Text Analytics 2014:  
User Perspectives on  
Solutions and Providers

Seth Grimes  
Alta Plana

A market study sponsored by

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Executive Summary

Text analytics, applied to social, online, and enterprise data, aims to extract useful information and create usable insights for business, personal, government, and research ends. The technology is pervasive, even if not ubiquitous, which is to say that it is deployed in applications ranging in scale from device-installed to distributed, “total information awareness” data mining. Text analytics is utilized wherever big/fast text is found. And while not every analytical application directly involves text, in our emerging big-data world, every task – including analyses of “machine data” and transactional records – may be enriched by the inclusion of text-sourced information.

Text analytics has found its greatest success in four industry groupings: consumer-facing businesses, public administration and government, life sciences and clinical medicine, and scientific and technical research. Analysis of online news, social postings, and enterprise feedback is of special interest across groupings. Search-driven applications – search, advertising, e-discovery, customer service – is a crosscutting functional category, aimed at meeting front-line, operational needs.

Users seek to extract many sorts of information, with continued growing interest in automated identification of topics, entities and concepts, events, and personal attributes, coupled with feature-linked intent and sentiment – attitudes, emotions, and opinions – as well as other subjective information. User experiences with the technology and solutions remain mixed, however.

These points and more are brought out in Alta Plana’s report “Text Analytics 2014: User Perspectives on Solutions and Providers.” The report opens with an executive summary and includes three components: a narrative analysis of the text analytics market, findings of a market study, and sponsor solution profiles.

The User Perspective

There is no single or typical text analytics user, application, technology, or solution. Users and uses vary by industry, business function, information source, and goal.

In 2011, we observed, “tools and solutions now cover the gamut of business, research, and governmental needs.” The technology covers – or is capable of covering – the variety of human languages, text sources, information types, and industries, handling large-volume and streaming big data.

Data scientist users perform text analyses using one or more of the several available text-capable software-development or data-analysis environments. Business users naturally gravitate toward functional solutions with embedded text analytics.

One new point: Many text analytics users don’t understand that they’re doing text analytics, nor do they need to.

The Provider Market

Growth in text analytics, as a vendor market category, has slackened, even while adoption of text analytics, as a technique, has continued to expand rapidly.

The 2014 market is fragmented, featuring software tools, natural language processing (NLP) services, text analysis workbenches, social analytics dashboards, integrated data analysis environments, and solution-embedded technologies. These options support the practice of text analytics, but a large, increasing segment do not place text analytics front and center. Rather, text analytics operates behind the scenes, often as just one of several analytics elements – leading to my observation about the text analytics market category.

Technology and solution providers run the gamut in size from small start-ups, to established technology and solution companies, to the largest, global information technology brands. Some offerings are tightly focused on a particular function – for instance, single-language event or
sentiment extraction – while others embed text analysis capabilities in a line-of-business solution and others offer robust business intelligence (BI) and analytics suites.

Innovation is constant, related to scale, scope, and velocity of analyses; deployment of techniques such as deep learning and unsupervised learning; availability of linguistic and semantic resources; refinement of proven, rule-based approaches; closer adaptation to industry needs; and internationalization. Business value resides in all parts of the market, even if not typically under the text analytics banner.

**Growth Drivers**

Many of us operate on the notion that every aspect of life and business can and should be recorded, measured, and analyzed for predictive purposes and optimization – including our language-based communications. Text technologies and applications have advanced in response. Sensors, devices, and social computing have created an always-on, real-time imperative, and the availability of cloud and mobile options now facilitate adoption and deployment of new technologies. The rapid increase in computing power and data availability has enabled deployment of new algorithms that tackle challenges formerly beyond commodity computing’s capacity.

Consider four technology-related growth drivers:

- **Open source** text analytics – via data-acquisition, information-extraction, classification, and analytical components – is stronger than ever. Open source lowers barriers both to technology adoption for researchers and more-sophisticated users, and to solution providers, who can focus on building higher-level and domain-adapted capabilities. Frameworks such as UI/MA, Gate, Python, and R; Hadoop and other parallel processing technologies; and stream and graph processing, for instance, via Apache Spark and Apache Storm, are of particular interest.

- **The API economy** – e.g., hosted, on-demand, via-API Web services – similarly lowers entry barriers and provides enormous flexibility for adopters.

- **Data availability** creates analytics demand, and data has never been more available, whether directly collected or acquired via services such as DataSift, Gnip, Moreover, and Xignite.

- **Synthesis** will increasingly automate online commerce, customer support, health-service delivery, and other applications as systems continue to mature and are joined by other question answering technologies. IBM Watson and Wolfram Alpha exemplify the synthesis trend.

There are notable **market drivers** as well:

- **Customer interactions**: Customer service and customer experience are strong text analytics growth drivers, deploying text analytics to data from traditional channels such as contact centers and extending coverage to move social initiatives from listening, to engagement, to service optimization.

- **Omnichannel solutions**: Natural language processing (NLP) capabilities are essential in competitive voice-of-the-customer (VOC) programs and for customer interaction analytics efforts that join text- and speech-derived data to operational data. Text, speech, and operational analyses, applied to survey, social media, news, warranty, chat, and voice sources, form part of omnichannel solutions that crunches data collected across the full set of customer touchpoints, from contact center, online, chat, social, email, and in-store interactions.

- **Consumer and market insights**: Text analytics application in the insights industry – notably new or next-generation market research – has much in common with the interaction/experience analytics use case. Insights researchers also study VOC, most often via enterprise feedback management (EFM) programs that rely on surveys and
via social analyses. Social is increasingly viewed as a credible research source that can supplement surveys by delivering complementary insights.

- **Search and search-based applications:** Search has expanded far beyond enterprise and online information retrieval to provide a platform for high-value applications that include advertising, e-discovery and compliance, business intelligence (BI) in the form of unified information access (UIA), and customer self-service.

- **Health care and clinical medicine:** While life-sciences researchers were among the earliest text mining adopters, uptake for related areas involving mining beyond scientific literature has taken longer to advance. Analytics ranging from diagnostic systems to claims analysis have begun pacing a segment of the text analytics market.

### The Survey

Alta Plana’s 2014 text analytics market study combines a survey-based, quantitative and qualitative examination of usage, perceptions, and plans, with observations derived from numerous conversations with solution providers and users. It seeks to answer the question, **“What do current and prospective text analytics users think of the technology, solutions, and solution providers?”** Responses will help providers craft products and services that better serve users. Findings – both numerical tabulations and free-text verbatims – will guide users seeking to maximize benefit for their own organizations.

Alta Plana received 220 valid survey responses between January 18 and April 15, 2014, 193 of them during the first four weeks, when we actively publicized the survey. The 220 figure is four fewer than the 224 responses connected to the 2011 study. This document reports findings and, when appropriate, contrasts them with comparable numbers from Alta Plana’s 2009 and 2011 text analytics market studies (available for free download at http://www.slideshare.net/SethGrimes/documents.)

### Key Study Findings

The following are key 2014 study findings:

- **The big news is not news at all:** Social remains by far the most popular source fueling text analytics initiatives. Four of the top five information categories are social/online (as opposed to in-enterprise) sources:
  - blogs and other social media (61%)
  - news articles (42%)
  - comments on blogs and articles (38%)
  - online forums (36%)

Respondents chose an average of 5.6 sources, compared to 4.5 in 2011.

Direct customer feedback, in the form of customer/market surveys, rated 37%, squeezing in at fourth place. Interestingly, the percentage listing e-mail and correspondence as an information source dropped from 36% in 2009, to 29% in 2011, to 26% in 2014.

- **All four top capabilities** that users look for in a solution – each garnering over 50% selection – relate to getting the most information out of sources:
  - the ability to generate categories or taxonomies [which would include topic extraction] (64%)
  - the ability to use specialized dictionaries, taxonomies, ontologies, or extraction rules (54%)
  - broad information extraction capabilities (53%)
  - document classification (53%)

Deep sentiment/emotion/opinion extraction was chosen by 45% of respondents, down from 57% in 2011.
Low cost was important to 44% of respondents, up from 38% in 2011, but down from 51% of 2009 responses.

- Top business applications of text/content analytics for respondents are the following:
  - brand/product/reputation management (38%)
  - voice of the customer/customer experience management (39%)
  - research (38%)
  - competitive intelligence (33%)
  - search, information access, or question-answering (29%)

- Seventy-four percent of users are Satisfied or Completely Satisfied with text analytics and 22% are Neutral with only 4% Disappointed or Very Disappointed. Dissatisfaction is greatest, at 29%, with ease of use and with availability of professional services/support, with only 50% satisfied in each category.

