

Research Brief

Predictions for Analytics in 2012

December 15, 2011

Created with insights from the IIA Faculty, including:
Thomas H. Davenport, Ravi Kalakota, James Taylor, Mike Lampa,
Bill Franks, Jeremy Shapiro, Gary Cokins, Robin Way, Joy King,
Lori Schafer, Cyndy Renfrow, and Dean Sittig

1. Big data analytics changes the 2012 technology landscape.
2. “Informed Optimism” will drive rapid growth for cloud-based predictive analytics.
3. Corporate performance management will evolve to applications that marry analytics disciplines with business process engineering, process workflow orchestration, and social collaboration.
4. Privacy considerations will be a major factor in the evolution of big data analytics.
5. Demand for analytical talent will continue to rise, but at a slower rate.
6. There will be a marked shift in power and influence from the IT function to the analyst.
7. Analytic asset management will emerge as a major challenge in 2012.
8. The number of companies advancing on the analytic maturity curve will directly correlate to the number executing on a complete ‘analytical ecosystem’ strategy.
9. Newer analytical methods in text analysis and social media analytics will become mainstream.
10. Use of analytics to identify patient safety hazards will increase significantly.

Summary

IIA expects 2012 to bring continued growth in, and attention toward, mainstream adoption of business analytics across commercial and government sectors.

As 2011 comes to a close, “Big Data” is the companion buzzword to analytics as unimagined data sources are discovered (and created through innovative measurement) that can be reliably mined and combined to drive even richer analytical insights.

Technology advances in analytical applications will continue to drive potential, ease of use and scaling capabilities, and by then end of 2012 the idea of cloud-based analytics will be commonplace.

We also expect this year to be a breakthrough year with respect to the friction between organizational units who have a stake in the analytics outcome (IT vs. Analytics) as both the urgency and possibilities of analytics breed collaboration.

Privacy concerns and finding analytical talent will continue to be limiting factors of growth to varying degrees by international geography.

Big data analytics will change the 2012 technology landscape.

2012 will be another year of rapid data growth with social, mobile, and locational data generation, especially for organizations creating a lot of online, video, and voice data. We do also expect transaction-based data to grow, along with human generated data.

Technologies like Hadoop, in-memory analytics (SAP HANA), and data appliances (EMC Greenplum, Oracle Exalytics) are maturing rapidly to more cost effectively handle these large data sets (petabytes+) just mentioned. We are now able to create sophisticated location-based business models, like Foursquare, which are powered by analytics. LinkedIn is able to integrate social graphs and we are able to do Amazon.com-like product recommendations faster and more accurately. Sophisticated mash-ups of social, mobile, location, payment and preference data is the emerging trend. Big retailers, telcos and payment firms are accelerating their analytics plans for new services.

“Informed Optimism” will drive rapid growth for cloud-based predictive analytics.

It was clear from a recent study that those who are experimenting with predictive analytics in the cloud (both deploying predictive analytics in the cloud and using cloud data and resources to develop predictive analytics) are getting positive results. These early adopters were much

Predictions for Analytics in 2012, December 15, 2011

iianalytics.com

Copyright©2011 International Institute for Analytics. Proprietary to ARC subscribers. IIA research is intended for IIA members only and should not be distributed without permission from IIA. All inquiries should be directed to membership@iianalytics.com.

more likely to see cloud-based predictive analytics as important to their companies, are much more likely to adopt them more broadly, and are more likely to gain a competitive advantage by being the first to do so. This is the opposite of what we see when uninformed optimism is replaced by informed pessimism, a transition many companies experience as they gain familiarity with a new technology. As a result, cloud-based predictive analytics are poised for growth specifically in five areasⁱ:

1. Pre-packaged cloud solutions
2. Predictive analytics for SaaS
3. Predictive analytics for on-premise
4. Modeling with the data cloud
5. Elastic compute power for modeling

Corporate performance management will evolve to applications that marry analytics disciplines with business process engineering, process workflow orchestration, and social collaboration.

The technical savvy of today's business process owners is rapidly expanding as the Echo Boomer generation takes the helm. Having grown up with technologies that are intuitive, that learn and adapt on the fly, they are demanding the same of their business application software. They expect more than "data regurgitation" in the form of flashy interactive graphics. They want their analytics applications to serve up the predictive and prescriptive insights in context of the internal and external business climate. They want to review and act upon the recommendations and trigger the appropriate changes in the execution of their business processes. Niche providers in the analytics space will continue to serve up analytics-enabled applications that these process owners can purchase and drop on top of their existing enterprise data warehouses and operational applications.

