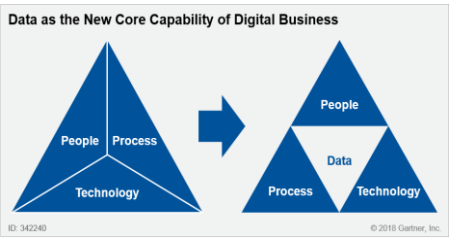
MGNT4090 Technology and Innovation Management

2020 - 21

Prof. Hong HUI

Wk8

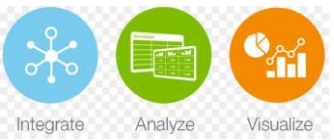
- Business Analytics



Wk7 Review - AI is Well Known across the World

- **IT Revolution**
  - **Machines win over human being on many occasions (AI = ML + Data)**
    - Make timely decisions
    - Recognise people
    - Interact with people
    - Able to do autonomous driving

- **Management Revolution is lagging behind (Automated DM = ML + Data)**
  - **Available DATA are under utilized**
    - *Not able to give us a personalized offer*



Data is the New Oil

- AI (Data Driven Organization)

- **Example**: **Fashion Industry**
  - Got the customer purchase records
  - Still Not able to use it to give Personalized Recommendations
  - But rely upon traditional approach to sell (**Leading Brands**)
    - Runway
    - Seasonable Discount
    - Salesman's email or instant message
    - Won't work during COVID-19 period
- **Stitch Fix approach should be the Norm**
  - Build up customers' taste, preference & profile
  - Offer Right product to the right customer
  - Make New product portfolio forecast
  - Lead New product development
  - Monitor Inventory management
- Note: **Data driven organizations** can generate actionable insights

A Management Revolution

- A new Culture of Decision Making

- **A Management Revolution**
  - Evidence Based Automated Decision Making
  - Reshaping the Competitive Landscape
- **Integrate Analytics into Core Business and Operational Function**
  - Identify Opportunities for Growth
    - Personalization in Retail
    - Enhanced decision making in Smart City
  - Improved Efficiency & Operation
    - Data integration in Banking & Insurance
    - Real time matching in Transportation & Logistics
- **A Data Driven Organization**
  - *The Basic step to start Digital Transformation & WIN (no data, no AI)*

Digital Transformation
- More than an Online Platform

- **Transform to become a Data Driven Organization (Wk8)**
  - Automated Decision Making
  - Personalization
  - Next generation of Products & Services
  - Platform & Ecosystem to support our Customers (Customer Journey & Experience)
- **Leverage both Human & Machine in an Integrated Physical & Virtual World (Wk9)**
  - Strengthen Customer Experience & Loyalty
  - Strengthen Employee Experience & Productivity
  - A New Way of Doing Things

- **Create the New Competitive Advantage in the New Economy**
  - Uber (largest taxi company)
  - Airbnb (largest accommodation provider)
  - Netflix (largest movie house with recommendation engine)

Wk8 Agenda

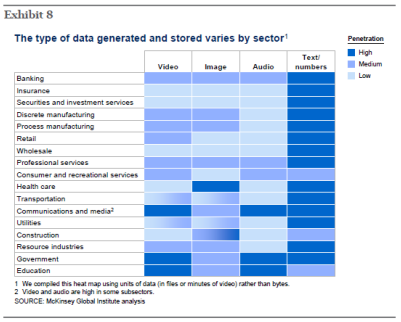
- **Analytics Overview**
  - The Evolution
  - Levels & Types of Analytics
  - The Analytics Strategy
- **A Data Driven Organization**
  - The Analytics Competitor
  - The Insights Value Chain
  - The System & Organization
- **Analytics Applications**
  - By Industries
  - By Functions

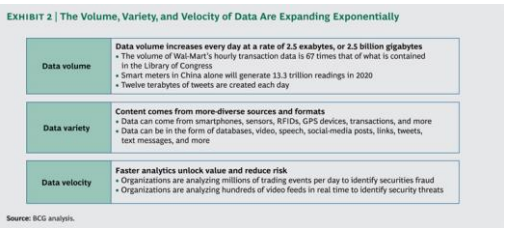
- **Tutorial Session**
  - Case: **Netflix**
    - Cloud
    - Recommendation Engine
    - DI & BOS
  - Group Discussion
    - Finalize Solutions

The Big Data

- From Data to Intelligent Decision Making

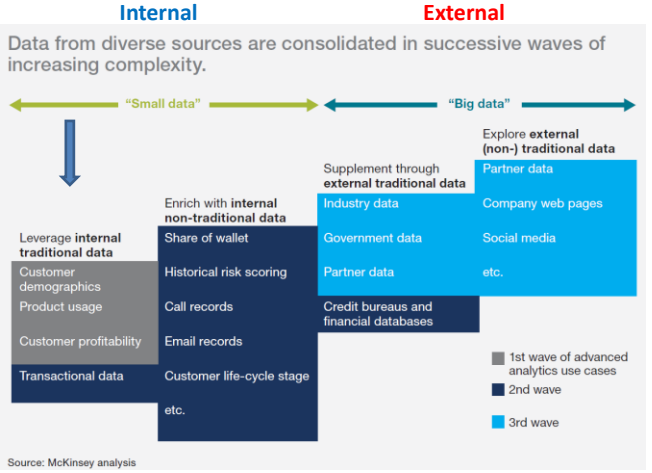
- **Types of Data**
  - From structured (customer; transaction) to unstructured (social media)
- **The Volume, Variety & Velocity (The Expanding Universe)**
- ***How to use the Data?***
  - *Source of Innovation*





