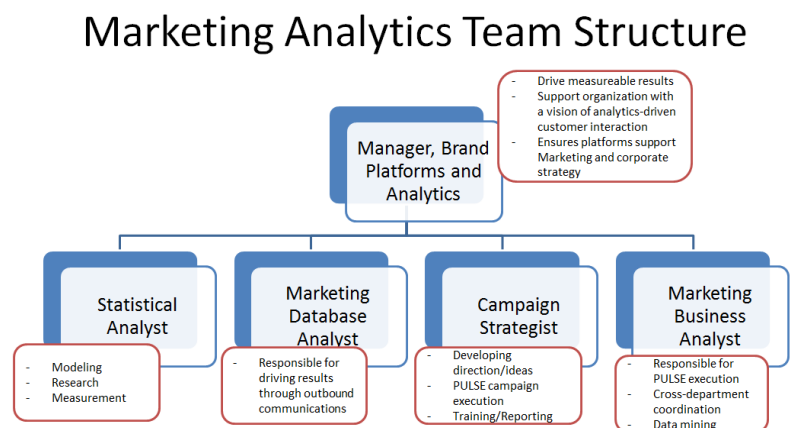
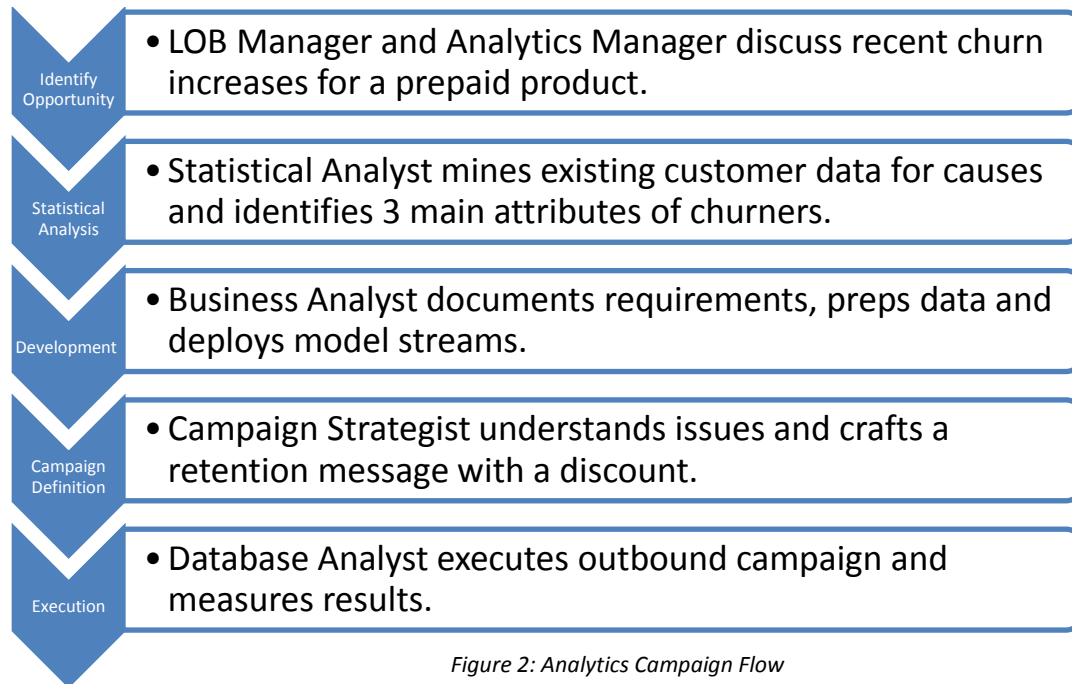


Figure 1: C Spire Analytics Team Structure

Program Management

The process flow for a recent retention campaign serves to illustrate the coordination between roles.



Coordination and communication between roles is vital. One of the Analytics Manager's main responsibilities is to ensure the whole team understands the larger business goals and implications for each campaign.

Recent Efforts

Recent Analytics projects on two major areas: customer retention and customer satisfaction.

