IRREVERSIBLE:

The Public Relations Big Data Revolution

by Mark Weiner, CEO of PRIME Research
and Sarab Kochhar, Ph.D., Director of Research, IPR

with contributions from Marcy Cohen, MasterCard,
Elizabeth Rector, Cisco Systems, Inc.,
and Linda Rutherford, Southwest Airlines

About the Institute:
The Institute for Public Relations is an independent nonprofit foundation dedicated to *the science beneath the art of public relations™*. The organization focuses on research that provides timely insights and applied intelligence for professionals to put to immediate use.

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EXECUTIVE SUMMARY

Today the amount of data organizations collect is unprecedented, and it can be difficult to determine what should be done with the data, what aspects of the data are important, and how it should be managed.

The concept of Big Data—advanced technology that allows large volumes of data to drive more fully integrated decision-making—is transforming the world of business, and even more specifically, the public relations profession. Practitioners must evolve with this transformation through the incorporation of Big Data into traditional PR functions. The importance of Big Data is not the vast quantity of information made available, but instead, it is the value that can be created to improve performance, and better understand competitors, consumers, employees, media, and other publics. Organizations must learn and recognize that data alone do not answer "why" or explain inferred insights. Uncovering insights of Big Data require a human element and critical thinking to create meaning.

Much of the challenge with Big Data comes from data integration of structured and unstructured data. While structured data is more organized, easier to reference, and less costly to analyze, the majority of data held by organizations is unstructured data. Unstructured data—like emails, documents, and social media data—can be invaluable to organizations, and companies must find ways to effectively and efficiently harvest and analyze the data, and, in doing so, improve their ability to understand and operate their business.

Organizations must also consider where this structured and unstructured data is coming from, and what level of control it possesses regarding the data. Big Data are comprised of "Small Data" streams of owned material, shared material, or outside sources. Owned material, collected from internal data streams like organizational websites and company pages on social networks, is highly controllable. Whereas, external data streams, like organic social media conversations or government data, are from outside sources and allow little to no control. Internal data streams are performance drivers that show fixed and variable costs and revenues among other information, while external data streams target audience, societal and financial and economic trends, for example.

The purpose of utilizing Big Data is to help the organization achieve its objectives, and create better, more efficient strategies and tactics through assumptions one can validate prior to execution and insights gleaned from that process. There is no question, the public relations profession must continue to evolve alongside Big Data, and with this growth and advancement PR practitioners can further demonstrate the positive effect PR has within business overall.

INTRODUCTION

Practically speaking, public relations is a "relationship" business built on the basis of creativity, networking and the ability to communicate effectively through compelling content. Research is playing an increasingly important role in informing the public relations process for better targeting, better positioning and improved performance evaluation. Now, through the emergence of new research methods and advanced technologies, coupled with demands of our accelerated pace of business, a new form of public relations is emerging where statistics spark creativity; data drive more fully integrated communications decision-making; and tools enable people to act more quickly and with greater intelligence. For global businesses, as well as for public relations, the driving force is known collectively as Big Data. In this new landscape, communications practitioners must evolve along with their profession to understand and come to terms with the science beneath the art of public relations.

This white paper introduces the concept of Big Data from a public relations and communications perspective, outlines the sources of Big Data for the field, discusses the challenges of using Big Data, and offers guidance on how organizations can implement Big Data analysis. The real value lies in the actionable insights gleaned from the data. Beyond this, the white paper focuses on the insight-discovery process and Big Data applications in the public relations and communications process. To demonstrate how insights are turned into action, case studies from MasterCard, Southwest Airlines, and Cisco Systems, Inc., are discussed in context of Big Data in public relations and the insights-discovery process.

CHAPTER 1: DEFINING BIG DATA

Big Data is at the heart of nearly every digital transformation. Organizations are exploring how large-volume data can be usefully deployed to create and capture value for individuals, businesses, communities, and governments (McKinsey Global Institute, 2011). Whether it is using machine learning and web analytics to predict individual action, consumer choice, search behavior, traffic patterns, or disease outbreaks, Big Data is fast becoming a tool that not only analyzes patterns, but can also provide the predictive likelihood of an event[1].

Big data is often defined by the four "V"s: Volume, Velocity, Variety, and Value. The amount of data and its granular nature describes the volume of data, which can vary from tens of terabytes to hundreds of petabytes for an organization. The speed of data an organization receives and needs to be acted upon in real-time outlines the velocity characteristic of big data. The unstructured, structured, and semi-structured data variety affects how organizations might summarize and analyze its information. The intrinsic value of data helps organizations derive meaning, recognize patterns, and make informed assumptions in decision-making. The terminology might change in the coming years but the need to strategize, collect, and analyze data will remain a top priority for organizations[2]. In its early stages, organizations focus on the amount of data but, in time, the questions around big data shift from the size of data to its importance and the value derived from the data itself.

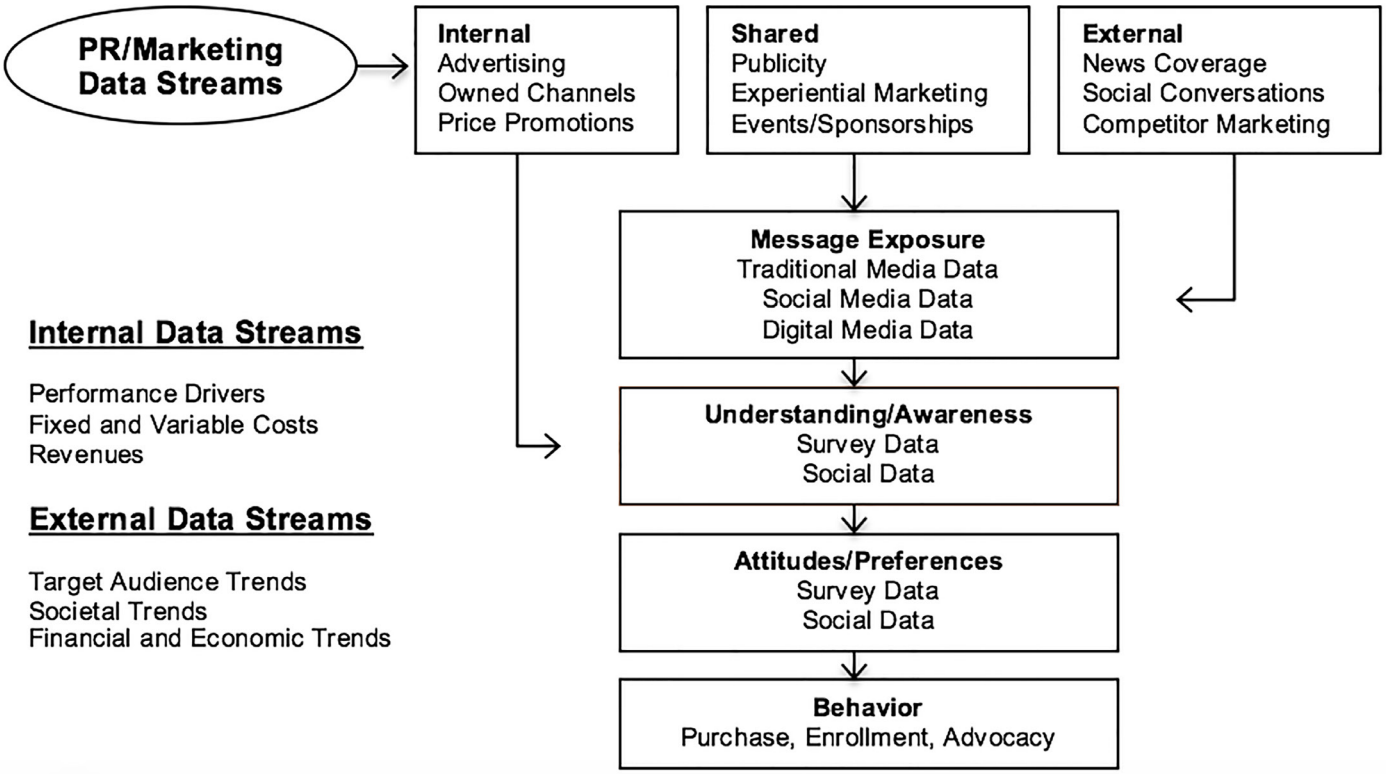
1 http://aom.org/uploadedFiles/Publications/AMJ/Apr_2014_FTE.pdf
2 http://www.businessinsider.com/why-big-data-is-just-a-fad-2015-3

CHAPTER 2: SOURCES OF BIG DATA

As Big Data is generally characterized by a collection of data sets too large for common business software tools to capture, manage, and process, sources tend to deliver data sets that are large, dynamic, and diverse. At the same time, Big Data is comprised of many "Small Data" streams, of which public relations is one example.

For the organization overall, external data sets may represent economic, financial and societal/ lifestyle data. Internal data sets include organizational documents and business archives including production, costs, pricing, staffing and other statistics; and shared data source examples which may reflect the weather, census data, organizational websites, secondary data sources from industry groups, and more.