- Only 48% of users are likely to recommend their most important provider, nearly unchanged from the 2011 figure. However, 36% would recommend against their most important provider, up from 28% in 2011.

**About the Study and this Report**

Seth Grimes, an industry analyst and consultant who is a recognized authority on the text analytics marketplace – technologies, solutions, and providers – designed and conducted the study “Text Analytics 2014: User Perspectives on Solutions and Providers” and wrote this report.

The author is grateful for the support of the eight study sponsors, AlchemyAPI, Digital Reasoning, Lexalytics, Luminoso, RapidMiner, SAS, Teradata, and Textalytics. Their sponsorships allowed him to conduct an editorially independent study that should promote understanding of the text analytics market and of user-indicated implementation and operations best practices. The solution profiles that follow the report’s editorial matter were provided by the sponsors and included with only minor editing to regularize their layout. Otherwise, the author is solely responsible for the editorial content of this report, which was not reviewed by the sponsors prior to publication.

This report opens with a text analytics and applications backgrounder that refreshes material from the previous study report.
Text Analytics Basics

The term text analytics describes software and transformational processes that uncover business value in “unstructured” text. Text analytics applies statistical, linguistic, machine learning, and data analysis and visualization techniques to identify and extract salient information and insights. The goal is to inform decision-making and support business optimization.

Patterns

Text, images, speech, and video are all directly understandable by humans (although not universally: any given human language – English, Japanese, or Swahili – is spoken by a minority of people, and not everyone recognizes a Beethoven symphony in a sound file or Nelson Mandela in a photo). To benefit from the power of automation – to create machine understanding of human communications – we need three software capabilities:

1. the ability to recognize small- and large-scale patterns
2. the ability to grasp context and, from context, to infer meaning
3. the ability to create and apply models

Statistics provide a text-processing starting point, applied to detect words and terms and count their frequencies to infer message or document topics. We can create categories and classify text (a form of modeling) based on notions of statistical similarity. Statistical co-occurrences suggest associations.

Other steps take advantage of the linguistic structure of text – e.g., word form (“morphology”), arrangement (grammar and syntax), and lexical chains (word sequences), as well as higher-level narrative and discourse. Usage may be correct (as judged by editors, grammarians, and linguists) or not, whether the language is spoken, formally written, or texted or tweeted. The most robust technologies deal with text in the wild. We apply assets such as lexicons of “named entities”; part-of-speech resolution that can help identify subject, object, relationship, and attributes; and “word nets” that associate words to help in disambiguation to determine the contextual sense of terms.

Yet, in the words of artificial-intelligence pioneer Edward A. Feigenbaum,

“Reading from text, in general, is a hard problem because it involves all of common sense knowledge. But reading from text in structured domains, I don’t think is as hard.”

Reading implies not just processing, but also deeper understanding. Application of knowledge representations such as ontologies is one approach to deeper understanding, as is co-joining text to the metainformation and complementary profile, behavioral, and transactional data present in structured domains.

Structure

The text analytics process aims to generate machine-processable structure for source text or for text-extracted information. Natural language processing (NLP) outputs are typically expressed in the form of document annotations – that is, through in-line or external tags that identify and describe features of interest. These annotations and representations may or may not be visible to the system user.

Outputs may be mapped into machine-manageable data structures – such as key-value, graph, or relational database records – or distributed across HDFS nodes, whether represented in tabular, XML, JSON, RDF, or other form. (HDFS is the Hadoop Distributed File System. XML is Extensible Markup Language. JSON is JavaScript Object Notation. RDF is the World Wide Web Consortium’s Resource Description Framework.)

RDF-represented data from text may form part of a linked data system, keyed by uniform resource identifiers (URIs). Text and text-derived information stored in a relational database or
HDFS may become part of a business intelligence system that jointly analyzes, for instance, DBMS-captured customer transactions and free-text responses to customer-satisfaction surveys. And text-extracted features – such as entities, topics, dates, and measurement units – in an Apache Lucene/Solr or other index may form the basis of an advanced semantic-search system.

Metadata

Metadata describes data properties that may include the provenance, structure, content, and use of data points, datasets, documents, and document collections. Content-linked metadata typically includes author, production and modification dates, title, topic(s), keywords, format, language, encoding (e.g., character set), rights, and so on. The metadata label extends to specialized annotations such as part-of-speech and data type.

Metadata may be created as part of content production or publication (for instance, the save date captured by a word processor, a geotag associated with a social update, camera information stored in an image file). It may be appended (for instance via social tagging, of people and of topics via hashtags), or extracted from content via text/content analysis. Whether stored internally within a data object (for instance via RDFa, rNews, or other microformats embedded in a Web page) or managed externally in a database or search index, metadata is fuel for a range of applications.

Beyond Text

Beyond-text technologies for information extraction from images, audio, video, and composite media are advancing rapidly. Speech analysis technology – supporting indexing and search using phonemes capable of detecting emotion in speech – and transcription software is now widely adopted for contact center and others applications that include intelligence. Intelligence, along with consumer and social search, motivates work on image analysis, as do marketing and competitive-intelligence related studies of online and social brand mentions and use. Video analytics extends both speech and image analysis, with an added temporal aspect for security applications and for potential business uses such as study of customer in-store behavior.

Deep learning (multi-level machine learning), enabled by the availability of cheap, high-capacity computing resources, is being applied to model and discern features in the beyond-text media. Additionally, metadata is critically important for beyond-text media, as it is for text.

Applications and Markets

Business users naturally focus on financial return and other forms of return on investment (ROI). They will find that text analytics has a place, that it can deliver positive ROI in any business domain, for any business function, and within any technology stack that involves significant text volume and velocity, as well as a variety of languages and sources.

Consider this telling quotation by Philip Russom of the Data Warehousing Institute from his 2007 report “BI Search and Text Analytics: New Additions to the BI Technology Stack” (http://tdwi.org/research/2007/04/bpr-bi-search-and-text-analytics.aspx),

“Organizations embracing text analytics all report having an epiphany moment when they suddenly knew more than before.”

TDWI’s 2007 report recognized a role for text analytics in environments that had previously focused exclusively on capture and analysis of transactional data. That recognition now extends beyond TDWI’s IT and data analyst audience. It extends to line-of-business staff handling functions that range from customer engagement and competitive intelligence to counterterrorism and medical diagnostic systems. And businesses now understand that it is not enough simply to know more. They need to operationalize knowledge gained to rework business processes in ways that transform insights into ROI.

Text analytics particulars – information sources, insights sought, processes, and ROI measures – will vary by industry and application.
Solution Providers

The solution-provider spectrum features, as it has for years, constant emergence of new start-ups, growth (and occasional demise) of established vendors, and continued investment by software giants that have built or acquired text technologies. Open-source remains an attractive option, for both project use and as the technology foundation for commercial products and solutions.

The market continues to favors as-a-service analytics, whether in the form of online applications, cloud provisioned, or provided via Web application programming interfaces (APIs). This shift makes sense.

- The most in-demand information sources are online, social, and in the cloud.
- Use of as-a-service, cloud, and via-API applications means low up-front investment, faster time-to-use, and pay-as-you-go pricing without IT involvement.
- Certain providers offer as-a-service access to both historical and current data at attractive costs given the buy-once, sell-many-times economies they enjoy.
- Modern applications are designed to draw data via APIs, facilitating application-inclusion of plug-in text and content analytics capabilities.

There is every expectation that the solution-provider market will continue to evolve to keep pace with user needs and broad-market business and technical trends.

Market Progress

The 2011 market study that preceded this one included a text analytics market-size estimate of $835 million globally for 2010, projecting sustained annual growth in the 25-40% range. (See Text Analytics Demand Approaches $1 Billion, published May 12, 2011, in InformationWeek, http://ubm.io/1tknWzg.) This growth rate anticipated continued expansion of both a core text analytics market and a market for business solutions centered on text analysis, for instance for customer service/support and market research.

Given the variety of uses and diffusion of the technology in myriad directions, the 2014 market size surely exceeds the $2 billion figure suggested by applying a compounded 25% annual growth rate to the 2011 figure. Producing an accurate estimate would be quite difficult, however, and of little purpose. It would be only suggestive of the true business value generated, which surely totals many times the $2 billion figure.
Demand-Side Perspectives

Alta Plana’s “Text Analytics 2014: User Perspectives on Solutions and Providers” is built around the third instance of a survey run previously in 2009 and 2011, designed to collect raw material for an exploration of key text analytics market-shaping questions:

- What do customers, prospects, and users think of the technology, solutions, and vendors?
- What works, and what needs work?
- How can solution providers better serve the market?
- How will companies expand their use of text analytics in the coming years? Will spending on text analytics grow, decrease, or remain the same?