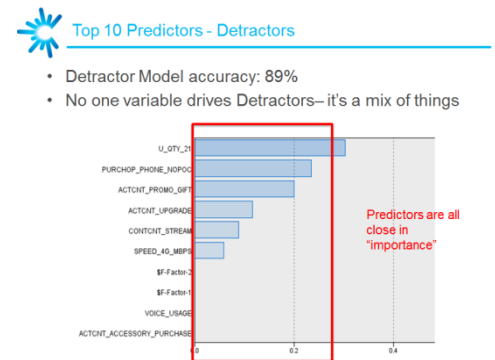
- **Calling Pattern Analysis:** The team analyzed billions of calling records to identify patterns of behavior linked to customers who are planning on disconnecting their subscription in the next one to four weeks. By comparing behaviors of customers who churned in the past to that of customers who did not disconnect, the Analytics team identified a variety of patterns which, when seen going forward, allow for intervention and retention.

For example, customers who generally only receive calls in the previous two weeks and have a brief average call duration are 800% more likely to disconnect. When we see this pattern unfolding we are able to contact the customer with a message or offer.

Figure 3: Net Promoter Driver Analysis

- **Net Promoter Score Modeling:** Net Promoter Scores are a common measure of satisfaction and strength of customer experience. C Spire continually measures overall NPS scores for the base as well as measuring after transactions to ensure a high quality experience. Logistically only a small percentage (2-3%) of the customer base can ever be surveyed for NPS in a given year.

The Analytics team seized the opportunity to manage each and every customer interaction more effectively by statistically projecting NPS scores for the entire customer base. Using the overall and post-transactional survey data the team created and maintains a multinomial predictive model that extrapolates an NPS score for every customer including customers who haven't actually been surveyed. The NPS prediction model accurately replicates the actual NPS survey results with an 85% degree of accuracy. The team then surfaces each customer's NPS group (Promoter, Passive or Detractor) into the Point of Sale system. Each sales/care rep can know the general disposition of the customer in front of them and is able to adjust accordingly – improving sales and retention rates.



- **Network Quality Scoring:** Both quantitative and qualitative research points to the importance of a high quality network experience in driving loyalty and to refer C Spire to his or her friends. C Spire overall has an exceptionally strong network in terms of coverage and capability but not every customer has the same experience.

The Analytics team partnered closely with the Technical Network group to create a Network Quality Score (NQS) for each customer. Using hundreds of attributes from cell sites, switches and handsets, each customer's overall quality of service is graded on a 1-10 scale, with 10 being an outstanding experience and 1 having some noticeable issues. The scoring algorithm forced the data to fit a normal distribution, thereby ensuring a percentage of customers are graded with a low score— and the Network team is able to use that low scoring group to identify and resolve service issues before they negatively impact the customer experience.

Network Score by Census Block Group

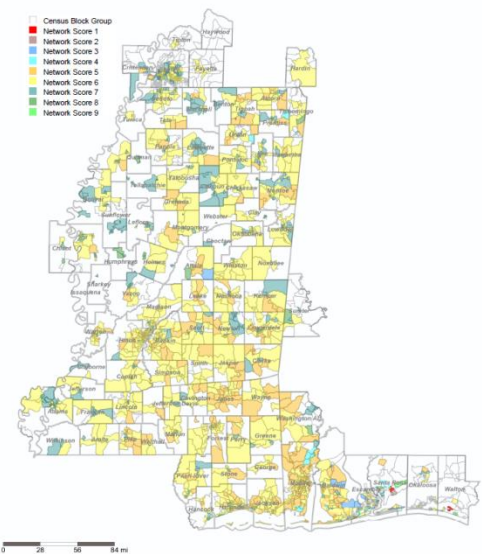


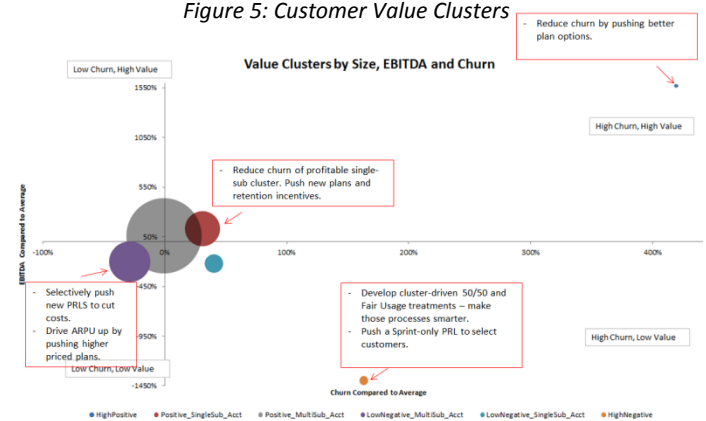
Figure 4: Network Score Map

- **Customer Value Clusters:** A variety of factors can influence the lifetime value and profitability of any given customer: handset subsidies, the frequency of calls to customer care and roaming data usage to name a few. Calculating and then acting on profitability information is not only possible but necessary to maintain the operating margins required in the capital-intensive telecommunications business. The majority of C Spire customers are profitable, but in conjunction with the Finance team, the