For corporate communications, brand public relations and marketing, data sets are represented in the following diagram



D.1: Internal and External Data Streams and their Cumulative Effects

Internal Data Streams

Internal data reside within different areas of the organization and access is more highly controllable. From corporate communications and marketing public relations, sources include "owned" channels such as organizational websites, press releases, branded blogs, and company/brand-sponsored pages on social networks (Twitter, Facebook, etc.). Each example provides opportunities for data collection. Additionally, other departments within the organization may already hold external data from surveys that may be applied to public relations. In this way, external data becomes internal.

Across the enterprise, data sources may include sales volume, revenue and transaction data from accounting, call center data from customer service, leads from marketing, and any other internal sources that collect customer information. It may also include cost information, staffing and inventory. These examples are not exhaustive, and additional internal data sources may be available to help inform important answers to guide public relations decision-making.

Shared Data Streams

Shared data streams are acquired through channels, which is often accessible to many organizations through internal and third-party data streams such as retailers and wholesalers—including other groups within your an organization. Because the data are shared, they may be only semi-controllable. For corporate communications and marketing-oriented brand public relations, shared data streams may come from events, publicity, and sponsorships in which your organization participates. But there are other forms of shared data including industry research and more, which may provide insights to improve business performance through public relations.

External Data Streams

External data streams are those harvested from outside sources like organic social media conversations, news, syndicated and omnibus surveys, government data, and academic studies. Since the data are external, they are difficult or impossible to control. For corporate communications and marketing-oriented brand public relations, external data streams come from news (including print, digital and broadcast), social and competitive marketing (including text, video and audio), and communications. Other examples may exist which add context and understanding to the business and public relations processes related to: landscape analysis, objectives-setting, strategy development, tactics and execution, evaluation and continuous improvement.

Public Relations Data Streams

Within the organization, certain functions may have data sources more important to the success of that function than to others. Much data generated for, by, and about public relations comes through research based on the measurement of factors categorized as an output, outtake or outcome, represented in Diagram 1. Based on the Dictionary of Public Relations Measurement and Research (3rd ed.) by Don Stacks, Ph.D., and Shannon Bowen, Ph.D.[1], these three factors are defined as follows:

> **Output**—What is generated as a result of a PR program or campaign that may be received and processed by members of a target audience, and may have cognitive impact on outtakes: the way a target audience or public feels, thinks, knows, or believes; the final stage of a communication product, production, or process resulting in the production and dissemination of a communication product (brochure, media release, website, speech, etc.); the number of communication products or services resulting from a communication production process; the number distributed and/or the number reaching a targeted audience; sometimes used as an outcome serving as a dependent variable in research.

1 Stacks, D. W., & Bowen, S. A. (2013). Dictionary of Public Relations Measurement and Research, Third Edition. In Institute for Public Relations. Retrieved from http://www.instituteforpr.org/wp-content/uploads/Dictionary-of-Public-Relations-Measurement-and-Research-3rd-Edition.pdf

Outtake—Measurement of what audiences have understood and/or heeded and/or responded to a communication product's call to seek further information from PR messages prior to measuring an outcome; audience reaction to the receipt of a communication product, including favorability of the product, recall and retention of the message embedded in the product, and whether the audience heeded or responded to a call for information or action within the message; sometimes used as an outcome serving as a dependent variable in research.

Outcomes—Quantifiable changes in awareness, knowledge, attitude, opinion, and behavior levels that occur as a result of a public relations program or campaign; an effect, consequence, or impact of a set or program of communication activities or products, and may be either short-term (immediate) or long term.

In Big Data situations, the contributions of public relations relate to content and context, which are measured in several ways.

Content Analysis

Traditional, digital and social media content analysis are methods of measuring, examining and understanding outputs. Among the three, social media promises to help communicators derive elements of the outtakes and outcomes of their communication because social comments reflect awareness, attitudes, understanding and behavior. Among corporate and brand communications, content analysis, also known in the Big Data world as "text analytics," is the most common form of data collection. The process relies on methods, which distinguish relevant content from irrelevant (including text from social and traditional media but also text converted from video, images and audio) and then extracts bits of qualified information. Content analysis requires statistical acumen, computer skills, technology and benefits further from subject matter expertise. The content, once converted to data using technology and expert analysts, enables the enterprise to transform large amounts of data into salient and actionable intelligence including predictive analytics.

Content analysis generates the following "Small Data" streams:

- Quantity: Volume and reach in the form of number of stories, posts or "message units" as well as the amount of people with the potential to see, hear or watch these presentations
- Quality: Tone/sentiment; intended and unintended message delivery; target news outlets, blogs and influencers; spokespeople; and other indicators of "quality" content
- Relative performance: Results versus objectives, over time, from region-to-region and against competitors/opposition; content volume from owned/broadcasted content versus earned/organic content
- Impact potential: Indicators reflecting the likelihood that some will watch, hear or read the content including, for example, headlines, photos, positioning, exclusivity and more.

Traditional media coverage provides a valuable source of "verified content" through the journalistic process. Despite reports indicating circulation and audience declines, traditional media delivers credible context to help make sense of events which may directly, or indirectly, affect the company and the brand even when the company and brand are not referenced in the news coverage. Additionally, traditional media have a profound impact on social media, as news coverage often appears as a link in posts.

Social media content, sometimes generating thousands of posts each day, provides a framework for uncovering, assessing and acting upon insights on the topics about which people hold sufficiently strong interest to generate discussion. Social media conversations are emerging as a surrogate for qualitative and quantitative research.

Attitudinal and Behavioral Research

Attitudinal and behavioral research are methods of assessing outtakes and outcomes. Attitudinal research refers to the study of thoughts, attitudes, preferences and understanding of individuals or groups. Behavioral research refers to the study of the variables that impact the formation of decisions, actions and patterns.

In public relations literature, attitudinal research yields "outtakes" data. Behavioral research yields "outcomes" data. Two primary forms of attitudinal and behavioral research are:

- Qualitative Research: focus groups, interviews, and thematic analysis provide insights for shaping quantitative research
- Quantitative research: surveys provide projectable context and guidance to reflect what's in the mind of target audiences. With the rise of online surveys, more and more surveys capture shorter intervals of awareness, understanding, attitudes and intended behavior.

Surveys are a method of sociological investigation using question-based or statistical surveys to collect information about how people think and act. Surveys are one of the most common types of quantitative research. In survey research, the researcher selects a sample of respondents from a population or targets an entire population (small or large), and administers a standardized questionnaire online, via mail, telephone, or in person.

Survey research is not confined to corporate communication, marketing or any one field.

CHAPTER 3: DATA INTEGRATION

Data are being collected at an unparalleled rate and strategic decisions can now be based on data that represent and even predict various aspects of our everyday lives. But as an organization, questions arise. What should be done with the data? What is important? How should the data be managed? How to make sense of the data? How to mine the data? How can communications and public relations professionals draw insights from the widespread collection and processing of Big Data? Does Big Data lead to better predictive models?

Data mining (also known as knowledge discovery from data) is the automated extraction of patterns representing knowledge implicitly stored or collected in large databases, data warehouses, online, other massive information repositories, or data streams. Data mining is a multidisciplinary field, drawing work from areas including database technology, machine learning, statistics, pattern recognition, information retrieval, artificial intelligence, high-performance computing, and data visualization[1].

Data mining functionalities are used to specify the kind of patterns to be found in data mining tasks. In general, data mining tasks can be classified into two categories: descriptive and predictive.

- Descriptive data mining tasks characterize the general properties of the data in the database.
- Predictive data mining tasks make inferences based on the data to forecast the future.

Some of the challenges of Big Data lie in its complexity and scale but there are other issues like heterogeneity, timeliness, and even privacy problems that can make it difficult to create value from the data. The huge volume of data contains both similar and dissimilar dimensions. When enormous amounts of data increase, the complexity and the relationships among the data also increases. The complexity and the disparate origins of the data often gives incomplete data or data with errors.

Organizations often record the actions of individuals. Human behaviors or fine-grained behavior data are monitored as people visit specific web pages, send emails, use social networking websites, and even make financial transactions. However, predictive modeling based on sparse, fine-grained behavior data is not a new phenomenon. Individual communications events have been used by organizations to predict customer attrition, improve targeting and segmenting audiences, and even to detect fraud. Research in social science suggests aggregating data across occasions, situations, and forms of actions, which can be useful when modeling human behavior data.

Structured, Semi-structured and Unstructured data

Much of the challenge with Big Data comes in the form of data integration of structured, semi-structured, and unstructured data. According to Gartner, about 80% of data held by an organization is unstructured data, comprised of information from customer calls, emails and social media feeds[2]. Since data in communications and public relations are increasingly generated in a digital format, there is a greater need to identify ways to link and transform data for analysis. Unstructured data continues to grow and organizations have to find ways to automate and improve their ability to understand their business.

