



HARNESSING BIG DATA AND HARVESTING VALUE FROM ANALYTICS

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Value
Generation
&
Industry
Parallels
for
EDUCATION

AGENDA

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

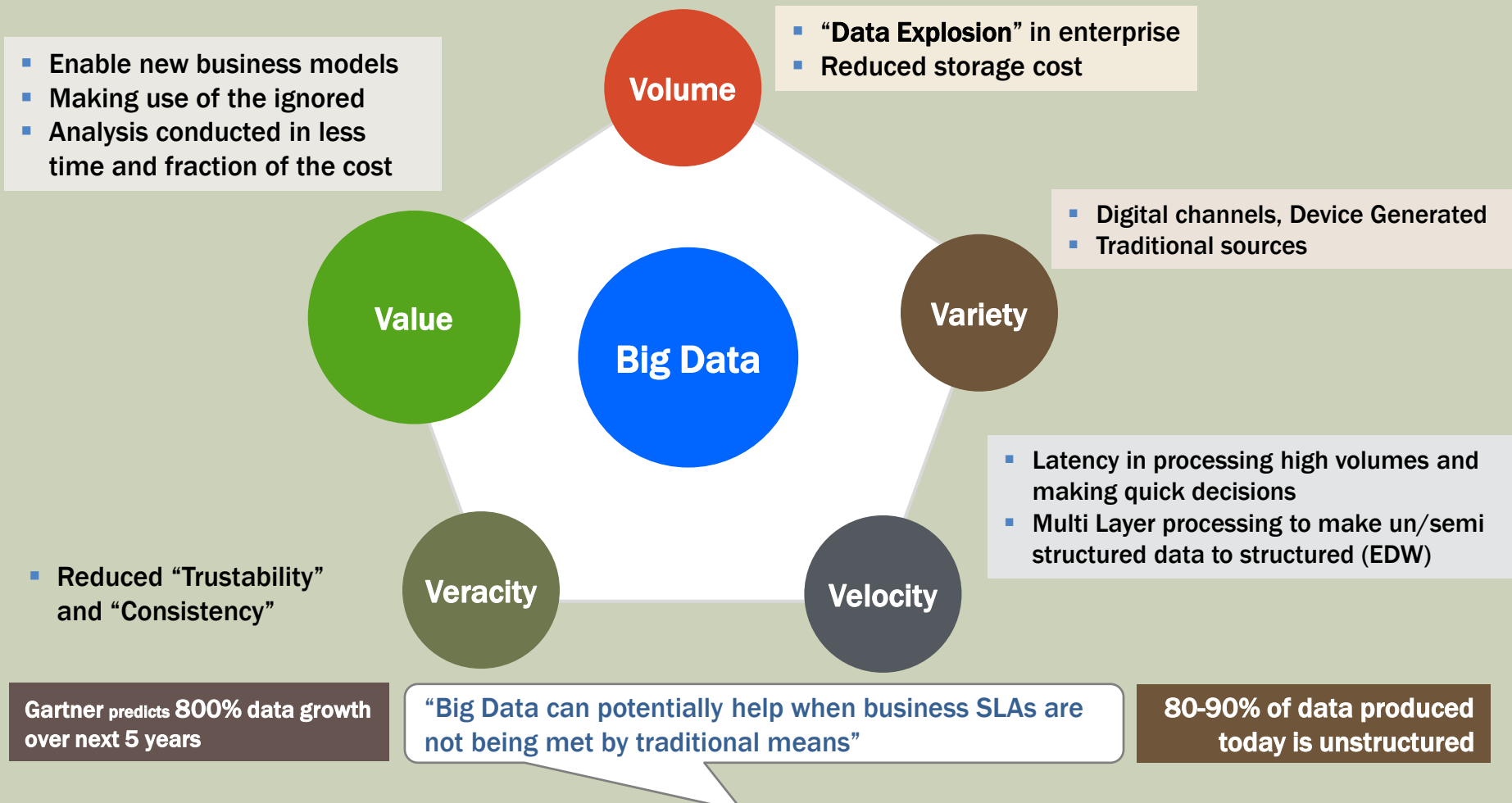
BIG DATA: ASSESSING THE IMPACT



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BIG DATA CHARACTERISTICS

“Voluminous amount of data that becomes challenging to capture, store, search, analyse and visualize using traditional data management tools”



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

“HARNESSING DATA” FOR “HARVESTING VALUE”

Big Data		
Dimension	Harnessing	Harvesting
Data	Data - Noun	Analysis - Verb
Focus	Data Management, Scalability, Integration, Performance	Story Telling, Actionable Insights, Asking the right Qs
The "V"s	Volume, Variety, Velocity	Veracity, Value
Process	Architectures, Data Flows	Business SMEs with industry process knowledge
Technology	Data & Process Models, DBMS, Hadoop ecosystem	Use Cases, Hypothesis, Business Objectives
Role	Programmers, Data Scientists, Data Stewards	Statisticians, Business Analysts, Data Scientists
Expertise	Hadoop, R, Scripting Languages, NoSQL, SQL	Business Requirements, What-If Qs, SQL, Visualization
Discipline	Science, Engineering, Mathematics, Statistics	Art, Business, Statistics, Industry specific
Organization	IT - CIO, CTO	Business - CMO, CFO, CCO
Time Spent	80% in Integration, Maintenance, Storage, Performance	80% in Analysis, Actionable Insights, Visualization
Value	Investment, Enabler, Administrator	Creator, Competitive Differentiator, Consumer

