HARNESSING BIG DATA AND HARVESTING VALUE FROM ANALYTICS

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AGENDA

- Analytics & BIG DATA - Definition
- Industry Scenarios - Potential Parallels for EDUCATION?
- Approach - How to Get Started
BIG DATA: ASSESSING THE IMPACT

LET'S SOLVE THIS PROBLEM BY USING THE BIG DATA NONE OF US HAVE THE SLIGHTEST IDEA WHAT TO DO WITH.
“Voluminous amount of data that becomes challenging to capture, store, search, analyse and visualize using traditional data management tools.”

- Enable new business models
- Making use of the ignored
- Analysis conducted in less time and fraction of the cost

- “Data Explosion” in enterprise
- Reduced storage cost

- Reduced “Trustability” and “Consistency”

- Digital channels, Device Generated
- Traditional sources

- Latency in processing high volumes and making quick decisions
- Multi Layer processing to make un/semi structured data to structured (EDW)

- Gartner predicts 800% data growth over next 5 years

“Big Data can potentially help when business SLAs are not being met by traditional means”

80-90% of data produced today is unstructured

-Doug Cutting, creator of Open Source Search & Hadoop
## “HARNESSING DATA” FOR “HARVESTING VALUE”

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<th>Big Data</th>
<th>Harnessing</th>
<th>Harvesting</th>
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<td><strong>Dimension</strong></td>
<td><strong>Data</strong></td>
<td><strong>Focus</strong></td>
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**Source:** Ajay Bhargava: Whitepaper: A Dozen Ways Insurers Can Leverage Big Data for Business Value  
http://www.ciosummits.com/media/solution_spotlight/A_dozen_ways_insurers_can_leverage_big_data_to_extract_value.pdf
USE CASES - ACROSS INDUSTRIES

**Banking & Financial Services**
- Data Archival
- Hadoop as Transformation in ETL
- churn Analysis, Text Analytics
- Relationship Management

**Hi Tech**
- Process control for Microchip fabrication
- Image quality improvement
- Document Management Solution
- Complementing Data-warehouse

**Telecom**
- Network performance & optimization
- Call Detail Record (CDR) analysis
- Churn Analysis & prevention

**Travel, Transportation & Hospitality**
- Personalised Merchandising
- Customer 360
- Engine data Analytics

**Retail**
- Customer Analytics Platform
- Market and consumer segmentations
- Merchandizing and market basket analysis
- Loyalty & Rewards

**Energy, Resources & Utilities**
- Sensor Analytics
- Smart meter data analysis
- Automated Mines
- Social Event based analytics

**Health & Life Sciences**
- RNA Sequencing
- Healthcare devices sensor analytics
- Drug discovery and development analysis

**Insurance**
- Telematics
- Claims Fraud detection
- Customer 360
- Underwriting automation

**Manufacturing**
- Internet of Things
- Image based defect detection
- Remote monitoring and diagnostics

**Government**
- Image/Video Analytics
- Surveillance
- Smart City

*Source: TCS*
1. Cheaper, Better, Faster
   • *Data Warehouse* – speedier data to decision
   • *Improve Underwriting processing time*

2. New Biz Models not possible earlier
   • Automation – Humans taking *prohibitively* too long
   • *Location-Based Risk Tracking for Commercial Insurer*

3. New Services (start with LoB, spread across Enterprise)
   • *Internal (Intranet) Search of documents*
   • *Social Media disease tracking, community involvement*
   • *Claims Indicators (risk, fraud) feeding back to pricing*
   • *Telematics – Driver Behavior, Pricing, Fraud*
INDUSTRY PARALLELS FOR EDUCATION (CUSTOMER-CENTRICITY)
360° VIEW ACROSS CHANNELS

Customer

Interactions:
- Web
- Agent
- Call Center
- Mobile
- Social Media

Student (, Faculty)

Interactions:
- Classroom
- Internship
- Advising
- Tutoring
- Blackboard

Industries

Retail
Insurance
BFS
HC

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CUSTOMER LIFE TIME VALUE

Customer

- Most Profitable
- Direct Marketing
- Cross/Up Sell
- Optimize Marketing Spend
- Life Events

Student Lifelong Relationship

- Middle School
- High School
- College
- Continuing Ed / Alumni / Faculty / Recruiter / Parent
- Kids → Grandkids

Industries

- Retail
- Insurance
- BFS
ACQUISITIONS & CHURN

Customer

• Prospect to Interest to Customer
• Incentivization
• Coupons/Discounts
• Social Listening