1 Han, J., Kamber, M., & Pei, J. (2011). Data mining: *concepts and techniques.* Elsevier.

2 http://www.datamation.com/applications/big-data-9-steps-to-extract-insight-from-unstructured-data.html

The fundamental difference between structured data, semi-structured and unstructured data is that structured data is organized in a highly mechanized and manageable way. Structured data is ready for seamless integration into a database or well-structured file format such as XML. Unstructured data, by contrast, is raw and unorganized. Digging through unstructured data can be cumbersome and costly. Email is an example of unstructured data. Although it is indexed by date, time, sender, recipient, and subject, the body of an email remains unstructured. Other examples of unstructured data include books, documents, medical records, and social media posts. Semi-structured data falls somewhere in-between the two. For example, a Microsoft Word document, which usually is seen as unstructured data, can be created into semi-structured data with tags and keywords—creating an easier way to search the document for information. While the data is still not structured, it gains a minor form of organization, thus making it semi-structured data. Spreadsheets, on the other hand, would be considered structured data, which can be quickly scanned for information because it is properly arranged in a relational database system. Unstructured data does not follow a specified format. The problem unstructured data presents is one of volume; most business interactions are of this kind, requiring a huge investment of resources to sift through and extract the necessary elements, similar to a web-based search engine. Because the pool of information is so enormous, current data mining techniques often miss a substantial amount of available information, much of which could be game changing if efficiently analyzed. Structured data has a high degree of organization and is readily searchable by simple algorithms. Whereas, unstructured data are time consuming to analyze and lack organization.

Unstructured data are everywhere. In fact, most individuals and organizations conduct their lives around unstructured data. Just as with structured and semi-structured data, unstructured data is either machine generated or human generated. Machine-generated unstructured data could be scientific data or satellite images, which includes weather data, satellite images, scientific data, meteorological, vehicular, traffic data or even Google Earth. Human-generated unstructured data can be e-mails, text and documents internal to an organization, mobile data, data generated from social media platforms (tweets, likes, posts, shares), and any website content.

Organizations must find ways to create meanings, connections, and patterns out of such data. Analyzing unstructured data requires analytical tools and newer approaches based on machine-based learning. A machine-learning approach can help analyze complex, large volumes of data, both structured and unstructured, with multiple variables to make accurate predictions. Ultimately, the question is not about whether the data should be unstructured, semi-structured, or structured but, rather, what is the internal value, and how can it be put to good use?

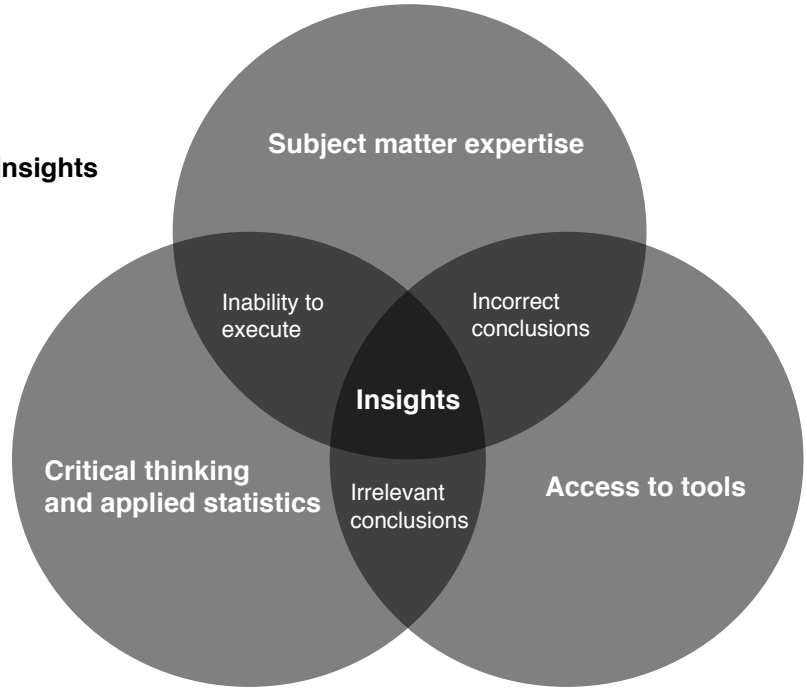
CHAPTER 4: UNCOVERING INSIGHTS

The purpose of harnessing Big Data is to make better decisions and, in doing so, to help the organization achieve its objectives. But insights require more than data and this is the point where many Big Data programs fail to deliver. Perhaps due to the proliferation of automated tools promising insights generation, maybe due to the hype over Big Data's potential, organizations large and small rushed to the Big Data trough only to come up dry. However, insights generation is not necessarily expensive or complicated. Dr. Philip B. Stark, Professor and Chair of Statistics at The University of California, Berkley, identified the three elements that must be present to convert data to insights: Critical thinking and statistical acumen; subject matter expertise; and access to tools[1] (See Figure 1.1).

Dr. Stark said, "The type of data (structured, text, etc.) isn't the point at all. The way of thinking matters." Dr. Stark's statement reveals the key component in successful Big Data programs: the "human element." While tools and data help provide structure and context, insights are a purely human endeavor.

1 Stark, P. (2016). http://statistics.berkeley.edu/~stark/bio.htm

Figure 1.1 - Converting Data to Insights



Big Data for Public Relations

New methods, advanced technology, oceans of data, and skilled statisticians enable better data-driven communications decision-making using approaches like message engineering.

A common misconception holds that "messaging" is a purely creative endeavor based on clever phrasing, brilliant visuals and edgy disruptive execution. While creativity certainly plays an important part, successful messaging is as much science as art; and the required science actually enhance the creative process by focusing resources on those messaging opportunities with the highest potential.

Message engineering is a systematic, target audience–based process of developing message, issue, or corporate positioning. In consumer marketing, for example, messaging or *branding*, may be defined as "giving the service or product a meaning in the minds of prospective customers that distinguishes your services and products from others and induces people to want to buy it."

Building on this definition, "meaning" represents communication outputs and market messaging but also internal and external spokespeople, the logo, and related causes with which the organization may be aligned. It must also reflect the target's values and experiences, perceptions, likelihood to purchase and behavior—of, with and toward the product, the company, the category and just everyday life—to enhance message relevance even more. The "science of messaging" through Big Data research helps to uncover useful intelligence for better messaging decision-making. Given the many factors, which contribute to the definition, most conventional data and research programs lack the capacity for so many factors.

Message Engineering: Questions You Must Answer

The science of messaging also requires a systematic process by which message marketers augment the creative process by factoring hundreds and maybe thousands of factors into the equation. The optimal messaging strategy-development process must enable the communicator to reach the following decisions:

- Who is the most profitable target audience?
- What motivates the target to act?
- How well does our message proposition match the target audience's priorities and reality in terms of credibility, relevance, sustainability and profitability?
- How well does our competition or opposition perform against the same criteria?
- Does the message strategy align with the objectives of the organization?
- Is messaging consistent across all channels?
- Does the message resonate as strongly among internal audiences as well as it does in the marketplace?
- Does the organization understand its audience, message and competitive environment well enough to bring the message to life?
- Which media channels offer the greatest likelihood to reach and engage with the target audience? Do these channels require a tailored approach to succeed?

The Messaging Engineering Process

The answers to these questions, the subsequent message decisions and the eventual performance evaluation are most reliably and successfully achieved through a message engineering research process consisting of five stages, the first of which drives the rest.

1. The initial step in message engineering uses a combination of data-gathering techniques (social analytics, focus groups, surveys, promotions, advertising, sales and other data sources) to generate a multitude of propositional attributes and benefits—messaging opportunities—including future options as well as current approaches. Once the list is developed, the group decides on which possibilities are the most likely to succeed based on what the data indicate, selecting 25 or so to test through quantitative research and social media analysis.

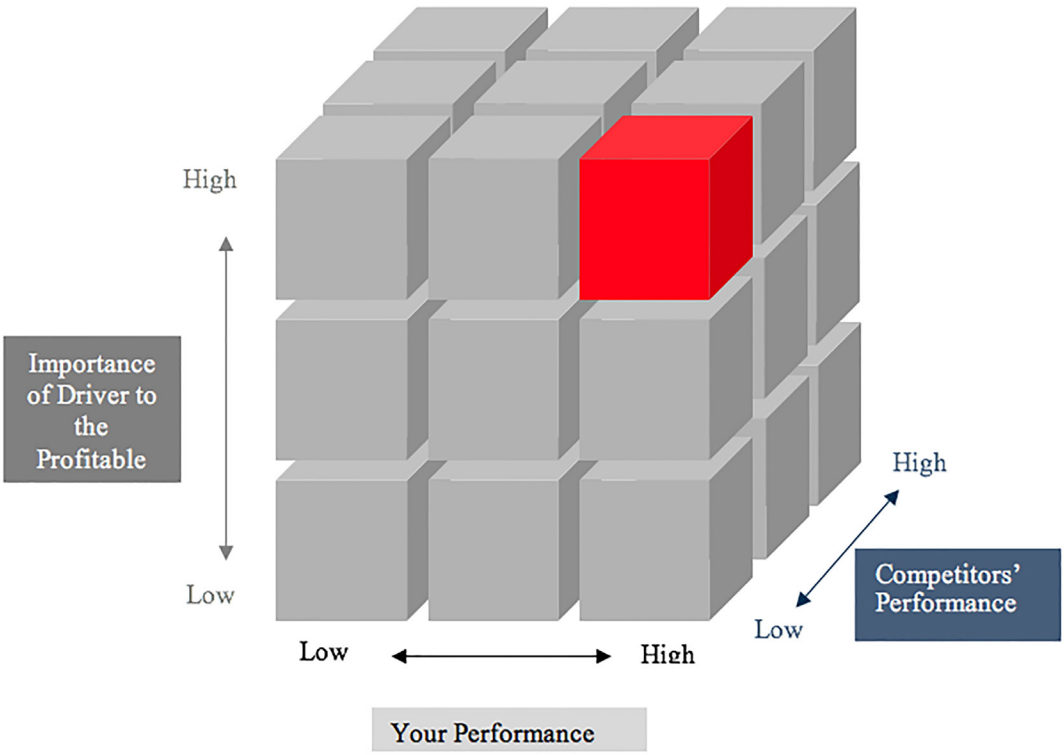
2. The second step is the survey stage, in which the 25 attributes and benefits are scientifically tested using a survey to interview no fewer than 300 but no more than 1,000 respondents. Concurrently, a review of social media conversations should be used along with web search data to uncover "patterns of interest" in potential winners.