Current and prospective text analytics users wish to learn how others are using the technology. And solution providers, of course, need demand-side data to improve their products, services, and market positioning to boost sales, to better satisfy customers, and to stay on top of evolving needs. The Alta Plana study therefore has three goals:

- to raise market awareness and educate current and prospective users;
- to collect information of value to solution providers, both study sponsors and non-sponsors; and
- to understand trends and project future developments.

Survey findings, as presented and analyzed in this study report, provide a measure of the state of the market, a benchmark. They are designed to be of use to everyone who is interested in the commercial text/content analytics market.

Study Context

The author has previously explored technology and market questions in numerous papers and articles. These range from The Word on Text Mining, published in December 2003; to white papers created for the Text Analytics Summit in 2005, The Developing Text Mining Market, and 2007, What’s Next for Text; to yearly report articles, Text Analytics in 2012, Text Analytics in 2013, and Text Analytics in 2014. (Articles, papers, and reports are available via links at http://www.altaplana.com/writing.html.)

A systematic look at the demand side provides a good complement to provider-side views and to vendor- and analyst-published case studies, including the author’s own. This understanding motivated the 2009 and 2011 studies Text Analytics 2009: User Perspectives on Solutions and Providers and Text/Content Analytics 2011: User Perspectives on Solutions and Providers.

About the Survey

There were 220 valid responses to the 2014 survey, which ran from January 18 to April 15, 2014, 193 of them in the first four weeks, during which time we actively publicized the survey. (Contrast with 224 responses to the 2011 survey and 116 responses to the 2009 survey.)

Survey invitations

The author solicited responses via

- e-mail to the American Society for Information Science, BioNLP, ContentStrategy Corpora, Data Mining, Lotico, SentimentAI, SLA Knowledge Management Division, and TextAnalytics lists and the author’s corporate list;
- invitations published in electronic newsletters: CMSWire, KDnuggets, and LT-Innovate;
- notices posted to LinkedIn forums and Facebook groups and on Twitter; and
- messages sent by sponsors to their communities.

Survey introduction

The survey started with a definition and brief description as follow:
Text analytics/content analytics is the use of computer software or services to automate:

- annotation and information extraction from text – entities, concepts, topics, facts, events, and attitudes;
- analysis of annotated/extracted information;
- document processing – retrieval, categorization, and classification; and
- derivation and communication of business insight from textual sources.

This is a survey of demand-side perceptions of text technologies, solutions, and providers.

Please respond only if you are a user, prospect, integrator, or consultant – or a manager or executive of staff in those roles. Researchers and developers who apply technologies/solutions to data analysis problems are also welcome to respond, but the survey is not intended otherwise for solution providers.

There are 21 questions. The survey should take you 5-10 minutes to complete.

For this survey, text mining, text data mining, content analytics, and text analytics are all synonymous.

I’ll be preparing a free report with my findings. Thanks for participating!

Seth Grimes (grimes@altaplana.com, +1 301-270-0795)

The introduction ended with the text:

Privacy statement: This survey records your IP address, which we will use only in an effort to detect bogus responses. It is your choice whether to provide your name, company, and contact information. That information will not be shared with sponsors without your permission, and if shared with sponsors, it will not be linked to your survey responses.

Survey respondents

The survey attracted a high proportion of experienced text analytics users: 85% of respondents who answered Q1, “How long have you been using Text Analytics?” are using or have used the technology (n=220 total responses). The other 15% are nonusers or are still evaluating.

By contrast, 68% who replied to Q7, “Are you currently using text/content analytics?” answered Yes (n=198). The same question had 78% Yes responses (current users) in 2011. I conclude that the 2014 respondents included many experienced, non-current users, who may of course return to the technology for later projects.

The Data Mining Community

A February 2014 KDnuggets poll provides another data point ([http://bit.ly/1oyHwRJ](http://bit.ly/1oyHwRJ)). KDnuggets publisher Gregory Piatetsky reports that 66% of respondents say they used text analytics on projects in the preceding year (n=187, versus n=121 for a poll run in 2011 that found 65% use). Only 28% use text analytics on more than a quarter of projects. Piatetsky observes, “[T]he results don’t show much change [since 2011] in the adoption of text analytics among KDnuggets readers.”
The KDnuggets 2014 poll findings:

<table>
<thead>
<tr>
<th>How much did you use text analytics / text mining in the past 12 months?</th>
<th>2014 poll results</th>
<th>2011 poll results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not use (63)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used on &lt; 10% of my projects (46)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used on 10-25% of my projects (26)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used on 26-50% of my projects (16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used on over 50% of my projects (36)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Demand-Side Study 2014: Survey Findings

The subsections that follow tabulate and chart survey responses, which are presented without unnecessary elaboration.

Understanding Survey Respondents

Responses to questions 1, 10, and 20 help us understand survey respondents.

Q1: Length of Experience

As in previous years, 2014 survey opened with a basic question –

*How long have you been using text/content analytics?*

![Length of Experience Chart]

We see that 2014 responses skew to longer experience than was measured in 2011 and still longer than was recorded in 2009. Survey results were not based on a scientifically designed or measured population sample in any of the survey years, but because roughly the same outreach channels were used for all three years, I infer support for the view that text analytics, as the label for a market category, is growing much more slowly than solution-embedded uptake of text analytics technologies.

In any case, Q1 responses will prove illuminating in analyses of subsequent survey question, in studying how attitudes vary by length of text analytics experience.

Q10: Providers

Question 10 asked, “Who is your provider? Enter one or more, separated by commas, most important provider first.” Note that the survey asked, “Please respond only if you are a user, prospect, integrator, or consultant.” There were 63 response records for Q10, listing providers (sorted and without counts):

AlchemyAPI, Attensity, BERCA Translator, Cirilab, Clarabridge, Continuum Semantic Technologies, Crimson Hexagon, GATE, IBM, Lex, Lexalytics, Leximancer, Mallet,
Medallia, Megaputer, MotiveQuest, NLTK, Natlanco bvba, NetValue Reeltwo, Nuance, ORNL, OdinText, OpenNLP, R, RapidMiner, SAP, SAS, Semantic-Knowledge, Semantria, Sematext, ServiceTick, Smartlogic, Stanford NLP, TEMIS, TEXTPACK, TextOre, UIMA, in-house, open source

GATE, Lex, MALLET, [Python] NLTK, OpenNLP, R, Stanford NLP, and UIMA are open source, and RapidMiner licenses older releases as open source.

The most notable provider not listed is HP Autonomy. Several notable providers that focus on life sciences, financial markets, and military/intelligence were not mentioned. They include Basis Technology, Digital Reasoning, Expert System, Linguamatics, NICE, Recorded Future, SRA, and RavenPack. Social intelligence providers not mentioned include Kana (Verint), NetBase, and Sysomos (MarketWired).

Q20: What country do you work in (your base)?

Q20 is new to this year’s survey and elicited 121 valid responses. In 79 other cases, the county could be found via IP address lookup. The tabulation shows a split between Europe and North America, with very few responses from Asia beyond the 7.5% from India.

<table>
<thead>
<tr>
<th>Country</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>5</td>
<td>2.5%</td>
</tr>
<tr>
<td>Brazil</td>
<td>2</td>
<td>1.0%</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>2</td>
<td>1.0%</td>
</tr>
<tr>
<td>Canada</td>
<td>6</td>
<td>3.0%</td>
</tr>
<tr>
<td>Croatia</td>
<td>2</td>
<td>1.0%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>4</td>
<td>2.0%</td>
</tr>
<tr>
<td>France</td>
<td>7</td>
<td>3.5%</td>
</tr>
<tr>
<td>Germany</td>
<td>10</td>
<td>5.0%</td>
</tr>
<tr>
<td>Greece</td>
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<td>0.5%</td>
</tr>
<tr>
<td>India</td>
<td>15</td>
<td>7.5%</td>
</tr>
<tr>
<td>Iran</td>
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<td>0.5%</td>
</tr>
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<td>1.0%</td>
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<tr>
<td>Japan</td>
<td>4</td>
<td>2.0%</td>
</tr>
<tr>
<td>Malaysia</td>
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<td>0.5%</td>
</tr>
<tr>
<td>Pakistan</td>
<td>2</td>
<td>1.0%</td>
</tr>
<tr>
<td>Poland</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Portugal</td>
<td>3</td>
<td>1.5%</td>
</tr>
<tr>
<td>Russia</td>
<td>4</td>
<td>2.0%</td>
</tr>
<tr>
<td>Spain</td>
<td>11</td>
<td>5.5%</td>
</tr>
<tr>
<td>Sweden</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>USA</td>
<td>93</td>
<td>46.5%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>22</td>
<td>11.0%</td>
</tr>
</tbody>
</table>
Applications and Sources

The next series of responses describes information types and sources, regardless of tool choices.