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 Events 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

INSURANCE USE CASES

– EXPERIENCING VALUE CREATION

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



Student (, Faculty)

Interactions:

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

Interactions:

- Classroom
- Internship
- Advising
- Tutoring
- Blackboard

Industries



Retail



Insurance



BFS



HC

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



Student

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

- Attracting Students
- Prevent Dropouts
- Rewards for good grades
- Scholarships/Grants

Industries

Most



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

CUSTOMER SERVICE & EXPERIENCE

Customer



Student: Education Ecosystem

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

- 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

OTHER INDUSTRIES - FOOD FOR THOUGHT

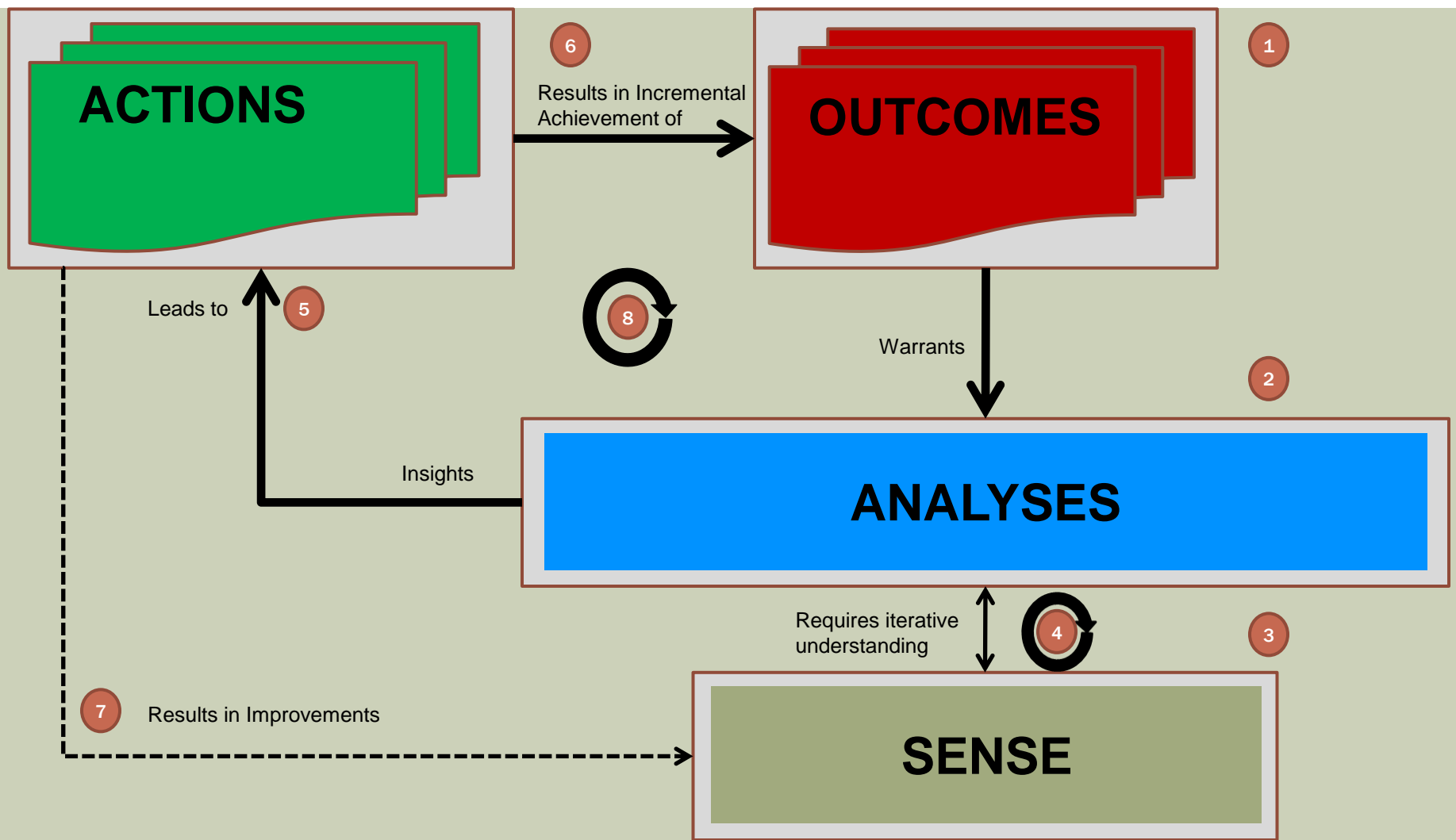
- **Sharing Economy – Monetization of Global “Physical” Assets**
 - EBay, Amazon, Alibaba - Product
 - Uber, Lyft - Car
 - AirBNB, HomeAway - Home
 - Open Data Initiatives - City/Government/Healthcare/Taxes

