MOBILE

BIGDATA
R E P U B L I C | Transform Your Business With Data

ABOUT US   REGISTER   LOGIN

HOME   BLOGGERS   MESSAGES   POLLS   WEBINARS   RESOURCES   VIDEOS | STRATEGY   ANALYTICS   **TECHNOLOGY**   FB   TW   LI   G+   RSS

FINANCIAL SERVICES   HEALTHCARE   GOVERNMENT   EDUCATION   RETAIL

HADOOP

What's Your Big Data Capability Maturity Level?

Robert Plant, Associate Professor, School of Business Administration, University of Miami
1/16/2013
Comment
12 comments

Login

👍 👎
50%   50%

As firms develop their big data projects in 2013, it is always useful to have a roadmap to establish benchmarks. In the exploratory environment surrounding the deployment of a new technology, where there are no clear signposts or established best-practices to emulate, success is far from guaranteed.

CIOs and firms have found this out to their cost. During the height of the dot-com bubble, Webvan spent more than $1 billion on new technologies and warehouses in an attempt to become a pioneer in the online grocery delivery sector; it later went out of business. In 1995, FoxMeyer had more than $5 billion of revenue and was the fifth-largest drug wholesaler in the United States, but its attempt to create a pioneering real-time information system in combination with an automated and integrated inventory system ultimately led to its collapse.

The CIO is frequently considered the corporate Dr. No, as a result of a wait-and-see attitude toward deploying new technologies. However, the seasoned CIO has got to that point by weathering many technology storms, bubbles, and fads by using barometers for corporate technology readiness.

The CMMI
One mechanism that can be used in a big data deployment and in the creation of a roadmap is a capability maturity model integration (CMMI) process. The traditional software capability maturity model, developed by Carnegie Mellon's Software Engineering Institute, is a framework of best-practices that can help manage, measure, and monitor the software development process. Its philosophies can be co-opted by organizations creating a big data strategy to good effect.

The basic model identifies five levels of process maturity for an organization:

1. **Initial**: This is the starting point for the use of a new or undocumented process. The process is typically defined as chaotic, *ad hoc*, or heroic.
2. **Repeatable**: Basic documentation allows the steps that created the process to be repeated.
3. **Defined**: The process is defined/confirmed as a standard business process.
4. **Managed**: The process can be managed through an agreed upon set of metrics.
5. **Optimizing**: Process management includes deliberate process optimization/improvement.

Within each stage, five key process areas (KPAs) are used to assess the company's readiness to move to the next level.

1. Goals
2. Commitment
3. Ability
4. Measurement
5. Verification

KPAs across several areas
A firm embarking on a big data project needs to consider the KPAs across several areas.

- **Data collection**: What is the goal at this stage in the firm's use of big data? Is it to use a sample of a larger dataset? Is it to create tools to extract data from a variety of sources, or is it to link to data from an external source? Firms also need to establish levels of commitment from the senior management to creating and maintaining these datasets. Buy-in from the business units is necessary for these systems to work, and that commitment level needs to be assessed. The ability to obtain data in a timely and cost-effective manner also must be determined. For example, barriers to data acquisition due to a firm's technical weakness may need to be addressed as a priority. Data collection goals include measurement of data volume, velocity, and variety requirements. (See: Big Data Explained: What Is Volume? and Big Data Explained: What Is Variety?) Finally, verification of data quality needs to be established.

- **Hadoop (or similar systems) deployment**: Goals need to be established for the scale of the system to be created at each step along the learning curve, the hardware systems that need to be created to support the desired performance levels, and the infrastructural requirements as the system grows. Similarly, resource commitments from senior management need to be established to ensure goals can be met. The ability of the human resources needs to be established, and processes must be determined to ensure skill sets for the desired goals are secured. Measurement systems need to be established for accurate benchmarking of the system's

MORE BLOGS FROM ROBERT PLANT

A Review: Big Data in 2013
39 comments
Data scientists, NSA, C-suite buy in... Big data changed a lot in the last 12 months.

What Would Seymour Cray Think of Big Data?
13 comments
How would the tech legend respond to the 4 Vs?