Q2: Application Areas

The 216 Q2 respondents chose a total of 748 primary applications – 725 categorized and 24 other – with an average of 3.4 primary applications per respondent. While there is some category overlap, it is notable that respondents are applying text analytics to multiple business needs.

What are your primary applications where text comes into play?
Q3: Information Sources

The 216 respondents chose a total of 962 textual information sources, with an average of 5.6 sources per respondent, up from 4.5 in 2011. The big news is not news at all: Social sources are by far the most popular and six of the top eight categories – of the categories chosen by at least 30% of respondents – are social/online (as opposed to in-enterprise) sources.

What textual information are you analyzing or do you plan to analyze?

Q4: Return on Investment

Question 4 asked, “How do you measure ROI, Return on Investment? Have you achieved positive ROI yet?” There were 170 responses. Results are charted from highest to lowest values of the sum of “measure,” “achieved,” and “plan to measure.”

Out of 170 respondents, 42% (n=71) report that they have achieved positive ROI according to some categorized measure. (Other responses are excluded from this count.) That figure is an increase from 38% in the 2011 survey. Those 71 respondents reported achieving ROI according to a total of 201 measures, that is, 2.83 ROI-achieved measures for each respondent who achieved positive ROI.

Out of 170 respondents, 29% (n=49) are measuring ROI but have not yet achieved positive ROI according to any measure.

The 120 respondents who are measuring ROI (whether achieved or not) track a total of 477 measures, 3.98 measures per respondent.

The following are several of the Other responses, paraphrased:

- To obtain accurate data about respondents’ impressions.
- To avoid fraudulent sellers from social media exchanges.
- To confirm research strategies.
- To decrease communication time, increased communication accuracy, increase fit of
group membership.

- To achieve higher predictive precision and recall.
- To increase knowledge sharing and collaboration across the enterprise.
- To determine level of trust in online product reviews.
- To learn about new product innovation.
- To learn about new research discoveries.
- We're innovators. ROI only works in mature markets. We measure by competitive rankings and delivery consistency.

How do you measure ROI, Return on Investment?

<table>
<thead>
<tr>
<th>Measure</th>
<th>Achieved</th>
<th>Plan to Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>higher satisfaction ratings</td>
<td>19%</td>
<td>16%</td>
</tr>
<tr>
<td>increased sales to existing customers</td>
<td>21%</td>
<td>12%</td>
</tr>
<tr>
<td>ability to create new information products</td>
<td>15%</td>
<td>19%</td>
</tr>
<tr>
<td>higher customer retention and loyalty / lower...</td>
<td>17%</td>
<td>8%</td>
</tr>
<tr>
<td>improved new-customer acquisition</td>
<td>16%</td>
<td>9%</td>
</tr>
<tr>
<td>reduction in required staff/higher staff</td>
<td>13%</td>
<td>12%</td>
</tr>
<tr>
<td>higher search ranking, Web traffic, or ad...</td>
<td>14%</td>
<td>9%</td>
</tr>
<tr>
<td>fewer issues reported and/or service complaints</td>
<td>12%</td>
<td>9%</td>
</tr>
<tr>
<td>lower average cost of sales, new &amp; existing...</td>
<td>14%</td>
<td>6%</td>
</tr>
<tr>
<td>more accurate processing of...</td>
<td>11%</td>
<td>7%</td>
</tr>
<tr>
<td>faster processing of claims/requests/casework</td>
<td>11%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Q6: Spending

Question 6 asked about past-year spending and current-year expected spending.

*Amount spent in 2013 and amount of expected 2014 spending on text/content analytics*

Bar chart showing the distribution of spending amounts for 2013 and 2014.
Questions asked of only current text analytics users

Questions 8 through 13 were posed exclusively to current text analytics users, to the 68% of the 198 respondents to Q7: Are you currently using text/content analytics, directly or as an essential part of a business application?

Q8: Satisfaction

Question 8 asked, “Please rate your overall experience – your satisfaction – with text analytics.” It offered five categories, listed here with response counts:

- Overall experience/satisfaction (n=100).
- Ability to solve business problems (n=100, 2 No experience /No opinion).
- Solution/technology ease of use (n=98, 1 NE/NO).
- Solution/technology performance (n=98, 2 NE/NO).
- Accuracy of results (n=99, 0 NE/NO).
- Availability of professional services/support (n=98, 7 NE/NO).

Overall, 74% of current-users respondents who had an opinion reported themselves Satisfied/Completely Satisfied even while the breakout-category counts totaled 65%, 51%, 58%, 55%, and 54% Satisfied/Completely Satisfied. Responses, excluding No Experience/No Opinion (NE/NO) numbers from the totals, are first reduced to Positive/Neutral/Negative, then at five levels.

Please rate your overall experience – your satisfaction – with text/content analytics (n=100, +/-= categories)
Please rate your overall experience -- your satisfaction -- with text/content analytics

- Very disappointed
- Disappointed
- Neutral
- Satisfied
- Completely satisfied

Overall experience/satisfaction
Ability to solve business problems
Solution/technology ease of use
Solution/technology performance
Accuracy of results
Availability of professional services/support
Q9: Overall Experience

Question 9 asked, “Please describe your overall experience – your satisfaction – with text analytics.” The following are 48 from among the 56 responses, categorized, lightly edited for spelling and grammar, and with the names of three products masked:

<table>
<thead>
<tr>
<th>Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied with the current state of solutions, but expecting it to evolve and improve in future.</td>
</tr>
<tr>
<td>We get very good results from huge amount of data. We are very satisfied.</td>
</tr>
<tr>
<td>It is a messy business, but invaluable if there is no other information available.</td>
</tr>
<tr>
<td>Very satisfied in my areas of application, but there is still some work to do making products user friendly whilst coping with complex tasks.</td>
</tr>
<tr>
<td>It gives as an overview of the data that we could not achieve without it.</td>
</tr>
<tr>
<td>Has led to dramatic findings in investigations, faster than previous manual/investigator-centered methods. Frustrations stem from relative difficulty with using tools, most of which are self-developed and script-based, with equal frustration with the trade off, spending $100k+ annually with a vendor.</td>
</tr>
<tr>
<td>I have been doing text analytics since 1984, and I have yet to find an environment that meets my requirements for knowledge extraction.</td>
</tr>
<tr>
<td>From a consultant perspective: High level of satisfaction, undervalued by most business functions, yet provides great insight and regular outcomes compared to many current ad hoc approaches that businesses deploy (word counting, manual reviews).</td>
</tr>
<tr>
<td>When applied properly and when its limits are understood, it works quite well.</td>
</tr>
<tr>
<td>Good; need more knowledgeable people.</td>
</tr>
<tr>
<td>With access to proper info, I can generate a PhD level analysis in one day.</td>
</tr>
<tr>
<td>It has been a learning process, but we get a lot of value.</td>
</tr>
<tr>
<td>I am a researcher, so I am never satisfied.</td>
</tr>
<tr>
<td>It is critical to my work so I look for tool flexibility and have been generally satisfied.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What Works</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no [single] top solution; we have to mix approaches and different tools to achieve our goals.</td>
</tr>
<tr>
<td>We annotate incoming text against our taxonomy and then use the annotations as the basis of text analytics as well as search. We are currently generally satisfied, although we are trying to continuously improve.</td>
</tr>
<tr>
<td>Text/content analytics is quickly becoming an integral part of our overall analytics strategy. As with any “adolescent” technology, there is no single end-to-end product that finds, analyzes, and visualizes all available data sources.</td>
</tr>
</tbody>
</table>
We use our own technology, our own R&D. So we’re continuously improving things whenever we’re not satisfied. However, much still can be improved.

### Accuracy

Overall maturity of the technology is increasing. However a high effort is still required in order to achieve acceptable accuracy. Acceptance mainly depends on accuracy. Lack of off-the-shelf libraries for specific domains/industries/use cases that can be used across different vendors.