3. Upon completion, the third step is a formal analysis designed to explore the three or four major drivers revealed during the second step, to uncover the derivation and intensity of the prospect's needs, and to get a sense of the competitive environment.

4. The fourth step in the messaging engineering process is to conduct a content analysis of traditional, digital and social media originating in those media with the highest penetration among the target audience. The purpose is to determine the extent to which the three or four winning attributes are delivered by the organization and its competitors. Smart communicators give the highest priority to those attributes that are important to the target audience, viewed as favorable aspects of the sponsoring company, and are not associated favorably with competitors.

5. The fifth step is evaluation to drive incremental learning and continual improvement. Similar to steps 1-4 in miniature, evaluation should be continuous and consistent to ensure that past decisions remain effective in the constantly evolving marketplace. Periodic pulse-checks provide useful input for tactical execution to ensure that investments made in messaging continue to yield positive results over time, versus competitors in light of best practice.

Once research uncovers the message landscape, tactical resources should be invested in those activities that deliver the best return on investment.



CHAPTER 5: BIG DATA APPLICATIONS IN THE PR PROCESS

Big Data provides many new applications for the public relations profession—not only allowing practitioners to better analyze operating environments both internally and externally, but also expanding opportunities to move past traditional communications approaches to create better objectives, more strategic positioning and audience targeting, and to uncover more opportunities to quantify and enhance PR's contribution to business success and its influence on the bottom line. Big Data are evolving traditional public relations functions—permitting growth, greater efficiency and improved efficacy.

Landscape Analysis: In common PR practice, the landscape analysis tells the communicator about the past and present environment in which they are operating. Typically, the landscape analysis tracks competitive PR activity, marketplace assessment and media trends to make better communications decisions. In Big Data situations, the landscape analysis broadens its scope beyond PR activity to include client and competitors' business results, general economic indicators, and societal trends along with regulatory activity, business and investment transactions and other factors, which may be considered in positively affecting each of these factors through improved communication.

Objectives Setting: Objectives are the foundation for activating PR programs and should be meaningful, measureable and reasonable (see IPR white paper Guidelines for Setting Measurable Objectives: An Update by David Rockland, Ph.D., Forrest Anderson and Mark Weiner). In a Big Data world, objectives can go beyond standard communications objectives – generating a higher volume of positive traditional and social content; raising awareness; etc. – to include goals which also more directly impact the success of the enterprise such as attracting and retaining top talent, lowering costs, raising prices, improving efficiency and drawing interest among investors.

Strategy Development: For the purposes of this paper, "strategy" reflects positioning and audience targeting. When research is used in the PR strategy development process, the focus is on "conformist" audience targeting: media involvement, simple demographics and conventional wisdom of what's worked before, and pre-existing journalist/influencer relationships. In the era of Big Data, strategy development may encompass messaging and targeting that moves prospective customers through the sales funnel or which anticipate HR events such as an employee leaving the company (and the steps the employer can take for prevention).

Tactics: Campaigns, events and other short-term initiatives designed to achieve a (sometimes) sustainable burst in marketplace activity are the tactics PR people use to achieve their objectives. Practicing Big Data public relations, one can broaden the scope of what a campaign can achieve. In addition to media coverage, increasing awareness and positive attitudes can affect awareness, attitudes and business results related to sales, donations and enrollment by enacting scenarios to determine what business elements outside of PR may be affected and to what degree through different PR results. In this case, practitioners are encouraged to develop PR tactics in light of the overall business impact.

Evaluation: Prior to the emergence of "Big Data PR," program evaluation relied on media analysis and surveys with only a very few geared toward understanding the interrelationship with other agents on business results (see IPR white paper Isolating the Effects of Media-based Public Relations on Sales: Optimization through Marketing Mix Modeling by Mark Weiner, Liney Arnorsdottir, Rainer Laing and Brian Smith, Ph.D). In the Big Data environment, data scientists can evaluate PR's impact on any number of factors being measured throughout the enterprise.

Applications for Big Data PR Results:

- Continuous improvement: Just as in other research-based applications, the purpose of measurement and evaluation is to apply what one learns to improve performance over time, versus competitors and in light of objectives. Big Data PR results enable PR to improve across a broader platform and to connect those improvements to other areas of the business.
- Proving the value of PR: Presently, senior executives tend to evaluate PR success in terms of "generating positive coverage from target media" or "raising awareness/improving attitudes." Big Data PR results enable the practitioner to demonstrate the unique effect PR has on the business overall. Once PR demonstrates its ability to positively influence the business overall on those factors which drive the bottom-line (sales, cost, pricing, staffing, regulatory action, etc.), the greater PR's esteem will be.

CHAPTER 6: THE LIMITATIONS OF BIG DATA

Given the success and publicity surrounding Big Data, one might think that it can solve all the world's problems. Why the hype? Perhaps greed. Perhaps media coverage. Perhaps miracle claims from Big Data vendors, all of which contribute to a general lack of understanding. For all the good derived from Big Data, traps loom for those who mistakenly believe correlation means causality or that top-line group-level data applies to all individuals within the group. The most limiting aspect of Big Data – and the area in which PR can provide the greatest value—is that data alone do not answer "why." For that, social and traditional media analysis provide context to go beyond just "what happened" to derive "why it happened" and "what should be done about it."

Big Data is limited to the degree that analysis benefits from the right talent, the right tools and the expertise required to draw meaningful conclusions. It may also be unreasonable to assume once one begins a Big Data initiative, the entire process is faster, less expensive and more accurate than traditional research methods.

Questions To Ask Before Embarking on a "Big Data for Public Relations" Initiative:

- What is the goal of data-driven communications?
- How will the data and findings help achieve objectives?
- What is the source of data? Internal? External?
- How does Big Data applied now?
- In what ways will data applications interact/interrelate with others?
- What can be done to ensure data alignment?
- Regarding talent, does the team have big data skills for critical thinking and statistical analysis? Who will lead the initiative? Who will conduct the analysis?
- Are tools available to capture relevant content to produce accurate data?
- What can be done to create an environment, which encourages discovery and learning through data (rather than "data as a scorecard")?
- How much investment will be required? Do the intended findings and subsequent applications merit the investment?

CONCLUSION

While creativity, networking, and communications continue to play important roles in contemporary public relations, technology, data and critical thinking have forever changed the way objectives are set, how messages are developed and targeted, how campaigns are developed and executed, and how public relations performance is evaluated. The good news is most of the tools required to deliver on the benefits of data-driven public relations already exist. The challenge among communications professionals is to recognize that the profession they knew is forever gone and new skills are required. The accelerated pace of business, the digitization of media, the need for companies to deliver more and better results for less have irreversibly changed public relations from a business of relationships to a business of terabytes. Public relations require practitioners to create a compelling headline as well as managing a pivot table. It's been said that the dinosaurs would still be here if they could only predict the weather. For PR pros, the winds of change are blowing. Those who adapt will succeed while those who ignore the emerging importance of technology, science and data in public relations will, sadly, disappear.

CASE STUDY 1: MASTERCARD

Applying Social Media Research Insights for Better Business Decisions

Objective/Brief:
One of the few steadfast companies that committed fully to research by making insights more actionable, and became more strategic, efficient, and successful is MasterCard.

In 2011, MasterCard's executive leadership challenged the organization to transform the B2B financial services giant into a more consumer-focused technology company.

To do so, MasterCard created the Conversation Suite – a dynamic, global insights and engagement engine – built and supported by a global team of communications and social experts who monitor, engage in and analyze conversations around the world in real-time, 24/7. The social listening and analysis of public profile social data serve as a barometer, a resource, and as a foundation for communication decision-making. One demonstration of MasterCard's ability to transform data into insights, actions, and business results, relates to its efforts in mobile payments, an emerging form of commerce enabled through the use of mobile devices.

MasterCard is a technology company in the global payments industry. They operate the world's fastest payments processing network, connecting consumers, financial institutions, merchants, governments and businesses in more than 210 countries and territories. MasterCard's products and solutions make everyday commerce activities – such as shopping, traveling, running a business and managing finances – easy, secure and efficient

In 2011 the mobile phone became the consumer method of choice for making purchases and managing money[1]. MasterCard was perfectly placed to help merchants provide their customers with a safe, simple, smart way to pay using their mobile devices. In a strategic drive, MasterCard led developments of standards and was among the first to launchobile commerce technologies that let people, "pay with a tap"[2].