2012 will see a significant swell of integrated analytics-enabled business process optimization applications that bring together the best of 4 foundational disciplines and technologies:

1. Lean & 6-Sigma Process Engineering Methods
2. Statistical Modeling & Predictive/Prescriptive Analytics
3. Data Warehousing & Business Intelligence
4. Social Collaboration & Workflow Automation

These applications will mitigate two historical barriers to entry. First, they will be affordably priced, taking advantage of the recent swell of price-performance platforms and agile analytics software platforms. Second, they will be easily adopted at the business user's desktop through

Predictions for Analytics in 2012, December 15, 2011

iianalytics.com

Copyright©2011 International Institute for Analytics. Proprietary to ARC subscribers. IIA research is intended for IIA members only and should not be distributed without permission from IIA. All inquiries should be directed to membership@iianalytics.com.

the use of templates and wizards to mask the complexities of statistical model development, testing and publishing. The mid-market segment will benefit the most and will be the earliest adopters as they strive to be relevant in today's omni-channel, global competitive landscape and because they have less legacy infrastructure to circumnavigate & integrate.

Cross-vertical, reusable, repeatable "horizontal business function" analytics applications will surface providing drag-n-drop analytics integration as the analytics platform providers productize their intellectual property. Vertical specific applications will surface from niche providers that stitch together the reusable horizontal business functions and configure the application to meet the specific taxonomies and nuances for each vertical.

Privacy considerations will be a major factor in the evolution of big data analytics.

Last year, we predicted that privacy concerns would inhibit the growth of marketing analytics. This same trend will have a major impact on the future uses of big data. Major publications continue to report on concerns related to consumer privacy and the tracking of online browsing behavior has received mostly negative media attention in 2011. Also, the collection and sale of various data points by third party data brokers has come under scrutiny.

In 2012, privacy will continue to be an area that receives a lot of attention. As the use of big data increases, the privacy implications of it will come under increased scrutiny. This is especially true with highly sensitive data applications such as location tracking, mobile device activity tracking, web behavior tracking, and the storing and analyzing of medical information. Organizations should be forthright in their communication to end users, so that they don't feel they've been quietly monitored or tracked for purposes that may not be in their best interest.

Companies should also keep up to date on the latest policies, laws, and consumer sentiment as they determine how to move forward. It will be much better to be conservative than too aggressive in the use of big data for applications involving privacy concerns. A proactive approach on behalf of the analytics community could also prevent overzealous legislation.

Demand for analytical talent will continue to rise, but at a slower rate.

There are 5,762 open jobs right now on indeed.com for analytics and statistics. The largest LinkedIn group still only has 40,000 members – globally. That said, it's not an immature job market anymore and while there is still growing demand for analytic talent, the demand curve isn't quite so steep.

Looking at CIO sentiment in research, data warehousing and in memory solutions are key areas of planned investment for 2012, and they should drive the job demand.

Predictions for Analytics in 2012, December 15, 2011

iianalytics.com

Copyright©2011 International Institute for Analytics. Proprietary to ARC subscribers. IIA research is intended for IIA members only and should not be distributed without permission from IIA. All inquiries should be directed to membership@iianalytics.com.

Recruiters say there will be a much lower dependence on analytics management and more emphasis on direct contributors. Enterprises will look for less of the statistician background and more for good communicators and requirements gatherers who can also do some regression analysis.

There will be a marked shift in power and influence from the IT function to the analyst.

Some analysts view IT as an obstructionist and uncooperative gatekeeper of data without the specific skills and mission to convert that data into useful information. Experienced analysts want easy and flexible access to the data and the ability to manipulate it. We often hear business users complain that IT impedes their need to move quickly and creatively. Similar to many general business users, some analysts view IT as bureaucrats saying, “if you want a report, submit a request, I will program it for you, and it’ll take two weeks.”

An interesting tension is arising. Progressive IT organizations have been working to build their internal reputations, leveraging IT’s unique cross-functional visibility and promoting the benefits of proactive IT. Some are now viewing analysts as competitors who may solve problems but don’t have the responsibility to operate the solutions – they just make it harder to manage capacity costs by using too many resources. IT also may see analysts as risky groups with low regard for data governance and security.