Accuracy needs improvement. Tools need to be customized to specific business cases.

The costs, the shortcomings with accuracy, and the time needed to build and refine data dictionaries are frustrating at times.

Bad accuracy.

It’s as good as it can be right now. With the nature of language, text analytics will only ever be 80% accurate. Still need a human to interpret context, inference, etc.

### Product notes

Software with the best capabilities is very awkward to use.

We use <product> in order to enable our users to read entire articles without having to leave the site. Our users love the improved reading experience and distraction free presentation of long form content. This wouldn’t be possible without <product>.

We have an in-house developed tool. We tried a few others but we find ours simpler.

We are a vendor providing analytics over NLP capabilities. After trying out a few NLP engines/APIs, we ended up writing our own classifiers to get what we wanted. Gave us a first hand impression of how far NLP providers have to go before catering to client needs.

Some lack enterprise support and integration for industry best practices; they are more R&D suited. Capability and new features have grown at a good pace.

Great technology but the solution providers are disappointing

We currently use a very specialized point solution for social media monitoring. We are interested in and considering a project to evaluate solutions that would analyze/visualize news and other published content for competitive analysis.

There is always some analytic that the commercial service does not include that is necessary for a library; too much customization needs to be done. But SharePoint has a detailed analytic system that is satisfactory.

After years of investment and additional development on our end, the service is efficient and highly accurate. We are very dissatisfied with the products on the market, and so, are stuck with our current solution.

Powerful tool, but poor user interface makes me less confident about championing results.

### Observations
Positive outcomes heavily depending on good understanding of tools and appropriate/correct setup. Some tools are difficult to use for non-specialists, whilst [specialists] have a less appropriate charging model.

The tools are hard to configure and take a good bit of research and testing before they yield results.

It is (relatively) easy to apply algorithms. It is difficult to assess the accuracy of the results or to translate them into strategic insight.

NLP and computer-based sentiment and text analysis will always be flawed. Language is infinitely creative and emotion only exists within the central nervous system of the reader/observer – not the words themselves. Crowd-sourced solutions for sentiment work well. Everything other solution is so bad they're not worth using.

Text analytics have come a long way but have a way to go. It is still difficult to create taxonomies and there is still a diminished level of accuracy when compared to quantitative data.

It requires an MSc in computing science with NLP courses (or equivalent).

It's not about the text analytics; it's about what the client reasonably expects that [analysis] can do and how you interpret the results that make [analyses] valuable.

OK for structured – not for unstructured

Exciting times.

Futures

Good for future.

An emerging field with enormous potential.

Text content analytics is in its early infancy, and there is a long road ahead.

It has been good information, however the market needs deeper insights and more models.
Q11: Provider Selection

Question 11 asked, “How did you identify and choose your provider? (If more than one, limit response to your most important provider.)” The following is a selection of responses.

<table>
<thead>
<tr>
<th>Noncompetitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited choice: We went with the first (and only) one we could find.</td>
</tr>
<tr>
<td>I'm not sure. My co-founder stumbled upon &lt;vendor&gt; somehow; we reached out to them, and we've had a great working relationship ever since.</td>
</tr>
<tr>
<td>Google search led to provider's site where we experimented with their free API.</td>
</tr>
<tr>
<td>Online search, a trial phase to see if fits our business processes.</td>
</tr>
<tr>
<td>Through the Web.</td>
</tr>
<tr>
<td>Internet research.</td>
</tr>
<tr>
<td>Previous partnership.</td>
</tr>
<tr>
<td>Recommendation.</td>
</tr>
<tr>
<td>Word of mouth.</td>
</tr>
<tr>
<td>Past experience by developers.</td>
</tr>
<tr>
<td>Client choice.</td>
</tr>
<tr>
<td>Other providers.</td>
</tr>
<tr>
<td>Is a close company, with several common partners.</td>
</tr>
<tr>
<td>There are only a few companies providing real solutions in this space, so there is not as much choice as I would like.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Competitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>They were best of show in contextual analytics when we completed our comparative analysis a few years ago.</td>
</tr>
<tr>
<td>Market analysis of service providers taking into account price, service support, sustainability, and ease of use.</td>
</tr>
<tr>
<td>Data test/&quot;bake off.&quot;</td>
</tr>
<tr>
<td>Running trials for feature set and performance then comparing the results.</td>
</tr>
<tr>
<td>Exhaustive search, vendor vetting, RFP.</td>
</tr>
<tr>
<td>Evaluation based on the following criteria: price/license model; service level in Australia; ability to integrate with other analytics tools, e.g., Tableau.</td>
</tr>
<tr>
<td>We researched white papers and networked with other users before asking companies to do onsite demos.</td>
</tr>
</tbody>
</table>
Comparison shopping for suitable product.

An RFP before I started. I was brought on to work on a better implementation with <vendor>.

RFP process followed by proof of concept.

Recommendations, review, and free trial.

Analysis off the market with ROI.

They were the largest and best provider in their class at the time.

Depends on client environment.

**Built Our Own**

Forced to write our own.

Have built our own product.

Due diligence, demos, discussions with vendors, more due diligence, etc. In the end, our own-developed tools do the same job as the vendor tools, but not as compliant with Daubert standards when in litigation environment.

Hired and developed.

It is open source, and I am now the provider.

We have our own tool, which gives us better control.

---

And from Q11, what criteria do respondents apply in their choices?

### Choice Criteria

<table>
<thead>
<tr>
<th>Choice Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price, quality.</td>
</tr>
<tr>
<td>Accuracy, the best sentiment methodology, flexible within our system</td>
</tr>
<tr>
<td>Availability of data. Popularity of service among users.</td>
</tr>
<tr>
<td>Free bundled analytics.</td>
</tr>
<tr>
<td>Combination of functionality and price. We needed a flexible, powerful engine we could incorporate into existing processes. One of the mail goals was to replace manual coding of survey responses with automated coding in order to get less expensive, scalable results.</td>
</tr>
<tr>
<td>Experience in the industry.</td>
</tr>
<tr>
<td>Based on client licenses and use-case.</td>
</tr>
<tr>
<td>Depends on client environment.</td>
</tr>
<tr>
<td>Experience in semantic publishing implementation.</td>
</tr>
</tbody>
</table>
User experience.

Q12: Provider Likes and Dislikes

Question 12 asked, “What do you like or dislike about your solution or software provider(s)?” Respondents were allowed to enter up to five points. Forty-seven individuals responded, entering a total of 132 points. A subset are reduced and classified here into four categories: Tech/Solution Likes, Tech/Solution Shortcomings, Provider Likes, and Provider Shortcomings.

### Tech/Solution Likes

<table>
<thead>
<tr>
<th>Easy to use. (multiple mentions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy of results. (multiple mentions)</td>
</tr>
<tr>
<td>Flexible/Very flexible. (multiple mentions)</td>
</tr>
<tr>
<td>Sentiment analysis. (multiple mentions)</td>
</tr>
<tr>
<td>Powerful. (multiple mentions)</td>
</tr>
<tr>
<td>Works with a variety of source data. (multiple mentions)</td>
</tr>
<tr>
<td>Powerful, state of the art.</td>
</tr>
<tr>
<td>Ease of customization.</td>
</tr>
<tr>
<td>Love the use of Wikipedia to group, [via] concept matrix.</td>
</tr>
<tr>
<td>Automated theme detection.</td>
</tr>
<tr>
<td>Flexible APIs.</td>
</tr>
<tr>
<td>Ontology-based analysis.</td>
</tr>
<tr>
<td>Data prep functionality.</td>
</tr>
<tr>
<td>Easier to integrate.</td>
</tr>
<tr>
<td>Configurable.</td>
</tr>
<tr>
<td>API source code included for modification and customization.</td>
</tr>
<tr>
<td>Cleaner data.</td>
</tr>
<tr>
<td>Availability of trained models.</td>
</tr>
<tr>
<td>Strong analysis.</td>
</tr>
<tr>
<td>Extremely multilingual.</td>
</tr>
<tr>
<td>Presents results in easy to digest format.</td>
</tr>
<tr>
<td>Advanced modeling functionality.</td>
</tr>
</tbody>
</table>
Data aggregation.
Visual analytics.
Availability of source data for trained models.
Vocabulary maintenance is not difficult.
Easy to integrate into another system.
More sophisticated analytical frameworks.
[Supports] comparative analyses.
Better than average abilities to customize ontologies.