Analytics group developed a profitability clustering algorithm which has highlighted a number of opportunities to manage costs.

Figure 5 illustrates six unique clusters, each with different profitability and retention profiles.

Figure 5: Customer Value Clusters



Key Stakeholders & Integration

The Analytics team is located with the marketing department but in many ways serves as a resource for all departments. The tools and capabilities for predictive modeling are so specific that it makes more operational sense to serve as a center of excellence – always focused on sales and efficiency but through a marketing lens.

- **Customer Advocacy** : The customer advocacy department is responsible for representing the customer's best interest in all business decisions and for ensuring overall quality of experience across the lifecycle. The Analytics program supports this department in several ways, including all retention efforts, analysis on drivers behind Net Promoter Scores, and looking for correlations between trouble tickets and other root cause issues.
- **Customer Care**: C Spire's award-winning customer care department is an essential part of the customer relationship, and it is a critical chance to improve a customer's experience and perception of the brand. The Analytics team works closely with customer care to identify root causes for frequent callers and surface useful insights into each customer's likelihood to churn.
- **Sales**: After retention, sales is the next major area of focus for the Analytics program. Using statistical models and historical data, the Analytics team identifies a variety of cross-sell and upsell opportunities for salespeople to leverage. These predictive models have been successful in measurably increasing sales of cell phone accessories, add-on features and additional lines of service.
- **Technical/Networks**: The Technical team is responsible for the customer-facing voice and data networks through which C Spire's products and services are delivered. The Analytics team and Technical work closely together on projects like NQS (see above). The two groups also collaborate on prioritizing network investments based not just on network engineering metrics but also using geo-targeted market penetration and customer satisfaction data to ensure that network investments have as large an impact on the customer base as possible.
- **Finance**: Marketing and Finance at C Spire work closely together to ensure the proper balance of sales-driving promotions and product profitability. The Analytics team focuses on two major financial elements – customer profitability/lifetime value and financial forecasting of certain key business drivers. Using Finance's profitability data, the Analytics team is able to identify key behavioral drivers for both profitable and unprofitable customers and adjust the marketing and

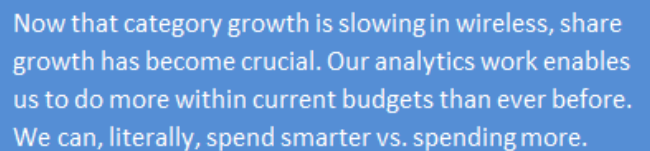
customer experience strategy for each customer accordingly. Additionally, Analytics assists Finance in projecting certain key business drivers using statistically time series methodologies. For example, the Analytics team is able to predict the quantity of daily device movement with a 96% accuracy – information that Finance is then able to use for overall monthly and quarterly financial projections.

[Analytics in Action](#)

The following sections describe the specific application of marketing Analytics that C Spire is submitting for consideration. These sections describe the evolution of our Analytics program through the design, development and launch of an entirely new, integrated, omni-channel predictive Analytics-based marketing system named PULSE.

The Challenge

In 2011, C Spire’s wireless business was facing a challenging landscape: 100% market penetration of our core product, aggressive expansion of our major competitors (Verizon, AT&T) into our geographic markets and the homogenization of our core product – voice and data services. Traditional promotional tactics had lost their effectiveness and through rapid growth and geo-focus our competitors gained a 3:1 door ratio advantage.



Now that category growth is slowing in wireless, share growth has become crucial. Our analytics work enables us to do more within current budgets than ever before. We can, literally, spend smarter vs. spending more.

David Hayes, VP of Marketing

To meet these challenges, C Spire reinvented itself, crafting a new strategy that focuses on personalization and customization of nearly every aspect of the customer experience. C Spire began (and continues) to differentiate itself from the competition through personal service and thoughtful, well designed products and experiences.

