The Big Data ROI: How Big is Big?

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Disclaimer

- Orbis Technologies, Inc. is not a retail software provider
  - Cloud products are industrial Big Data software components
- Cloud perspective is shaped through experience with early adopters – Commercial and Government
- Not a classic IT company
  - Provider of professional technology services and Big Data applications
- ROI discussion is driven by experience, observations and opinion
The Big Data ROI: How Big is Big?

• Transforming a big data vision into profitable reality requires significant investment in human and capital resources. As a result, senior executives are looking for the big data return on investment (ROI), but often their expectations are based on big data hype.

• Discuss how to determine realistic big data ROI from a systems viewpoint – specifically integrating the technical, managerial, and socio-political components - in order to prosper and succeed.
  – Methods for identifying big data ROI expectations;
  – Strategies to address common barriers to success; and
  – Success stories, failures, and lessons learned.
Big Data ROI Expectation…
Start with the Basics

• For many large corporations the traditional Return On Investment (ROI) calculation assumes a Cloud infrastructure is replacing the legacy infrastructure and/or adding to top line revenue growth
  – *Investment Capital*: Only impacts operational performance when the costs were previously factored into the budget
    • *Not in the budget = cost increase*
  – *Revenue Return*: Only impacts operational performance when the realized revenue was not in the financial forecast or exceeds the plan
    • Uncertainty + Global Instability = Unrealized financial forecast
    • Cloud revenue that fills unrealized financial forecast may be at best a neutral growth driver
Common Big Data Analytics.....

AMAZON
Recommendation analytics - Users who bought X also bought Y

FACEBOOK
User profiling

EBAY
Product Analytics

Nice Features? Driver of Top Line Growth? Cost Savings?
Underlying Catalyst for Cloud Investments?

- IT market is still recovering from 2008 meltdown
  - HW, SW and Services CAGR is anemic …at best <5%
- Telecom costs not HW or SW appear to be driving the top line IT infrastructure growth estimates
  - Potential indicator of the Big Data market expansion

IT Spending 2006-2013

Source: Gartner (June 2007, July 2008, June 2009, July 2012)

Are Cloud investments for top line revenue growth or an excuse to recapitalize IT?
Not for the Early Adopters.....

- Early Cloud adopters went “IT old school”…
  - Focus on **high value** employee productivity
  - Reached for ‘**Unobtainium**’ capabilities
  - **Massive Productivity Improvement - 100x return** above traditional ROI calculations – productivity improvements in the hundreds of thousands of hours/year

1958 Harvard Business Review:
...Acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical information..... the new technology does not yet have a single established name. We shall call it information technology (IT)...


Cold War : room full of Boeing engineers (Special Collections, University of Washington, neg. #10704. Photo courtesy of Boeing
Select Examples to Shape ROI Expectations

Cost Savings: Transforming Call Centers

Productivity Improvement:
Army Intelligence – Correlating Massive Volume of Information

Productivity & Costs Savings:
Genome Processing

Productivity Improvement:
Automated Regulatory Report Generation

Select ROI Lessons Learned / Heuristics to Consider

• Resources selection
  – Big Data analytics are not delivered by vocational IT resources
  – Employees have a selfish motivation to learn Cloud & Hadoop
    • $30x+$ Hadoop developer jobs for every candidate
    • Cloud and Hadoop experience may elevate employee career expectations and quality of life demands
      – May need to rethink HR policies
      – Poor Big data project selection guarantees talent departure

• Make versus Buy
  – Costs savings for internal staffed efforts are elusive due to a steep learning curve
    • Getting Hadoop software running is orders of magnitude easier than building Big Data Analytics that work at scale
    • Outside experts can make a difference as a value multiplier

• Interoperability
  – Migrates way from the application layer to the data layer
Select ROI Lessons Learned / Heuristics to Consider

• Embrace new Big Data system architecture and engineering paradigms
  – Data efficacy and perishable ‘free market’ approach to application development dominate the system decisions

• First project selection
  – Big Data is the big “E” in Enterprise IT
    • ROI must be an enterprise level return and not at the product/project level
    • Big Data analytics performance differentiators grow with scale

• Partner selection
  – Everyone claims competency
    • A good Big Data service provider can deliver capability that DOES NOT currently exist very quickly (3-6 months)

• Stakeholder expectations
  – Big Hype + Success Stories + Need to Raise Top Line + Culture of Cost Savings……. What is the plan?
Future ROI Considerations

- Young employees may value the virtual infrastructure as much as older employees value the physical infrastructure.
- 1\textsuperscript{st} and 2\textsuperscript{nd} generation implementations will continue to be heavily concentrated on significant productivity improvements, cost savings and capabilities that can not be done via any other architecture.
- 3\textsuperscript{rd} and 4\textsuperscript{th} generation implementations are migrating towards top line expansion.
  - Future Big Data projects will receive more management scrutiny.
    - Technical implementations are significantly more complicated.
- Large object data (i.e. Genome, Video, Imagery, etc.) may ultimately redefine the IT market – Industrial and Retail.
  - E.g. Mental models on Privacy vs. Free Information.
  - E.g. Legal liability associated with stored and community knowledge.
  - E.g. Genome impact on health care treatment.
Final Thought....

Go Big or Go Home!!