**Tech/Solution Shortcomings**

Lack of disambiguation.

Difficult user interface, requires high involvement of analysts.

Horizontal focused APIs or capabilities, too general to be useful.

Length of time it takes to query very large data sets.

Steep learning curve.

Not focused on terminology management.

Lack of transparency of the solution, i.e. hard to customize.

Poor user interface.

Required data was not available in a package to download, and I had to collect data myself.

Visualization (or lack thereof).

Needs time to adjust.

Perceived shortfall in identifying negators.

Still need human researcher to make sense of or contextualize much of the data.

Don't like the need for a [Java Virtual Machine].

Sentiment accuracy is poor.

Lack of ability to go deep.

Requires senior programmers.

Limited functionality (e.g., machine learning for entities).

Could improve metrics.

Some of the required analytics cannot be accommodated.

Lack of accuracy.

Dreadful user interface.

Clumsy outputs unless integrated with something else, e.g., a BI tool.

No easy way to do document deduplication.

Few add-on features.

Some sub-technologies still need to get more mature.

Runtime performance (in terms of time and memory).

Lack of means to create good automatic reports.

Dislike cumbersome process (no graphical user interface).

Provider Likes

It is free/cheap.

Flexibility of in-house.

ROI.

Availability of source code.

Excellent customer service.

User community support

Customer support.

Low cost.

Small company.

Access to the provider.

Training courses offered.

Frequent upgrades.

High degree of service and flexibility regarding licenses, integration with other tools, training.

Large community to rely on.

Friendly approachable people.

Documentation, blog have good examples and extensive information.
<table>
<thead>
<tr>
<th>Low initial cost.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsiveness of support.</td>
</tr>
<tr>
<td><strong>Provider Shortcomings</strong></td>
</tr>
<tr>
<td>Lack of tech support.</td>
</tr>
<tr>
<td>Price and high level entry cost can't be justified to businesses [given that text analytics is] only one part of many to improve satisfaction, risk, etc.</td>
</tr>
<tr>
<td>Inability to provide bug-free updates.</td>
</tr>
<tr>
<td>Lack of online support material.</td>
</tr>
<tr>
<td>More training videos needed.</td>
</tr>
<tr>
<td>Two separate solutions [are required for] social media and surveys rather than one.</td>
</tr>
<tr>
<td>It is hard to stay current.</td>
</tr>
<tr>
<td>Expensive.</td>
</tr>
<tr>
<td>[Provider] bought out [another] but treats it as a low-priority product with little investment.</td>
</tr>
<tr>
<td>Price.</td>
</tr>
<tr>
<td>Flexibility of data dictionaries is poor.</td>
</tr>
<tr>
<td>The costs are high [solution and tech providers].</td>
</tr>
<tr>
<td>Recent price increases for non-English support.</td>
</tr>
<tr>
<td>Costing model not appropriate for our use.</td>
</tr>
<tr>
<td>[Provider] is moving most of its tools to... a more expensive platform.</td>
</tr>
<tr>
<td>Annual price tag.</td>
</tr>
</tbody>
</table>
Q13: Promoter?

Question 13 is a basic net-promoter type question, without the “net” part: “How likely are you to recommend your most important provider to others who are looking for a text/content analytics solution?”

Of 80 responses, 48% were positive, 16% were neutral, and 36% were negative.

How likely are you to recommend your most important provider?

Promoters outweigh detractors by a 12 percentage points.
Q14: Information Types

Information extraction is a key text/content analytics capability, so Question 14 asked, “On the technical front, do you need (or expect to need) to extract or analyze –” with a response count of 144. Responses are charted alongside 2011 (n=138) and 2009 (n=80) responses.

Do you currently need (or expect to need) to extract or analyze –

<table>
<thead>
<tr>
<th>Category</th>
<th>Current</th>
<th>Expect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topics and themes</td>
<td>66%</td>
<td>22%</td>
</tr>
<tr>
<td>Sentiment, opinions, attitudes, emotions, perceptions, intent</td>
<td>54%</td>
<td>28%</td>
</tr>
<tr>
<td>Relationships and/or facts</td>
<td>47%</td>
<td>33%</td>
</tr>
<tr>
<td>Named entities – people, companies, geographic locations, brands, ticker symbols, etc.</td>
<td>56%</td>
<td>25%</td>
</tr>
<tr>
<td>Concepts, that is, abstract groups of entities</td>
<td>51%</td>
<td>28%</td>
</tr>
<tr>
<td>Metadata such as document author, publication date, title, headers, etc.</td>
<td>47%</td>
<td>23%</td>
</tr>
<tr>
<td>Other entities – phone numbers, part/product numbers, e-mail &amp; street addresses, etc.</td>
<td>34%</td>
<td>23%</td>
</tr>
<tr>
<td>Semantic annotations</td>
<td>31%</td>
<td>24%</td>
</tr>
<tr>
<td>Events</td>
<td>33%</td>
<td>21%</td>
</tr>
</tbody>
</table>

There were eleven Other responses. They included

- synonyms
- genres, forms
- parts of speech with triples extraction
- emoticons
- motivations
- business related classes, e.g., public/private
- social and conceptual networks
- lexical variation
Q15: Important Properties and Capabilities

For Q15, the 2011 and 2009 response-choice options were retained to create comparability, and several choices were added. There were 139 response records in 2014 to the question, “What is important in a solution?”

The most-chosen response, “ability to generate categories or taxonomies,” is new to the 2014 survey. It was selected by 64% of Q15 respondents. Interpret it to include topic identification. (Not many tools have the ability to generate taxonomies, that is, hierarchical arrangements of categories and subcategories.)

As in past years, the areas of greatest concern relate to core technical capabilities.

1. The desire for customizability remains high, in particular, “ability to use specialize dictionaries, taxonomies, ontologies, or extraction rules” at 54% selected. However, selection of “ability to create custom workflows” dropped from 44% in 2011 to 33% in 2014.

2. Selection of information extraction choices remained high – 53% for “broad information extraction capabilities” and 45% for “deep sentiment/emotion/opinion/intent extraction” – although rates decreased markedly from those of previous years.

3. Low cost remained a factor, at 44%, with 37% choosing “open source,” which of course implies lower software cost.
What is important in a solution?

Contrast responses in the chart above with 2014 top experienced-user responses, selected by a third or more of users with two or more years experience with text analytics (n=86).
What is important in a solution?
(Users with two or more years of text analytics experience, n=86.)

- Ability to generate categories or taxonomies: 69%
- Document classification: 63%
- Ability to use specialized dictionaries, taxonomies, ontologies, or extraction rules: 55%
- Broad information extraction capability: 53%
- Low cost: 45%
- Support for multiple languages: 44%
- "Real time" capabilities: 43%
- Deep sentiment/emotion/opinion/intent extraction: 41%
- Open source: 40%
- Predictive-analytics integration: 40%
Q16: Languages

Question 16 asked, “What written languages other than English do you currently analyze or seek to analyze? What languages do you see a need for within two years?” It offered, as responses, major languages and language groupings. It did not offer a None response; that is, it did not measure survey respondents who are not currently analyze languages other than English, and have no foreseeable (two-year) need to do so.

There were 92 responses, with 214 current languages given and 199 within two years, for an average of 2.3 languages per response for current, 2.2 languages for future, and 4.4 overall (noting a rounding effect).

What languages other than English do you currently analyze? What languages do you see a need for within two years?

The response profile would surely have been different if the survey had had greater reach into military, intelligence, and international communities.
Q17: BI Software Use

Question 17 asked, “What BI (business intelligence) or analytics software do you use if any? Please separate entries with commas, listing first the most important to you.”

This question was posed because not infrequently, text analytics users seek to integrate results and analyses within numbers-focused BI tools. There were n=86 response records, reduced here to 34 choices. There was no None choice offered, so survey respondents who did not respond to this question may or may not be BI software users. Responses (sorted and without counts) were these:


Q18: Guidance

Question 18 asked, “What guidance do you have for others who are evaluating text/content analytics?” There were 79 responses. After editing for clarity and relevance, 57 are listed here – in five categories and arranged to create a sense of narrative progression.

### Evaluating

First identify key benefits and describe in business English (what it’s for, what it does, not how it works). Then evaluate the solutions on a matrix in a sensible order, i.e. starting with the least expensive, easiest to use, etc. There are too many offers for a non-expert to make sense of, so “hats off” if you can do it for us. Key benefits will look very different for different types of businesses, i.e. individual consultants, corporate departments (by function), service provider companies, OEMs (solution sellers).