As this strategy unfolded, one key question was posed to the Analytics team: “How can we surprise and delight each of our customers every time we interact with them?” It wasn’t enough to have good products and services – we needed to understand our customers and tailor each touch to them – considering where the customer is in the lifecycle, churn propensity, and interest in additional products and services.

To answer the “surprise and delight challenge” the Analytics team had to move far down the continuum of 1:1 messaging. Historically, marketing was about the message and audience. We needed to enable a different dynamic: for a given customer, what’s the best message right now?

Our Approach

The platform C Spire's Analytics team designed and built to solve this problem is called PULSE. PULSE would need to know what the next best offer or action is for each customer across all touch points in context and connect the message with the customer to drive the desired behavior.

The team identified these specific goals for the platform:

- The system needed to be integrated into every customer touch point to reinforce consistency and the perception that "C Spire really knows who I am" for customers.
- It needed to be real-time and responsive. If a customer indicates they don't like something, the system should adjust and react.
- Accuracy and scientific rigor is critical. The end goal is highly relevant messages and offers and relevance must come through accurate predictions and correlations.
- The platform must drive sales, retention and service.

The platform would be surfacing marketing messages to customers, but also surfacing sales and service messages to employees. The magic and inspiration-driving would have to extend to these internal customer-facing employees – this would require a great deal of operational change, training and coaching.

Stakeholder Alignment

Solving the problem posed necessitated a large, complex analytical solution like PULSE. Designing and building were one set of challenges, but aligning and coordinating all the business and operational changes required for PULSE to be a success was an equally large task.

- **IT:** The Analytics team reports up through the Marketing hierarchy but works closely with IT for database, hardware and systems integration issues. As the design for PULSE was taking shape, Marketing and IT had to balance available resources with the desired requirements, particularly around the real-time aspects of PULSE. One major desired requirement, real-time reporting, was reduced to daily reporting to gain IT support.

Implementing and integrating PULSE into the systems used by all customer touch points was a collaborative and challenging undertaking.... The combination of the BEST teams along with the BEST technologies allowed us to deliver in a way that is differentiating for C Spire.

Carla Lewis, Sr. VP of IT

The Analytics team also has to balance what work is done in Marketing with what work is done in IT. As a pseudo-IT outpost, Analytics handles the predictive modeling, campaign design and set up, and measurement. Various IT groups handle the databases, hardware, backups and integration.

- **Sales:** As with most retailers, the majority of C Spire’s sales force is compensated through a commission structure tied to various activities. To gain acceptance and support (and thus have salespeople use PULSE) we followed two primary guidelines:
 - o PULSE campaigns surfaced in retail stores should generally be in line with commissionable activities. Recommending a customer install an app is fine for the Web channel or email, but that activity falls short in retail.
 - o The next-best action components of PULSE work best when a network effect is in place. The salespeople needed to understand how PULSE could help them do their job more effectively so they would use the system; the more the system is used, the more effective and relevant its recommendations; the more effective the system, the more salespeople believe in and use it.

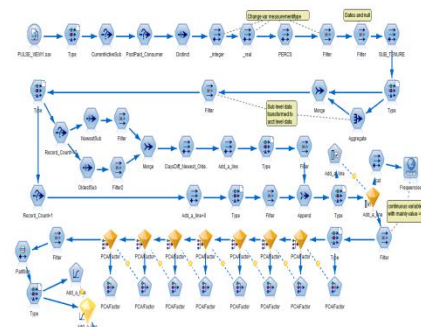
Additionally, the Analytics team had to work with virtually every other department with in C Spire – HR for training, Audit for coupon-related offers and process, QA for quality control, Customer Care for service-related campaign design, as well as Finance for ROI and measurement functions.