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

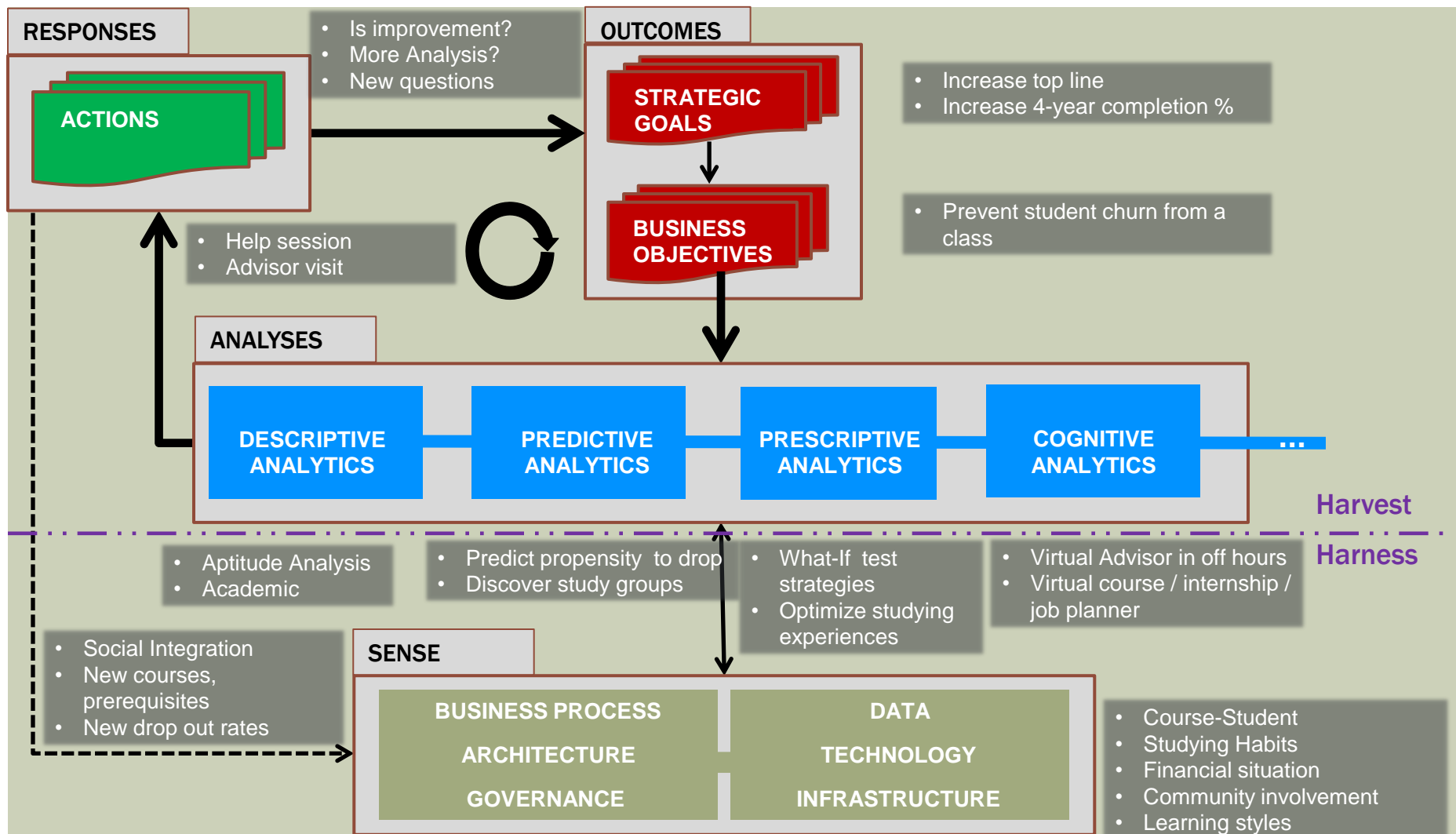
APPROACH



GET STARTED - OUTCOMES DRIVEN APPROACH



EX. HOW CAN I PREVENT STUDENTS FROM DROPPING A CLASS? COMPLETE UG DEGREE IN 4 YEARS?



HOW DO WE START?- START WITH A PILOT

PoC Objective: Increase Business Agility

Big:	Business Use Case/Hypothesis	Speed up ETL so IT can meet reporting SLAs for business
Small:	Investment	< 120K\$
Big:	Executive Support	CxO level
Small:	Scope/Design/Implementation	Few longest-running ETL scripts
Big:	Architecture (Data Platform)	Hadoop eco-system - scalable for growth
Small:	Team	5 FTE
Big:	Collaboration - IT & Business	Needed for Harnessing AND Harvesting
Small:	Duration	< 12 calendar weeks
Big:	Business Value	Business is able to take timely decisions/actions
Small:	Incremental Success	Provide funding for next phase

THANK YOU

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#IS_THIS_POSSIBLE? #WHEN?

- 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”