Identify [the specific] problem you need to solve first. Speaking to NLP vendors who claim to solve all your unstructured data needs leads nowhere.

Read up on the technical guidance beforehand; otherwise, you can end up with a lot of information that you can't make any sense of.

Take your time to evaluate different possibilities for your needs.

Have a defined strategy with measurable goals before embarking. Look for ease of customization.

Don’t be dazzled by vendor sales pitch and hype. If they aren't willing to give you an unfettered demo using your data and not their carefully-crafted-to-work-all-the-time data, then run, don't walk, away from them. Also, open source Python tools will, with some effort and skill, yield the same results in my experience. Just validate, validate, validate if you use open source tools.

Make sure the clients/sponsors and your team members, understand and value [analyses] before you begin. Don't let the database people get into the project – they'll drive it on their tangent. Database folks typically don’t understand text analytics or metadata. Get the enterprise architects involved: They need governed taxonomies for their "reference models."
Start experimenting, join forums, build up your knowledge on HOW things work (i.e. some theory).

Try a number of different vendors before committing to one. The difference in pricing, features, and support you can get out there can be overwhelming at first.

**Proof of Concept**

It takes time to research and text solutions. Lots of tune up time is required to ensure that the results achieve precision and recall targets. Prototypes with a reputable service provider are usually required.

Get a proof of concept.

Focus on specific use cases first.

Test it on the obvious or easy texts and impossibly difficult ones.

Perform accuracy checks.

Define a test metric, and do cross validation.

Check how customized the solution is.

Look to see what can be done with free/open source before licensing a "solution." Make sure your data will work with the analysis you see in the demos. Make sure you understand what the software is doing, what's happening under the surface.

**Capabilities/Properties**

Make sure a solution is not generic off-the-shelf, but suitable for your purpose

Reach out for the small, specialized vendors. They come with specialized solutions, often offering much greater quality than the big vendors.

Evaluate your content and your need for precision first.

The main point is the accuracy of the analysis.

Don't trust sentiment/coding accuracy claims of tools. The tools themselves are not accurate or inaccurate. It's the application of the tool to your problems that will be accurate or not.

Assess accuracy. Integrate/embed into existing processes.

Textual disambiguation and context are key. Language/slang/ abbreviation translation is very important. Filter out noise early.

Disambiguation of text and the ability for scaling and data aggregation [are important].

Understand what you’re looking for. Vendors are great at blurring the lines, so you need to know: Do you need entity extraction? Fact/event detection? Classification? Sentiment?

Ensure that [a candidate solution] can search across apps and is customizable, that vendors bundle analytics with the application, and that no extra costs are incurred for customization.
Improve your categorization to use across multiple data sets.

Treat sentiment analysis as a single-use case, and don't select a product simply for that.

Don't be confused into thinking that open source software is free.

**Implementation / Guidance**

Ensure you are clear on what you want to use text analytics for: To process and analyze large amounts of text and provide widespread access to top-level information/summaries or to support in-depth text analysis.

Have a clear purpose [in mind] and be aware that you will need people who have time to find the insights.

A key question that I've seen is whether to outsource text analytics or create the expertise/acquire tools internally?

It pays to be familiar with statistics, data mining, and NLP as well as have a solid knowledge of an open source software package that allows one to perform text analytics.

Have an NLP expert on staff.

Pay for training on the tool you select. Have real data for training.

Someone on the team has to understand the domain **and** the algorithms at the same time.

The computer is only as good as you tell it. It can get pretty close with content analysis but humans still need to drive it.

Ask for answers, not analytics.

**Start simple, collect user data, enhance complexity.**

The service/support and training component are important to help with set-up of taxonomies and improvement opportunities to get the best value out of the tools; rather than wait three years to get a budget of $300-400K approved, start small, e.g., with niche provider (where possible) and show results/ROI that will help to get approval for a $300K+ solution (where appropriate); Risk and compliance are easier to be convinced than marketing to invest into text analytics – then other functions can profit from the solution – marketing might already have social media monitoring and very, very basic text analytics (Wordle type) in place. Hence [there may be no] need to invest.

**Start simple and powerful.**

Most text analytic systems are designed for the single administration type of project, if you are running a VOC/CRM program that is ongoing you need to work out pricing and services up front to avoid sticker shock.

Make sure you understand the data quality and sources before you start crunching numbers.

APIs have a big risk. Use them to bootstrap, but then move to something built on top of open source libraries.

**Think Agile - small deliverables, flexible solutions, easy to adjust scope and focus.**
Don’t underestimate the effort in getting a successful project off the ground. Whether it’s domain expertise, ontologies and dictionaries, etc., there's a lot of effort involved. The purely statistical models (classification, sentiment analysis) are much easier to get started with – if you can create strong training sets, you're good to go. But entity/event detection takes a lot more.

Understand that it's about interpretation, not the software (unless the software's really, really bad).

**Expectations**

It takes more time than you might think.

Be wary of vendor promises and their data.

Some value is better than no value.

Doing it open source is difficult, but seize opportunities and go with it.

Most companies over-promise and under-deliver, so set expectations accordingly.

It is an emerging technology; it won't be perfect in all areas. Focus on where it can save time and add insight.

Be prepared to work on refining these solutions for a long time and with a significant investment of resources. And don't let your expectations get too high.

Don't underestimate the investment of time up front to develop a well-trained model.

Will have to invest time, money, and energy to generate more insights, however with [all elements] in place, [text analytics] is effective.
Q19: Comments

Last, Question 19 solicited comments. The following are 9 of the 21 responses.

Read major parts of your material before and after doing quantitative analyses.

Be prepared to spend some time figuring out how to best use the text analytics solution. At the moment there is scarce text analytics know-how, at least in the market research industry. It took us six months to tune our solution just to start even thinking about ROI.

For text analytics to grow, there is a need to educate businesses about the existence of this tool and what it offers, but also to educate new text analysts about where these skills can be applied and where the most value can be gained from text analytics. This includes all the tools that text mining offers as well as possible sources of data that can be analyzed via text mining.

Dialects of languages [that are] very extended geographically, such as English or Spanish, should be considered, for analytic purposes, as different. I think that this is especially true in the case of sentiment analysis. At least, in the case of Spanish, the same word can have a different sentiment in different geographical areas.

Australia is not very advanced in text analytics from a buyer’s perspective. Cost/benefit ratio is still a hard sell and competing with other initiatives, e.g., crude net promoter score (operational, brand) surveys/customer feedback loops, and social media monitoring (word counting). That of course is also a function of the market size compared to the U.S. But many European countries may see similar issues.

Sentiment analysis is busted. Don’t chase it.

Your last [Sentiment Analysis Symposium] conference made me a convert; however what I’m seeing is still too complex/expensive to incorporate into my qualitative research practice easily. I’m part of a QRCA (Qualitative Research Consultants Association) subgroup trying to do the above for our members. We see this as an ongoing activity.

Using unstructured data sources has become mainstream now versus a decade ago when I first began exploring the technology. While I’m infrequently involved in analysis of text with the big data automotive sector research company I work for (contract), I see it as critical in the future to blend customer attitudinal perspectives with the massive sources of behavioral data.

Most clients are looking to make business decisions not just crunch numbers. I think it is key to evaluate the solutions based on their actual usage of the output to make real decisions.
Additional Analysis

The survey was designed so that responses to questions would be immediately useful without elaborate cross-tabulation or filtering. Certain analyses are revealing, however – for instance whether a respondent is currently using text analytics or not and the length of time using text analytics, cross-tabulated against other variables.

**Length of experience with text analytics correlates with solution needs.**

The following chart cross-tabulates Q1 *Length of experience* (this time for respondents with any experience) by Q15 *What is important in a solution*. The top six Q15 responses are included.

Bars are ordered by the choices of the most experienced (four-years-or-more) users, who also represented a large proportion of the respondents. It is notable that the top choices for both those users and for all users involve capabilities linked to information extraction, classification, and disambiguation.

**What is important in a solution? (Proportion for each of top six picks, chosen by >43% of respondents, by length of text analytics experience.)**
Other interesting points come out by contrasting respondents who are already using text analytics with respondents who are still in planning stages.

The 216 Q3 respondents chose an average of 5.6 selections per respondent. (Q3 was What textual information are you analyzing or do you plan to analyze?) Only 194 of those respondents also answered Q7 Are you currently using text/content analytics? Crossing the responses to those two questions, we learn that

- current text analytics users choose an average of 6.15 sources and
- prospective text analytics users choose an average of 4.53 sources.