Analytic Methodology

The final marketing platform design contained these major elements:

- **Data:** The Analytics team created a “single view of a customer” by creating an environment for staging and transforming data about our customers. Over 350 attributes about each customer are pulled together, joined and updated in real time. The data included spans demographics, past purchase behaviors, payments, survey responses, engagement with the brand, calling patterns, network experiences and retention issues.
- **Predictive Models:** The team created over a dozen initial predictive models (and more subsequently) to predict which customers are likely to churn, purchase device accessories, services and more. We created these predictive models using IBM’s SPSS Modeler Premium and used several statistical approaches to predicting propensities in small populations from the healthcare field (originally developed by the team’s statistician, Dr. Zhen Zhang).
- **Business Rules Engine:** We leveraged IBM’s Analytical Decision Management (ADM) product to craft campaigns and offers for PULSE. ADM is an easy to configure business rules engine that allows business users to set up campaigns, define eligibility rules and use predictive models to target and prioritize offers. At launch over three dozen campaigns were available with ADM to tailor the customer experience and the system has since grown to over 75 offers.

Figure 6: SPSS Modeler Stream



Through a deep partnership with IBM, C Spire currently has the most complex and advanced implementation of Analytical Decision Management in the world.


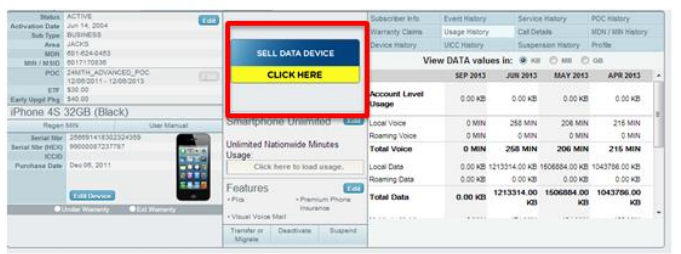
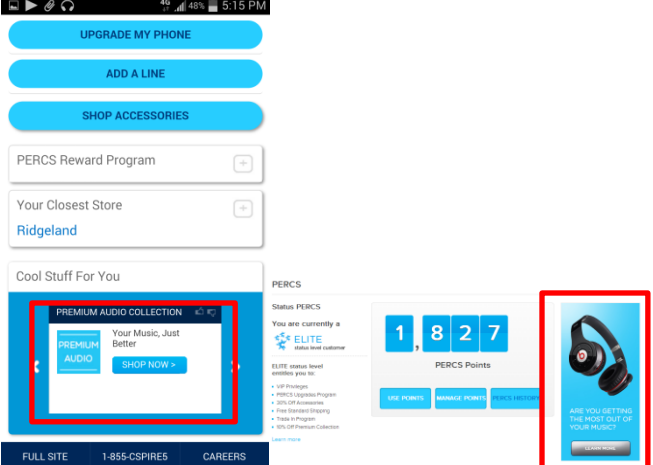
- **Integration:** The team used the IBM Collaboration and Deployment Services (C&DS) product to integrate PULSE offers into the rest of the organization (see Table 2 below). C&DS operationalizes predictive models and business rules by wrapping all the underlying complexity in a web service which is easily consumed by other platforms, such as C Spire's website or IVR. By exposing an API for PULSE offers it made it easy to expand the platform in the future, but it also simplified the marketing operation – Analytics maintains just one platform which in turn supports six different customer channels.

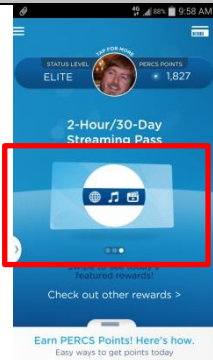
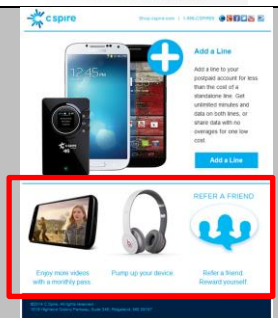
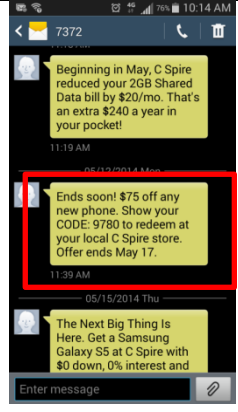
The service-oriented architecture (SOA) of the PULSE integration was recognized by InformationWeek as a particularly innovative and impactful element earlier in 2014.

- **Reporting and Measurement:** It was vital to automate the measurement and reporting on campaign success for such a complex system. The final design included a variety of ways for C Spire to capture each customer's response to campaigns and store that data. A heads-up dashboard spanning all campaigns gives the team a daily window into PULSE use and results.