Student

• Attracting Students
• Prevent Dropouts
• Rewards for good grades
• Scholarships/Grants
PROMOTIONS

Customer: Channels
- Print
- Radio
- Coupons
- Mobile
- Social Media

Student: Education Ecosystem
- Local High Schools
- Out of State Admissions
- International
- Job Fairs
- Mobile
- Social Media

Industries
Retail

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CUSTOMER SERVICE & EXPERIENCE

Customer

- High Competition
- Low Barrier to Entry
- Great User Experience
- WHAT WHEN WHERE HOW – I decide
- Personalized – “Segment of 1”

Student: Education Ecosystem

- Enriching {classroom, dorm, lab, campus, internship, social, MOOC, Online, Mobile} experience
- “System of Records” → “System of Engagement”

Industries

- Retail
- Telecom
- Insurance
VIRTUAL ADVISOR

Customer

- Airport Gates Finder
- Call Center “Virtual Help”

Student

- Watson
- Virtual Residencies
- Virtual Course Selector/Advisor (Student/Faculty Assistant)

Industries

Retail

Travel

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OTHER INDUSTRIES
- FOOD FOR THOUGHT

- Sharing Economy – Monetization of Global “Physical” Assets
  - EBay, Amazon, Alibaba - Product
  - Uber, Lyft - Car
  - AirBNB, HomeAway - Home
  - Open Data Initiatives - City/Government/Healthcare/Taxes

- Sharing Economy – Monetization of High Quality, Global “Educational” Assets
  - MOOCs
  - Multi-disciplinary offerings
APPROACH
OUTCOMES

ANALYSES

SENSE

ACTIONS

Results in Incremental Achievement of

Warrants

Requires iterative understanding

Insights

Leads to

Results in Improvements

GET STARTED - OUTCOMES DRIVEN APPROACH
EX. HOW CAN I PREVENT STUDENTS FROM DROPPING A CLASS? COMPLETE UG DEGREE IN 4 YEARS?

**OUTCOMES**

- Increase top line
- Increase 4-year completion %

**BUSINESS OBJECTIVES**

- Prevent student churn from a class

**STRATEGIC GOALS**

**RESPONSES**

- Is improvement?
- More Analysis?
- New questions

**ACTIONS**

- Help session
- Advisor visit

**ANALYSES**

- Predict propensity to drop
- Discover study groups

**DESCRIPTIVE ANALYTICS**

- Aptitude Analysis
- Academic

- Social Integration
- New courses, prerequisites
- New drop out rates

**PREDICTIVE ANALYTICS**

- What-If test strategies
- Optimize studying experiences

**PRESCRIPTIVE ANALYTICS**

- Virtual Advisor in off hours
- Virtual course / internship / job planner

**COGNITIVE ANALYTICS**

- Course-Student
- Studying Habits
- Financial situation
- Community involvement
- Learning styles

**DATA**

**TECHNOLOGY INFRASTRUCTURE**

**BUSINESS PROCESS ARCHITECTURE GOVERNANCE**

**SENSE**

- Harvest Harness
### How Do We Start? - Start with a Pilot

<table>
<thead>
<tr>
<th>PoC Objective: Increase Business Agility</th>
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<tbody>
<tr>
<td><strong>Big:</strong> Business Use Case/Hypothesis</td>
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<tr>
<td><strong>Small:</strong> Investment</td>
</tr>
<tr>
<td><strong>Big:</strong> Executive Support</td>
</tr>
<tr>
<td><strong>Small:</strong> Scope/Design/Implementation</td>
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<tr>
<td><strong>Big:</strong> Architecture (Data Platform)</td>
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<tr>
<td><strong>Small:</strong> Team</td>
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<tr>
<td><strong>Big:</strong> Collaboration - IT &amp; Business</td>
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<tr>
<td><strong>Small:</strong> Duration</td>
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<tr>
<td><strong>Big:</strong> Business Value</td>
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<td><strong>Small:</strong> Incremental Success</td>
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THANK YOU

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For a High School Graduate, would this be possible in future?

- Personally Tailored
- 4 year *multi-disciplinary* curriculum with competencies acquired from
  - my campus
  - other campuses
  - online (MOOCs, Online Universities etc.)
- Certified by governing bodies (across universities) to ensure
  - Quality
  - Consistency
  - Fairness (Students, Faculty, Costs)
- N versions of a topic/course/competency (competing marketplace)
- Research clusters albeit across campuses (global, collaborative)

“COURSES” to “COMPETENCIES” to “ROLE-BASED CURRICULUM”