As part of this drive, the MasterCard executive team embarked on a journey to transform the B2B financial services giant into a more consumer-focused payments technology company. From a communications standpoint, MasterCard was squarely B2B; the opportunity was to shift engagement online and develop a direct relationship and dialogue with consumers and influencers.

The Conversation Suite applies data to uncover research-based insights to achieve better business results. The data analysis became a foundation for communications decision-making and a barometer and resource to the entire business.

Among the first discoveries in 2012, data scientists uncovered a trend revealing consumers'

1 International Telecommunications Union, 2011.
2 http://www.mastercard.com/corporate/mobile.html

great excitement and anticipation for the emerging mobile commerce technology. But those who tried it expressed two sources of anxiety: lack of acceptance and data security. Deep contextual analysis revealed concerns over data security centered on unfamiliarity with the technology and the possibility of personal data compromises. Frustration over 'lack of acceptance' also arose over the inability of certain merchants to process mobile payments at point of sale.

Beyond the PR team who listened, engaged and refined their communication, social data insights profoundly influenced planning and execution throughout the company. This "voice of the consumer" directly influenced marketing messaging, advertising campaigns, product development, and merchant training programs. Following the initial discovery, the company's market research survey results confirmed the social media findings. Since the time of this example, MasterCard continues to apply social media insights to achieve more fully integrated business decisions.

The Conversation Suite's role as a seminal business tool has been proven many times over. MasterCard evolved the analytics to provide ongoing social insights and strategic guidance for meaningful business results. In years two and three, MasterCard applied its research findings to lower barriers to mobile payments by:

- Interpreting the evolving social discussion of mobile commerce to inform marketing and communication targeting and messaging
- Providing a pulse of social opinion for the mobile payments industry
- Uncovering positive and negative drivers of use, adoption and sentiment in global market
- Reporting on barriers to adoption of mobile technology for consumers and merchants to help MasterCard overcome them.

Strategy:
To generate earned media insights that could be trusted, upheld, and executed required a more sophisticated approach than one tool alone could offer. The Conversation Suite did the heavy lifting using complex, multi-language search string algorithms and human-validated analytics. The right streams of data were identified using search string methodologies to remove false positives, spam and splogs (spam blogs), as well as ensuring the right geographical signals. Data scientists applied a layer of subject matter expertise, statistical acumen and critical thinking to create the necessary insights.

The deliverables were real-time monitoring and analysis of online communications including News, Blogs, Weibo, Twitter, Facebook, YouTube, Google+, Instagram, Boards and Forums. MasterCard employees could self-sufficiently access relevant content and human-validated data, as well as create real-time research and reporting. MasterCard generated regular timely reports, showing key metrics, SWOT analyses, key influencers and industry themes. The aim was to help MasterCard set smarter objectives, develop better strategies, create more compelling tactics and execution, evaluate performance, and drive continuous performance versus objectives, competitors and past performance.

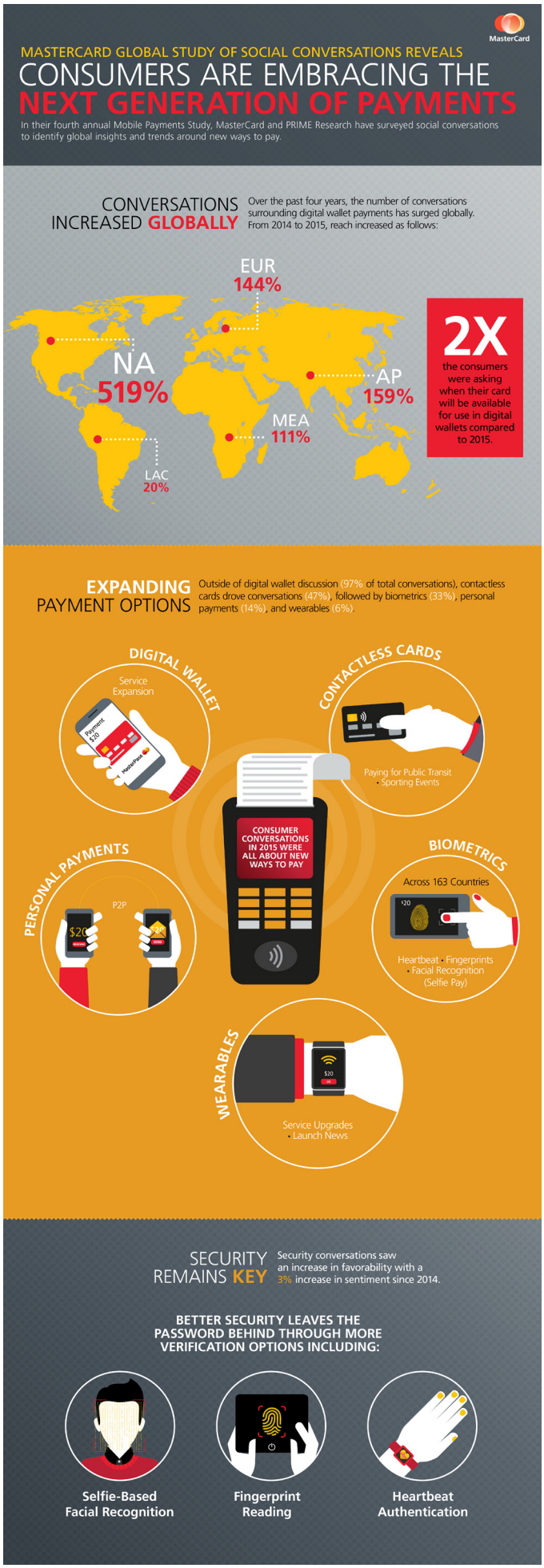
Importantly, an annual study of social commentary around mobile payments was developed to assess people's willingness to adopt mobile payment services. The annual Mobile Payments Study, now in its fourth year, aimed to assess people's awareness, understanding, attitudes, preferences and behavior toward existing payment options throughout North and South America, Europe, Africa, Asia and the Pacific Rim. To assist in leading the industry agenda, visually compelling, sharable graphics were created to summarize the findings.

Execution/Implementation:
Using proprietary social media analytics expertise, methods and technology, researchers identified millions of relevant social media posts each year on the subject of mobile payment innovation in the context of MasterCard and its industry peers. From the huge volume of posts, a broad sample of substantive comments were subjected to more granular expert human-coded content analysis. The resulting insights were converted into actionable business drivers. The findings were successfully applied throughout MasterCard and adopted across the wider industry.

Evolving Global Picture of Mobile Payments:

In 2013, MasterCard's Mobile Payments study revealed that mobile payments transitioned from skepticism to adoption as 81% of conversations were driven by users who adopted mobile payments compared to only one-third the previous year. In 2014, the social media analysis revealed that conversations had gone from "problem solved" to "what's next?" (See below Figure 1.2). In 2015 consumers began to embrace the mobile payments and were beginning to ask banks and merchants to provide mobile payment options.

Figure 1.2 -
What the Social Web is Saying about Mobile Payments



The global picture was well illustrated for the MasterCard team. Users based in Europe were the most vocal in expressing opinions about mobile payment technology followed closely by Asia-Pacific and the United States. Some skepticism was evident in Europe as consumers discussed mobile payment security and general reservations about the feasibility of worldwide adoption.

Across the Latin America and Caribbean regions, non-adopters expressed a need for clarification on the mobile payment technologies offered as well as a clearer understanding of the cost implications mobile payments may have on their current lifestyles. China, Thailand, Australia, Japan and Singapore were the most active countries across Asia. Users discussed product experiences and shared opinions about news stories originating in traditional media. Discussions in the Middle East and Africa tended to retell or redistribute stories which originated in traditional media with the highest shares of discussion stemming from South Africa, Saudi Arabia, UAE and Nigeria. In the United States, users showed interest in the compatibility of mobile payments with other payment systems. Other drivers of discussion centered on value, longer-term benefits, as well as security. These insights were fed back into MasterCard's global communications strategy and formed the basis of wider industry insight.

Strategic Communications Guidance
MasterCard used the in-depth global picture to inform messaging and targeting strategy. MasterCard's paid, earned and owned communication reinforced high-potential themes on which led the industry and elevated themes which needed to be improved.

Leading the Mobile Payments Industry Agenda
MasterCard's insights were used as an industry barometer for understanding consumer and merchant adoption. The study revealed significant year-over-year improvements on a number of key performance indicators:

- The 2015 study tracked 2 million global social media posts about mobile payments across social channels up from 85,000 posts in 2012, the first year of the study
- Sentiment was on the upswing in 2015 with 95% of consumers feeling positive or neutral about mobile payments technology, an increase of 1 percentage point over 2014 and 18 percentage points over 2013
- Safety & security of mobile payments continues to drive conversations with sentiment improving further in 2015, now 94% positive or neutral, a 3 percentage point increase over the 2014 study. This reflects an overall trend across all years of the study, where security sentiment was 77% positive or neutral in 2013 and 70% in 2012.