PULSE is integrated with and surfaces offers and messaging into every consumer touch point. The table below shows each PULSE touch point, the intended audience and creative examples.

Table 2: Pulse Integration

Touch Point	Audience	Example
Point of Sale 	Used by customer-facing employees, the POS system surfaces targeted sales and service recommendations from PULSE	
Website	Customers visiting the website are shown content targeted uniquely for them	

IVR	Customers calling for self-service or to speak with an agent hear personalized audio content	1-855-277-4735
Mobile Apps	Participants in C Spire's award-winning loyalty program, PERCS, can use a mobile app to access their rewards and see personalized options fed from PULSE	
Email	Customers receive emails dynamically customized with messages from PULSE, using a modular template system	
SMS	As a wireless carrier, SMS is a uniquely robust communication channel. Through integration with the Adobe Campaign platform, PULSE can determine which customers should receive which SMS messages.	

Project Results

Launched mid-year 2013, PULSE has created significant business value, far exceeding the project ROI. The system design and closed-loop tracking of offer responses from all channels makes it possible to identify true incremental sales and transactions using control groups and statistical methods. The results below demonstrate the statistical validity of the predictive models and effectiveness of the overall design and implementation.

- **Customer Acquisition:** By targeting the correct audience and integrating messaging into all channels, we've been able to increase the rate at which existing customers activate new lines of

service by 70%. In absolute terms, this equates to opening two additional retail locations and increasing new activations by 2.5%. The annualized lifetime gross margin from these sales is \$7.0 million.

- **Upsell:** Upselling customers on accessories such as cases and chargers has generated significant incremental revenue due to PULSE. Customer purchasing behaviors on select accessory types has increased by over 200%, generating \$1.3 million annually in incremental revenue and \$400,000 in profit.
- **Customer Retention:** C Spire is able to maintain one of the lowest churn rates in the industry due in part to PULSE. The integration of predictive retention models into other platforms and systems has improved the effectiveness of prior retention efforts by more than 50%. Annualized gross margin related to retention improvements is \$500,000.

Cumulatively across all PULSE-driven campaigns and offers from the first twelve months in place, C Spire will realize an estimated \$8,000,000 in incremental margin. These results are recurring and repeatable, and the overall value of PULSE will continue to grow as we develop new campaigns to drive business results.

Ongoing Optimization

The Analytics team continually monitors and adjusts PULSE campaigns based on results. Adjustments fit into three main categories depending on the particulars of campaign performance.

- **Statistical Model Refreshes:** All predictive models need to be refreshed based on recent data to maintain the predictive model lift. By design, the PULSE system captures the data necessary to easily refresh these models (target, offer and response data). Most of the predictive models in PULSE are refreshed quarterly, depending on performance.
- **Campaign Treatment Adjustments:** Not all offers and incentives drive the desired results and even effective incentives fade over time. The Analytics team's Campaign Strategist spends a fair amount of time adjusting the treatments for under-performing campaigns. For example: a recent retention offer had a high \$100 per-save cost. After analysis, the campaign was split into two separate targeted campaigns, one for \$50 and one for \$100, thereby lowering the blended final cost.
- **Employee Training and Reinforcement:** The PULSE project required extensive internal change management with a strong focus on customer-facing employee training and incentives. The first month of launch, CTPs used the PULSE system with 5% of customers. After three months of coaching and communication, the CTPs were leveraging the system on 75% of in-person customer interactions. To achieve this level of performance the Analytics team made copious visits to C Spire retail and call center locations to observe and coach PULSE use. The team also drove the creation of training materials for all CTPs.

Analytics as a Competitive Tool

One of C Spire's guiding principles is having a sense of urgency: all employees are challenged to perform their duties with quality but also with efficiency and earnest. This urgency has helped to create an organization that, while smaller, is far more nimble than our competitors. Analytics is also a source of this nimbleness. The Analytics team is able to react to changing business conditions and deploy targeted, relevant messaging to customers using the PULSE platform far faster and with a higher degree of relevance than other wireless carriers.

C Spire leadership, both within Marketing and beyond, has embraced Analytics as a competitive tool. They see that approaching business problems with scientific rigor and a flexible platform have helped drive over all business value. The dispersion of predictive Analytics, led from Marketing, into all areas of the organization is proof of the value Marketing provides through efforts like PULSE.