The 360 Degree View of a Customer
56 comments
Big data is helping companies like Netflix see what you really want (and even when you go to sleep).

Lessons for Big Data From President Obama's Healthcare Implementation
24 comments
Three big data lessons for CEOs from HealthCare.gov's bumpy start.

Is Big Data Ruining Sports?
29 comments
From sailing to the NBA -- big data could increase the gap between sporting haves and have-nots (while ruining the magic in the process).

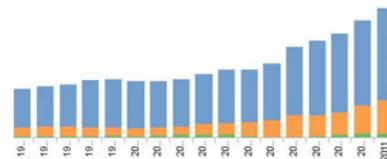More from Robert Plant

FLASH POLL

All Polls

DIGITAL AUDIO

Hadoop Radio
Latest Archived Broadcast
Stop Kidding Yourself: Cloud Realities You Need to Embrace
Join this radio show to truly understand what a CIO needs to do to build a successful private cloud and what skills and values the IT team will need to embody.
Listen

Full schedule   Archived shows   Download to calendar

DATA VISUALIZATION SHOWCASE

Anatomy of a Visualization

This Tableau visualization of international debt demonstrates how simple visualizations can give great insight
Explore this data here.

More Data Visualization Showcase

BDR IN YOUR INBOX

Enter email   SUBMIT

performance, and verification processes need to be put into place to ensure the system is meeting its goals for the task at each level.

- **Human resources**: New technologies are always an area where talent is scarce and costly. HR needs to establish clear hiring goals early in the process and obtain commitment from the organization to these goals. The talent pool may be full-time employees or external consultants. For all hires, the measurement and validity of their effectiveness needs to be established through metrics such as 360-degree feedback and assessments.

- **Application deployment**: Big data projects are not just another IT project; they are multi-functional in nature. Therefore, clear business objectives and goals need to be established by the business units themselves. They need to be made in association with the technical group through a cross-functional management committee that oversees big data projects. This committee will cement the commitment needed for the project to succeed and address any ability gaps that HR may have identified. The units deploying the system will report outcomes back to the committee. These metrics will let the organization know whether corrective actions are needed and what form they should take.

Organizations that monitor each of these KPAs will be able to make a strong determination about their readiness to move to the next level on the maturity model. As strength in process repeatability and formality is achieved, projects with more strategic risk can be undertaken with more confidence. This walk-before-you-run approach, in which big data projects are managed within a solid framework, may help firms avoid catastrophe, which, as we have seen, can easily occur when firms are bedazzled by a new technology and, like Icarus, ignore warnings about flying too close to the sun.

Related posts:

- Islands in the Stream of Extreme Data
- Stop Wasting Time on Visualization
- The Hitchhiker's Guide to Big Data

— Robert Plant, *Associate Professor, School of Business Administration, University of Miami*

Email This   Print   Comment

COMMENTS

Newest First | Oldest First | Threaded View

PAGE 1 / 2 > >>

AlphaEdge, User Rank: Exabyte Executive
1/22/2013 | 2:57:21 PM

Login

Re: What's Your Big Data Capability Maturity Level?
Totally agree. The integration of technology, analytics, processes, and people involved would be important for development of the maturity level.

50% 50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

---

legalcio, User Rank: Exabyte Executive
1/21/2013 | 2:43:48 PM

Login

Re: What's Your Big Data Capability Maturity Level?
I don't know @Saul, any enterprise initiative is political, so a change in product strategy, reporting roles, etc., needs a political component. But, this type of initiative only works when the silos, data and otherwise, are broken down. Data is an asset, much like our star performers. We covet our assets; not easy to share them.

50% 50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

---

Saul Sherry, User Rank: Blogger
1/21/2013 | 11:43:10 AM

Login

Re: What's Your Big Data Capability Maturity Level?
Would it be fair to say more political than most @legalcio? To really unify the data, a lot of walls and egos are going to have to get kicked in.

50% 50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

---

mharden, User Rank: Exabyte Executive
1/20/2013 | 6:13:44 PM

Login

Re: What's Your Big Data Capability Maturity Level?
I think ensuring the people, processes and technology are important pieces of the puzzle. At the end of the day real innovation by leveraging a big data solution is to first follow the money driven by improvement. Use that pilot to and learn the technologies while solving a real tangible problem, then go all in.