The 2015 study was revealed at Mobile World Congress where MasterCard was at the center of all mobile payment conversation throughout one of the industry's most important events. Striking data visualization assisted in the spread of the story and intensive media interest. The data insights were covered extensively throughout global mainstream and social media.

Drivers of Use, Adoption and Sentiment
As sentiment toward mobile payments improved significantly, the analysis demonstrated the user experience, technical quality, and acceptance network was improving for consumers. Most posts praised aspects including Innovation, Convenience and Speed, and findings were fed back into the business.

Despite increasing consumer sentiment, Experience remained an opportunity for improvement as it ranked as a high frustration point for users. Transaction Experience, Technical Functionality and Consumer Security Protection were all identified as areas for education and product improvement.

Barriers to Adoption as a Business Driver
To drive successful outcomes, the research identified barriers to adoption to be fed back into the business. Merchant acceptance was the most visible topic identified early on in the program. Over time, merchant availability went from a barrier to entry for non-adopters to the most discussed positive topic. The findings were consistent with discoveries about merchant engagement. Merchant conversations were driven by those who had implemented mobile solutions; non-adopting merchants increasingly turned to social media to seek mobile payments advice from other merchants. Many merchants discussed the benefits of mobile payments, in many cases as a differentiator for their business.

With confusion over security highlighted as a barrier, consumer education efforts in particular were identified as being critical to the success and adoption of mobile payments. The research identified an opportunity for education: despite robust security, confusion existed on how mobile technology could reverse fraudulent and unauthorized charges. Consumers using MasterCard for mobile payments are protected through MasterCard's zero liability policy.

Results
In a world where many global organizations sit in limbo debating social media's impact on Big Data decision-making, MasterCard committed fully to research, applied the findings, and became more strategic, efficient, and successful. The company's data and insights aid in the execution of communications campaigns in real time – whether identifying and responding to an issue or facilitating creative opportunities to position the brand with media, influencers and consumers.

Over the course of the last four years, MasterCard's social insights have been used to successfully inform communications strategy, shape product messaging, and facilitate successful targeting. MasterCard has effectively shifted consumer conversations from questioning available mobile options and the security of mobile, to the possibilities of enhanced experiences through tech innovations on digital devices.

A 40-foot screen located in the atrium in the heart of MasterCard's corporate office, the physical Conversation Suite has become a coveted destination for MasterCard employees, heightening awareness of the importance of the millions of online conversations shaping the brand and industry and serving as a flexible space for brainstorming and information sharing. The Conversation Suite has helped to evolve the company culture to be more open and collaborative, by demonstrating best-in-class engagement within the industry and transforming MasterCard into a more consumer-focused, aware and insights-led technology payments company.

The Conversation Suite occupies the center of MasterCard's headquarters in Purchase, New York.

Throughout the four years of its Mobile Payments study, MasterCard's traditional market research study confirmed the integrity of the social media insights, delivered in a fraction of the time and at a significantly lower relative cost. MasterCard's social media analysis now works to complement MasterCard's surveys as data-integration adds context and rigor to the findings.

The Conversation Suite has helped evolve the MasterCard culture to be more open and collaborative, demonstrate best-in-class engagement within the industry, and meet the challenge of transforming MasterCard into a more consumer-focused, aware, and insights-led technology. payments company.

CASE STUDY 2: SOUTHWEST AIRLINES

Big Data PR Analysis Aids On-time Performance

Objective/Brief:

As one of the top domestic carriers of passengers and their bags in the United States, Southwest Airlines has a 40+ year history as an efficiency machine. For many years, it has held the top spot in the U.S. Department of Transportation Monthly Air Travel Consumer Report as the best on-time domestic airline. Two years ago, those statistics began to slip, as the airline was working to bring together the schedules of Southwest and its newly acquired subsidiary, AirTran Airways. The airline also pivoted to a more long-haul scheduled airline with more connecting itineraries, all of which created a more complex operating environment. As a result, Southwest has struggled with on-time performance (OTP). It is important to note there is a direct correlation between poor OTP and customer complaints, and a low Net Promoter Score. The business has seen an improvement in OTP recently, a result of new programs and procedures in place to help improve turn times, originator flights, etc., along with diligence and dedication by our Southwest Airlines' employees.

Strategy

An enterprise-wide effort was begun with many moving parts to attempt to improve the airline's operational performance. Initiatives like "Start Strong" were implemented to ensure the first flights of the day left on time, thereby creating a better operational day. The Communications Team was asked to participate in the enterprise effort and contribute data to a comprehensive view of operation for a holistic view of on-time performance. Then, a cross-functional team would analyze the data to better understand trends with our traveling audience (i.e. - complaints, customer service calls, refunds, etc).

Execution/Implementation

Southwest's Ops Recovery Team pulls information monthly from various teams and departments to get a holistic view of how the business is performing when it comes to OTP, specifically in the areas of Operations, Customers, and Finance (See Image 1). As part of the monthly Ops Recovery Team report, under the Customer umbrella, the Communications team would supply data and insight on news coverage and real-time social conversation (sentiment, topics and volume) that mentioned OTP directly, or, as Customers often reference it – "flight delay" "on time" or "late flight".

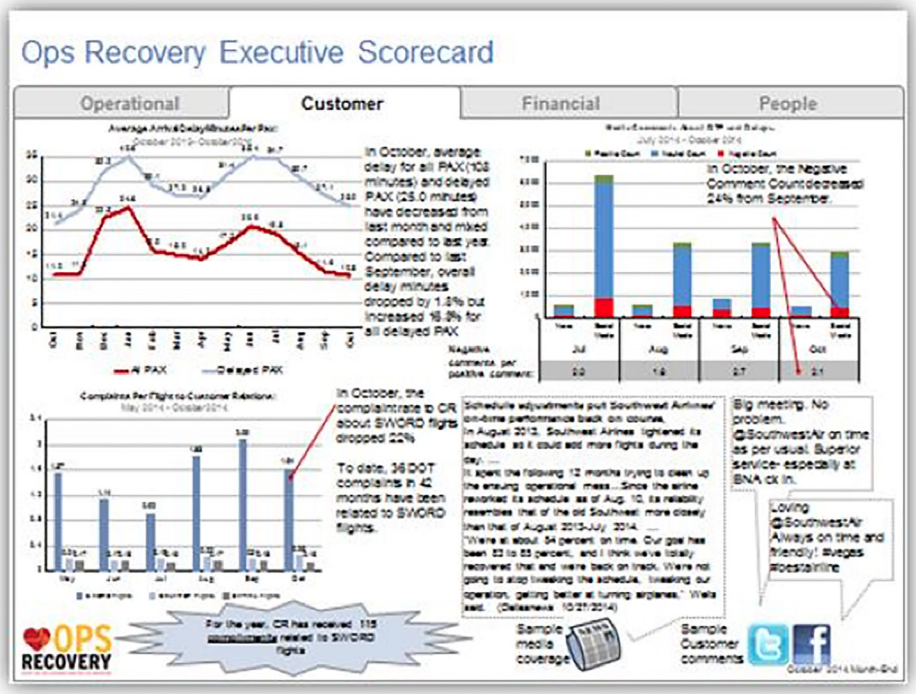
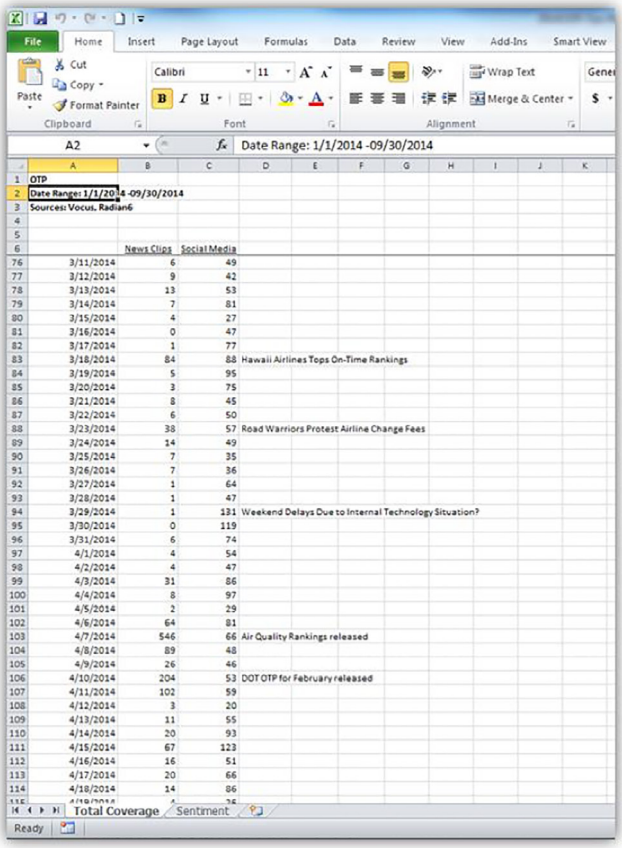


IMAGE 1 – A view of the Ops Recovery Executive Scorecard

Effectiveness of Assignment

The Communications data included the number of news and social media mentions daily (See Image 2), daily sentiment (See Image 3), sample of comments, and examples of news coverage, drawing attention to any major news announcement on any given day, like Department of Transportation rankings, or an event that may impact on-time performance, like weather, or ancillary service issue, such as a shutdown of an air traffic control tower. This data was married with the number of customer complaints that were recorded by the Customer Relations department, as well as the actual arrival delay in minutes per passenger, to give the team a surgical view of how external factors could be affecting OTP, and helped reiterate that poor OTP will drive an increase in customer calls and inquiries via the telephone and social channels, as well as be directly linked to downturn in the Net Promoter Score.