Both IT and the analyst community will need to collaborate and compromise by better understanding and appreciating each other’s changing roles. In 2012, we expect power to shift notably from IT to the analyst as organizations come to realize the potential of the data on their cutting room floors.

Analytic asset management will emerge as a major challenge in 2012.

Analytics data, models, findings and recommendations are corporate assets, and these assets require continuous management in order to deliver a stable source of financial return for firms.

In parallel with the challenges faced by data warehousing professionals, analytics professionals will start to feel the burden of creating and maintaining the required level of documentation and workflow to support the adoption of their work throughout the firm. The constituencies evaluating the work of analytics professionals need to know how an asset was created, understand its organizational context, identify what core resources were used in its creation, and inventory who else in the organization has reviewed and approved its development, in order to fundamentally believe in the value of the asset and take action on its implications.

Predictions for Analytics in 2012, December 15, 2011

iianalytics.com

Copyright©2011 International Institute for Analytics. Proprietary to ARC subscribers. IIA research is intended for IIA members only and should not be distributed without permission from IIA. All inquiries should be directed to membership@iianalytics.com.

Maintaining a clear line of sight for this information, while continually expanding the scope of the analytic effort is a major challenge. Analysts tend to favor gathering new data sources, comparing and contrasting them, merging them, and building analyses on the converged data. These same analysts tend not to spend a lot of time on documenting what it all means and synthesizing whether these data-based comparisons are valid. This synthesis should be driven by context, implications, trends and differences, which is the coin of the realm for analysts but is far from the traditional domain of IT and management reporting. Hence, analytics professionals need to prepare themselves to drive this effort, a process for which they are not typically well prepared. Analytics professionals need to add asset management processes and skills to their arsenal in order to maintain the value of the work they produce.

The number of companies advancing on the analytic maturity curve will directly correlate to the number executing on a complete 'analytical ecosystem' strategy.

Many organizations have wrung what intelligence they can out of their traditional data sources. In order to be innovative, they will need to start looking at the unstructured or semi-structured data, the approximately 80% of data that remains.

The traditional architectures that support analytical environments have been production, test, and development environments. But to bring new insights into an organization, especially organizations rapidly developing vast amounts of data with few resources to exploit that data, companies need to expand their ecosystem to include traditional data warehouses and the systems that allow data scientists to exploit big or extreme data systems. It will require data scientists, mathematicians, and someone business savvy to have access to data sources, and someone within IT to make the data available to the analyst.

Newer analytical methods in text analysis and social media analytics will become mainstream.

While most large retailers now have a Facebook page and a Twitter feed, they still readily admit that their usage of social media is in its infancy. Most have limited pockets of social media expertise, or still farm it out to advertising agencies. That said, there is now widespread recognition that consumers' ever-increasing use of social media is here to stay and that its applications extend much wider than marketing.

Progressive retailers are already actively using social media in areas including customer service, new item introductions, predicting initial buys, assortment planning, human resources, store operations and social commerce. As unstructured data – and the understanding of the value

this data can provide – increases, retailers will recognize the need for sophisticated social media analytics to listen, monitor, measure and predict future outcomes in the digital world.

Use of analytics to identify patient safety hazards will increase significantly.

The use of analytics in healthcare will continue to grow at a rapid pace. In one area that is important to us all, patient safety, we're also seeing analytics increasingly applied. Various efforts are underway to refine development of analytical techniques that can be used to identify specific types of patient safety hazards. For example, researchers have isolated several "triggers" which identify patients who have likely experienced a diagnostic error. Similarly, researchers have developed methods to identify serious medication errors using data extracted from electronic health records. Finally, researchers are working to develop methods to identify errors in use of the health information technology applications themselves, such as orders or progress notes entered on the wrong patient.

Clearly, we have considered a number of areas where analytics will influence the world in 2012 – it's a year primed for opportunity! We'll look forward to revisiting these predictions mid-year and to sharing more of what we're learning as we uncover more innovative applications of analytics!

ⁱ "Cloud based predictive analytics poised for rapid growth" James Taylor, Decision Management Solutions, <http://decisionmanagementsolutions.com/predictive-analytics-in-the-cloud-survey-results>, 2011