50% 50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

---

legalcio, User Rank: Exabyte Executive
1/17/2013 | 8:24:46 AM

Login

Re: What's Your Big Data Capability Maturity Level?
@Saul, you've hit upon the key issue; culture. Ya can't force people to play nice. I'd start at the C-suite and work down. Presumably there is a management group that meets regularly. That's probably the place to introduce the concept of the project. But, and this is explored magnificently in the book (full disclosure, my old college roommate and good friend) Who's In The Room? by Bob Frisch, every CEO has an inner circle of advisors that may not be those on the formal management committee. CIOs need to acknowledge that a Big Data initiative, like any, is political.

50% 50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

---

Saul Sherry, User Rank: Blogger
1/17/2013 | 4:35:10 AM

Login

Re: What's Your Big Data Capability Maturity Level?
@Legalcio and @Robert - the problem there is how to start. It's much easier to centralize a project and get it rolling (and get others interested) than it is to launch a company wide discussion in one shot - are there solutions to this, or is it time to tie people down and force them into collaboration?

FEATURED VIDEO

Big Data Explained: What Is YARN?   21

Getting to grips with Hadoop 2.0? Here's a simple video explaining YARN.
Watch This Video

More Video Blogs

FOLLOW US ON TWITTER

Big Data Republic@BigDataRepublic   15 Apr
AllJoyn: A Common Language For Internet Of Things - Open-source lingua franca aims to let IoT devices and services... ow.ly/2FHbY7
Retweeted by Yakamoto
Expand

Hajime Ozaki@hajozaki   22h
BDR Top 20 #BigData David Smith David Smith List of top tweeters on Big Data from @BigDataRepublic wp.me/p4Aavi-2
Show Summary

Marcus Borba@marcusborba   28 Apr
#BigData #Analytics #BusinessIntelligence #FS @informationweek @AllAnalytics @BigDataRepublic @BigDataNetwork @BigDataClub

LIKE US ON FACEBOOK

Big Data Republic   Like

4,168 people like Big Data Republic.

Facebook social plugin

ACCOLADES

MEDIA PIONEER AWARDS WINNER 2013   Media Pioneer Award Winner

50%   50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

Robert Plant, User Rank: Blogger
1/16/2013 | 5:44:27 PM

Re: What's Your Big Data Capability Maturity Level?
Perhaps CMU SEI will run with it, they have the set up and experience, but as BD means
different things to different consituents it will take a while for the waters to settle and a common
basis for areas around which consensus and agreement can be found. At the moment its like
defining a model for AI, we have yet to define a stack, as discussed in an earlier post, so things
are very much in a state of flux.

Login

50%   50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

legalcio, User Rank: Exabyte Executive
1/16/2013 | 4:31:01 PM

Re: What's Your Big Data Capability Maturity Level?
I agree @Robert, any Big Data initiative will touch a variety of constituencies, from IT to
marketing to the CEO, R&D, etc. That's a bit of a change from when IT made all the technology
decisions, but the best practices of the maturity model don't need to change.

Login

50%   50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

AlphaEdge, User Rank: Exabyte Executive
1/16/2013 | 2:27:39 PM

Re: What's Your Big Data Capability Maturity Level?
I was thinking more on setting up the framework. In general, I think it shall be partnered with
Academics and industries to make sure it has educational and practical usage. The following link
please see some educational programs that are actively developing in the Big Data field. It
would be exciting to work on something like this.

http://www.informationweek.com/big-data/slideshows/big-data-analytics/big-data-analytics-
masters-degrees-20-t/240145673?pgno=1

Login

50%   50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

Robert Plant, User Rank: Blogger
1/16/2013 | 1:34:25 PM

Re: What's Your Big Data Capability Maturity Level?
The teams composition for the construction of a maturity model would have to be cross
functional, perhaps refective of the balanced score card metrics used to evaluate its ROI.

Login

Reply | Post Message | Edit/Delete | Messages List | Start a Board

50%   50%

PAGE 1 / 2 > >>

BIG DATA REPUBLIC