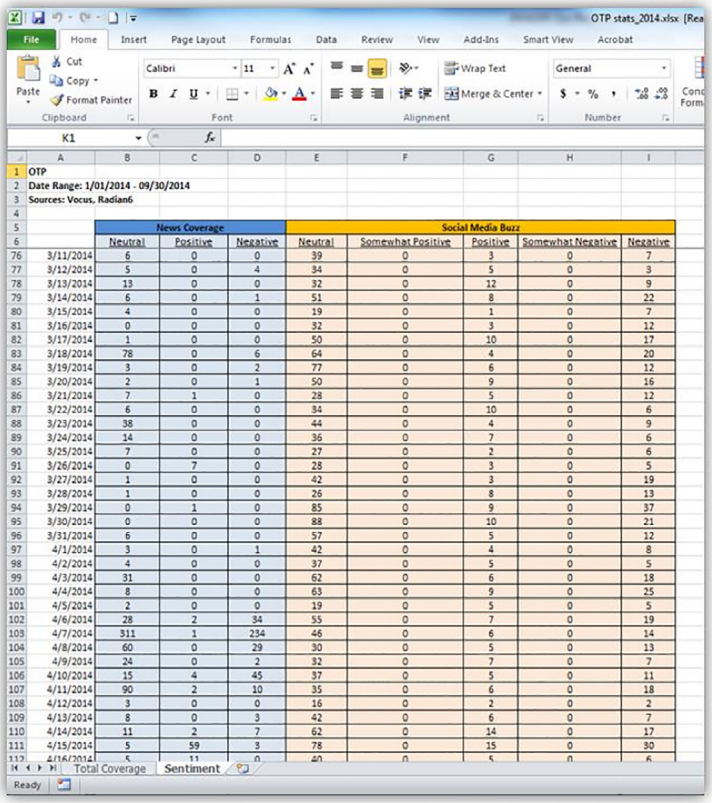
The business has put several new programs and procedures in place to help combat some of the "cause and effect" results of sluggish on-time performance. Initial results, based on the most recent stats from the Department of Transportation, show Southwest's on-time performance rate for June was 72.5%, or 8th place when compared to other airlines. This was a significant improvement over June 2014, when OTP was 67.6%, and 10th place overall.



OTP
Date Range: 1/1/2014 -09/30/2014
Sources: Vocus, Radian6

		News Clips	Social Media	
76	3/11/2014	6	49	
77	3/12/2014	9	42	
78	3/13/2014	13	53	
79	3/14/2014	7	81	
80	3/15/2014	4	27	
81	3/16/2014	0	47	
82	3/17/2014	1	77	
83	3/18/2014	84	88	Hawaii Airlines Tops On-Time Rankings
84	3/19/2014	5	95	
85	3/20/2014	3	75	
86	3/21/2014	8	45	
87	3/22/2014	6	50	
88	3/23/2014	38	57	Road Warriors Protest Airline Change Fees
89	3/24/2014	14	49	
90	3/25/2014	7	35	
91	3/26/2014	7	36	
92	3/27/2014	1	64	
93	3/28/2014	1	47	
94	3/29/2014	1	131	Weekend Delays Due to Internal Technology Situation?
95	3/30/2014	0	119	
96	3/31/2014	6	74	
97	4/1/2014	4	54	
98	4/2/2014	4	47	
99	4/3/2014	31	86	
100	4/4/2014	8	97	
101	4/5/2014	2	29	
102	4/6/2014	64	81	
103	4/7/2014	546	66	Air Quality Rankings released
104	4/8/2014	89	48	
105	4/9/2014	26	46	
106	4/10/2014	204	53	DOT OTP for February released
107	4/11/2014	102	59	
108	4/12/2014	3	20	
109	4/13/2014	11	55	
110	4/14/2014	20	93	
111	4/15/2014	67	123	
112	4/16/2014	16	51	
113	4/17/2014	20	66	
114	4/18/2014	14	86	

IMAGE 2 – Total news clips and social media mentions for a given timeframe



OTP
Date Range: 1/01/2014 - 09/30/2014
Sources: Vocus, Radian6

		News Coverage			Social Media Buzz				
		Neutral	Positive	Negative	Neutral	Somewhat Positive	Positive	Somewhat Negative	Negative
76	3/11/2014	6	0	0	39	0	3	0	7
77	3/12/2014	5	0	4	34	0	5	0	3
78	3/13/2014	13	0	0	32	0	12	0	9
79	3/14/2014	6	0	1	51	0	8	0	22
80	3/15/2014	4	0	0	19	0	1	0	7
81	3/16/2014	0	0	0	32	0	3	0	12
82	3/17/2014	1	0	0	50	0	10	0	17
83	3/18/2014	78	0	6	64	0	4	0	20
84	3/19/2014	3	0	2	77	0	6	0	12
85	3/20/2014	2	0	1	50	0	9	0	16
86	3/21/2014	7	1	0	28	0	5	0	12
87	3/22/2014	6	0	0	34	0	10	0	6
88	3/23/2014	38	0	0	44	0	4	0	9
89	3/24/2014	14	0	0	36	0	7	0	6
90	3/25/2014	7	0	0	27	0	2	0	6
91	3/26/2014	0	7	0	28	0	3	0	5
92	3/27/2014	1	0	0	42	0	3	0	19
93	3/28/2014	1	0	0	26	0	8	0	13
94	3/29/2014	0	1	0	85	0	9	0	37
95	3/30/2014	0	0	0	88	0	10	0	21
96	3/31/2014	6	0	0	57	0	5	0	12
97	4/1/2014	3	0	1	42	0	4	0	8
98	4/2/2014	4	0	0	37	0	5	0	5
99	4/3/2014	31	0	0	62	0	6	0	18
100	4/4/2014	8	0	0	63	0	9	0	25
101	4/5/2014	2	0	0	19	0	5	0	5
102	4/6/2014	28	2	34	55	0	7	0	19
103	4/7/2014	311	1	234	46	0	6	0	14
104	4/8/2014	60	0	29	30	0	5	0	13
105	4/9/2014	24	0	2	32	0	7	0	7
106	4/10/2014	15	4	45	37	0	5	0	11
107	4/11/2014	90	2	10	35	0	6	0	18
108	4/12/2014	3	0	0	16	0	2	0	2
109	4/13/2014	8	0	3	42	0	6	0	7
110	4/14/2014	11	2	7	62	0	14	0	17
111	4/15/2014	5	59	3	78	0	15	0	30

IMAGE 3 – Sentiment for news coverage and social media mentions

CASE STUDY 3: CISCO SYSTEMS, INC.

Big Data Insights through Network Visualization

Objective/Brief

Cisco Systems is a worldwide leader in IT with many diverse business lines that leverage the power of connectivity and digitization to address customers' business needs. With products and solutions ranging from core networking to Internet of Things (IoT), data centers, collaboration and security, the market landscape includes numerous niche competitors and changes rapidly. Cisco needed to consistently understand market transitions and capitalize on them to better serve customers.

With so much data to analyze in Cisco's core markets, especially with increasing volumes of social and traditional media, the previous methods of analyzing key themes through human coding proved time-intensive and challenging. Cisco began investigating automated statistical analysis methodologies to understand how markets were shifting, which competitors were important and where Cisco needed to be positioned.

The original word clouds used by the majority of media analytics platforms provided very little insight. Cisco needed a much more sophisticated understanding of the key market drivers as well as an understanding of how Cisco messaging was being conveyed and where opportunities existed for Cisco to be more present in the market conversation.

Cisco's Strategic Marketing Organization (SMO) uncovered a start-up in San Francisco called Quid, which has developed a powerful business intelligence platform not only to analyze big unstructured data but also to visualize it in a way that makes it easier to provide more actionable insights. The network visualization provides more dimensions than Cisco had previously been able to understand with any automated technology.

The SMO team worked closely with the Corporate Communications team to really understand who are the key influencers impacting customers' decisions. As a B2B company, Cisco needed to think carefully about how to leverage Big Data so insights are not affected by "noise" that may not have an impact on customers and other stakeholders. Cisco started the Quid network analysis by carefully eliminating irrelevant content and focusing on key influencers. The SMO team also collaborated cross functionally to ensure the analysis represented clearly defined markets to ensure relevant and actionable insights for Cisco.

As Cisco began to experiment with how best to interpret the statistical analysis represented by the network, the SMO team developed a guide for stakeholders (See Figure 1.3).
One key focus for Cisco is to speak simply and with "one voice". The network diagram helps the company understand how influencers convey key narratives. By looking at the density of the clusters, Cisco can understand if the language used is similar or varied. The denser the cluster, the better Cisco has conveyed a message with "one voice".