The following table which lists the Top 6 responses to Q3 by Q7 values. Note, in particular, the 19-point and 16-point gaps between current and prospective users for news articles and for long-form blogs as sources, versus smaller gaps for other sources.

(Because the survey was not based on a scientifically designed sample, we do not evaluate the statistical significance of the difference.)

### Textual Information Sources by Current/Prospective User

<table>
<thead>
<tr>
<th>Textual Information Source</th>
<th>Current User (n=134)</th>
<th>Not Yet Using (n=64)</th>
<th>All (weighted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twitter, Sina Weibo, or other microblogs</td>
<td>51%</td>
<td>40%</td>
<td>46%</td>
</tr>
<tr>
<td>Blogs (long form), including Tumbr</td>
<td>48%</td>
<td>32%</td>
<td>43%</td>
</tr>
<tr>
<td>News articles</td>
<td>50%</td>
<td>31%</td>
<td>42%</td>
</tr>
<tr>
<td>Comments on blogs and articles</td>
<td>39%</td>
<td>34%</td>
<td>36%</td>
</tr>
<tr>
<td>Customer/market surveys</td>
<td>42%</td>
<td>34%</td>
<td>37%</td>
</tr>
<tr>
<td>Online [discussion] forums</td>
<td>40%</td>
<td>27%</td>
<td>36%</td>
</tr>
</tbody>
</table>

Interpretive Limitations and Judgments

The number of survey respondents was not large enough to support further useful cross-tabulation of variables beyond the analyses above.

In interpreting presented findings, do keep in mind that the survey was not designed or conducted scientifically – that is, with the intention or the actuality of creating a random sample or a statistically robust characterization of the broad market. Findings surely reflect selection bias due to 1) the outlets where the survey was advertised and 2) a likelihood that those individuals who are unaware of text/content analytics or the potential for the technologies or solutions to help them solve their business problems would not respond to the survey. Findings therefore over-represent current users.
About the Study

Text Analytics 2014: Users Perspectives on Solutions and Providers reports the findings of a study conducted by Seth Grimes, president and principal consultant at Alta Plana Corporation. Findings were drawn from responses to an early-2014 survey of current and prospective text analytics users, consultants, and integrators. The survey ran from January 18 to April 15, 2014, with the vast majority of responses in the first four weeks. It asked respondents to relay their perceptions of text analytics technology, solutions, and vendors. It asked users to describe their organizations’ usage of text and content analytics and their experiences.

Sponsors

The author is grateful for the support of eight sponsors – AlchemyAPI, Digital Reasoning, Lexalytics, LuminoSo, RapidMiner, SAS, Teradata, and Textalytics – whose financial support enabled him to conduct the current study and publish study findings. The sponsors provided the content of the sponsor solution profiles.

The survey findings and the editorial content of this report do not necessarily represent the views of the study sponsors. The sponsors did not review this report prior to publication, with the exception of the solution profiles they provided.

Media Partners

The author acknowledges assistance received from three media partners in disseminating invitations to participate in the survey, CMSWire, KDnuggets, and LT-Innovate.

Seth Grimes

Author Seth Grimes is an information technology analyst and analytics strategy consultant. He founded Washington DC-based Alta Plana Corporation in 1997.

Seth consults, writes, and speaks on information-systems strategy, data management and analysis systems, industry trends, and emerging analytical technologies. He is the leading industry analyst covering the text analytics and sentiment analysis providers, solutions, and markets.

Seth is long-time contributor to publications that include InformationWeek, CustomerThink, and Social Media Explorer; he is founding chair of the Sentiment Analysis Symposium (@SentimentSymp on Twitter) and the Text Analytics Summit (2005-13).

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Sponsor Solution Profile

Digital Reasoning®
Solution Profile: Digital Reasoning

Digital Reasoning is a leader in cognitive computing. We provide organizations with a new kind of software that intelligently analyzes information and reveals previously unknown relationships, risks, activities and assertions. Digital Reasoning’s open and cloud-ready machine learning-based analytics platform, Synthesys, provides a proven approach for analyzing human language data at scale and helping organizations make better and more timely decisions. Digital Reasoning does this by incorporating a more human-like intelligence approach — by semantically analyzing information and intelligently revealing patterns and behaviors that are important to the organization.

“Digital Reasoning’s ability to analyze and understand human communications at scale is a valuable solution for customers looking to unify the management of their structured and unstructured information.”

Tim Stevens, vice president for business and corporate development at Cloudera

Used by the Intelligence Community, Defense agencies, global financial institutions and other organizations, the Synthesys® platform provides a proven suite of intelligence analytical capabilities that organizes important and valuable information into a private knowledge graph. Synthesys seamlessly integrates a set of knowledge services in the form of a rich Application Programming Interface (API) to access the “knowledge graph” abstracted from the data. Synthesys provides an entity-centric approach to data analytics, focused on uncovering the interesting facts, concepts, events, and relationships defined in the data rather than just filtering down and organizing a set of documents that may contain the information being sought by the user.

In order to assemble this rich knowledge graph from data, Synthesys ingests both unstructured and structured data, and performs three basic phases of analysis: Read, Resolve, and Reason.

The “Read” phase ingests the data and performs Natural Language Processing (NLP), entity extraction, and fact extraction. The “Resolve” phase assembles, organizes, and relates the results from the “Read” phase to perform global concept resolution (i.e. entity resolution) and detect synonyms (i.e. synonym generation) and closely related concepts. The final “Reason” phase applies spatial and temporal reasoning and uncovers relationships that allow resolved entities to be compared and correlated using advanced graph analysis techniques. These three phases of analysis are performed in a distributed processing environment, and their results are stored into a unified entity storage architecture called a Knowledge Base (KB).

Synthesys’ learning algorithms efficiently transform data into knowledge that can be trusted as the basis for human analysis and decision-making. Synthesys detects patterns of potentially relevant activity and then highlights behaviors based on combinations of patterns that suggest some sort of risk. Based on those behaviors Synthesys alerts the analyst and produces a profile, which can be explored through Synthesys.

“Digital Reasoning applies AI to understand human communication to ferret out suspicious activity. Over time, this class of service may become indispensable.”

Gartner 2014 Cool Vendor Report for Smart Machines
Profiles, a powerful web application.

How does Synthesys differ from other data solutions? That’s simple—it learns. Synthesys finds order in data and understands patterns in language like a human. Synthesys has a number of unique abilities that enable it to read and understand your human-generated data better than any other software.

- **Knows how people talk** Synthesys has an astounding understanding of human language. It understands what people have said and can deal with the ambiguity of words—for instance, when different names are referring to the same thing (Joe, Joseph, Joey). It not only understands the words being said but also learns from the in-context usage, exposing the real human meaning in the data.

- **Accumulates context** Synthesys doesn’t just identify the names of people, places and organizations; it relates them to the real-world entities they represent. Once identified, it accumulates knowledge about those entities to include attributes (DOB, POB, date founded, HQ location, etc.), relationships and facts, creating rich knowledge profiles. These profiles are the fundamental building blocks needed to make relevant predictions about future behaviors of employees, customers or potential threats.

- **Keeps a watchful eye** Most solutions index data and expect you to know what you’re looking for. As a result, key information gets overlooked. Synthesys offers a smarter way by providing organizations the ability to build and configure pattern detection logic to identify key risk/performance indicators. Synthesys is now on the lookout for these patterns, proactively detecting activities of interest.

- **Learns and gets smarter** The best thing about Synthesys is that its knowledge graph gets smarter and grows with you. It never forgets. It’s persistent and pervasive. Synthesys teaches itself to draw conclusions based on what you’re looking for in your data. That means, like a great employee, Synthesys becomes even more intelligent and valuable over time.

- **Knowledge visualization** Synthesys Profiles™ is a new Web application that enables analysts to interactively browse and analyze knowledge profiles of people and organizations to discover valuable patterns and relationships that were previously difficult to detect. Profiles provides organizations the ability to identify and respond to threats and opportunities more quickly than ever before.

Synthesys can be deployed in the cloud or in-house. Synthesys Cloud, currently available through the Amazon Web Services (AWS) Marketplace, provides a secure and flexible way for your organization to gain the advantages of Synthesys without investing in additional hardware or placing additional demands on your network. Synthesys Enterprise can be installed within your data center, providing you with full operational control of the platform, including full adherence to your corporate access and data control policies. Synthesys Enterprise can also be customized to facilitate easier integration with your other applications and process workflows.