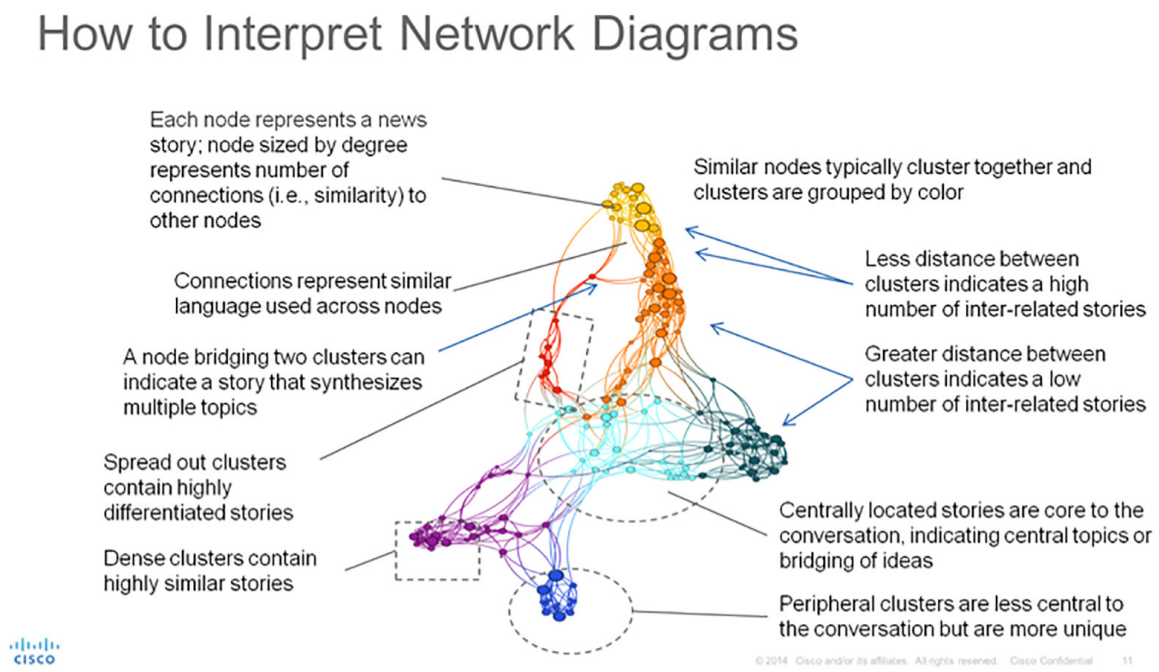


Figure 1.3 – How to interpret network diagrams

Another priority for Cisco is to ensure key, market-relevant topics link together, and a central theme ties the different messages together. By understanding the construct of the network diagram, Cisco can understand how successful the company is at conveying a central theme and tying together relevant conversations.

While it is important for Cisco to understand how effective the company is with its own communications, Cisco must also understand the overall industry narratives to uncover the fast-paced transitions and how to remain relevant. By developing network analysis across all of Cisco's key markets, Cisco has learned not only what is most important in those markets but how they interrelate and which competitors are most prominent. Leveraging the Quid technology to then overlay Cisco's presence within the industry network leads to a clear picture of where Cisco has opportunities not only to develop appropriate messaging but also to ensure that Cisco's strategy remains relevant to the evolving market.

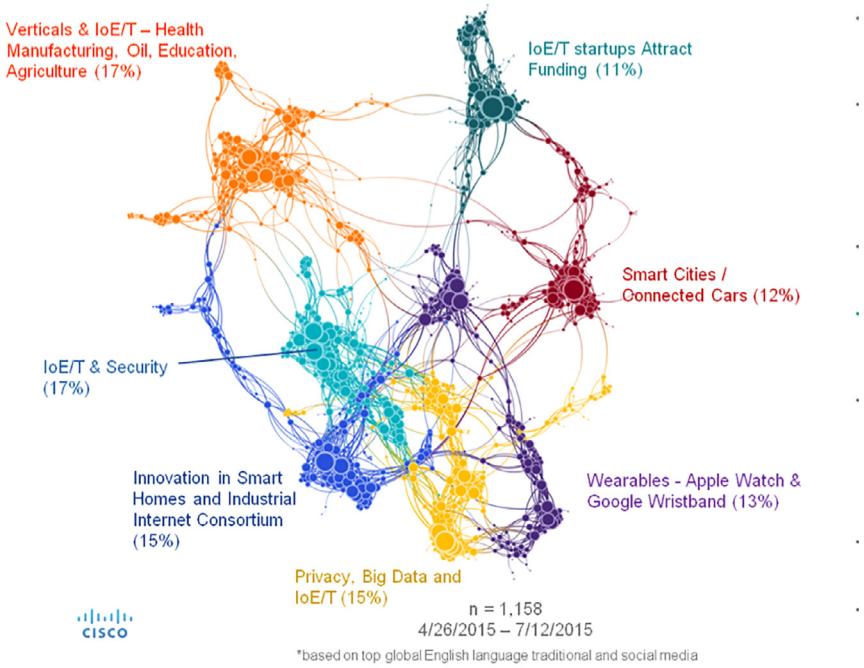
Strategy

IoT has been a key focus area Cisco, so the SMO team prioritized this market for analysis, using it as a cornerstone to understand best practices of how to apply the network analysis across different market areas.

By isolating the key influencers and narrowing down to just the top seven narratives in IoT, the Communications teams saw a clear picture of what is most relevant in IoT and how themes interrelate. The network depicts security as a central narrative in IoT, clearly indicating the need for including security messaging when discussing IoT.

The biggest narrative, verticals and IoT showed a dispersed use of language, not surprisingly due to the distinct nature of different industries. Cisco evaluated each of the narratives closely to understand the key drivers of those narratives.

Internet of Things Narratives Depicted in Quid Network Diagram



- The wearables cluster comprised two sections. The more central cluster part included stories about how Internet of Everything/ Technology (IoE/T) (including wearables) is going to change the general industrial landscape, which bridges to almost every conversation in the industry narrative. The bottom part of this cluster included the release of Apple Watch and Google wristband. Together the two sections indicated that wearables would transform industries like healthcare.
- The largest cluster Verticals and IoE/T contained stories of how the various sectors are beginning to explore IoE/T technologies and strategies to adopt and implement relevant IoT technologies.
- Security and privacy concerns comprised more than a quarter of the network. These two clusters were lightly linked with each other and strongly linked with Innovation in Smart Homes and Wearables' cluster highlighting the importance and interrelation of these two issues.
- The innovation in smart homes and industrial internet consortium cluster was split in two directions. Google's release of a camera for Nest appeared in the denser part of the cluster. Peers like Amazon and startups like Nuimo also featured their innovations in smart homes products. In addition, this part of the cluster was linked with the IoE/T and security cluster signifying the integration of security messaging with innovative IoT technologies.
- Conversations in the other part of the same cluster, industrial internet consortium show low levels of linkages to the rest of the network and are spread out almost vertically indicating evolving vocabulary.
- The smart cities/connected cars cluster focused on efforts to find a more sustainable way of living and how IoT benefits citizens.

After understanding the overall industry narratives, the SMO team created a visual overlay of where Cisco appeared in those narratives. The visual provided the Communications teams with a clear roadmap of where to focus the messaging efforts.

Execution/Implementation
Based on the analysis provided by the network diagrams, the Communications teams began to prioritize messaging related to those narratives that were most relevant in the industry. The ability to integrate security across all of Cisco's offerings differentiates Cisco from its competitors. Since security is such a central theme in IoT, ensuring that security messaging closely ties with the other IoT narratives became a top priority. Understanding the IoT vertical narratives, led to more specific, relevant industry-specific initiatives, including a case study on IoT for Oil & Gas. While Smart Cities have long been a priority for Cisco, understanding the other relevant narratives helps Cisco better differentiate and position itself as a leader in the space. Also, while Cisco doesn't compete directly in the "wearable" market, being able to address the security aspect of the important wearable topic became an area where the company could increase its voice.

In addition to leveraging network analysis for driving IoT communications strategy, the methodology has been rolled out across many different business units, and each has been able to optimize their messaging based on the new insights.

Effectiveness of Assignment
The Communications teams clearly understand the key drivers in the markets where Cisco competes. This has enabled the teams to develop more relevant strategies that have improved the perception of Cisco in these markets. Cisco's mindshare in IoT has grown steadily due to this increased presence in key narratives. In other areas of the business, such as mobility, the network analysis has led to a much tighter integration between the security teams and the mobility teams across all areas of the business.

While the network analysis clearly indicated mobility security held a central relevance to the industry, Cisco needed to better articulate how the company addressed mobility security needs. These new insights leveraging Big Data provide a robust, clear visualization and more agile, in-depth analysis, which gives the team more intelligence with which to do their jobs effectively. In addition, the insights have allowed the Communications teams to conduct a more credible data-driven business conversation with their counterparts and stakeholders in the business units, which should ultimately impact the bottom line.

IRREVERSIBLE: The Public Relations Big Data Revolution

by Mark Weiner, CEO of PRIME Research
and Sarab Kochhar, Ph.D., Director of Research, IPR

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Elizabeth Rector, Cisco Systems, Inc., and Linda Rutherford, Southwest Airlines

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