Three Waves of Data Consolidation

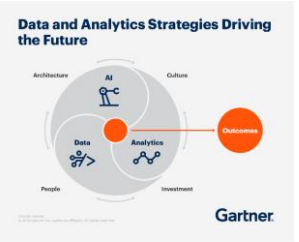
- From Transaction to Customer Lifetime Value



The Power of Digital Transformation

- **The Skyrocketing of Data**
  - Falling Price of IoT devices
  - Increasing power of ML & Computer together with Data Scientists
  - Man + Machine + Data = Actionable Insights then are translated into Business Value
- **Right Time to Achieve Business Value From Data**
  - **Digitizing** customer interactions provides a wealth of information for marketing, sales and product development, while
  - **Digitizing** internal processes generates data that can be used to optimize operations and improve productivity

- **List of Common Questions**
  - **What** is Analytics
  - **Why** Analytics is Important
  - **How** to ensure the Organization's data readiness
  - How to do it
    - The Insight Value Chain
    - The Data Architecture & Organization
  - What are the examples

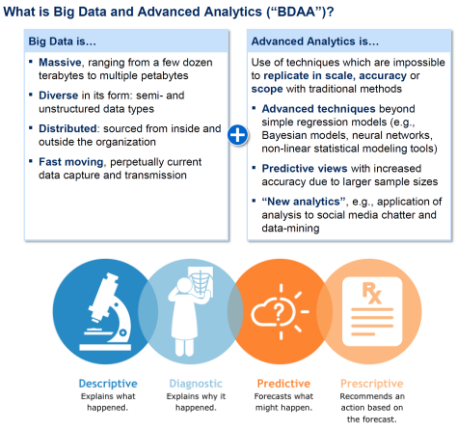


What is Analytics?

- Data, Process & Tools to solve a Business Problem

- "**Analytics**" refers to the systematic use of technologies, methods, and data to derive insights and enable fact-based decision-making for planning, management, operations, measurement, and learning
  - Use Tools & Techniques to turn data into Insights then value
  - The type of staff organizations are hiring is shifting from those building analytics infrastructure to roles related to understanding the data—**data scientists, visualization developers, and data architects**
  - Smart Decision Making "AI + Data"

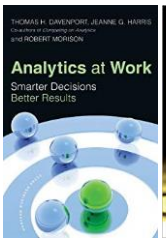
- **Big Data Analytics**

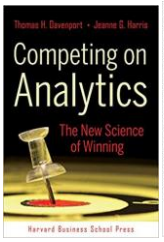


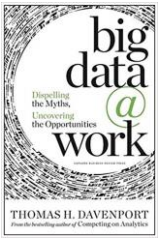
The Basic References

- Self Learning Capability (**A Necessity**)

- **Study from those Great Articles From Guru**
  - **Davenport Analytics Collection**
- **To Articles from McK**

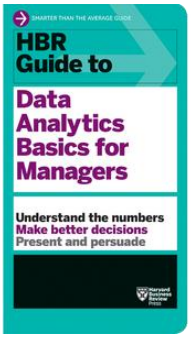


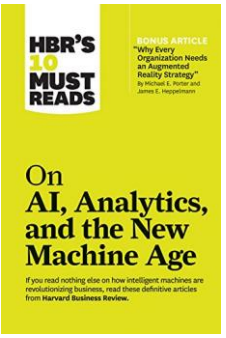


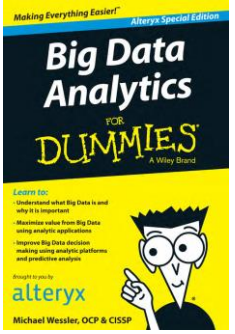


Additional References

- What, Why & How (**Ref Use Cases**)





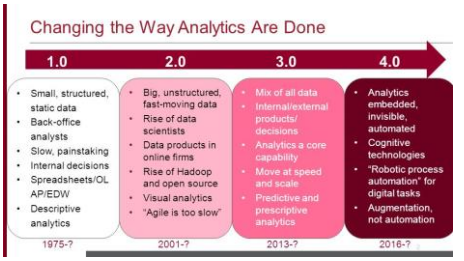


Analytics Evolution

- From OLAP to BI then Analytics

- **Not a New Thing**
  - 1970-1985 Decision Support
  - 1980-1990 Executive Support
  - 1990-2000 Online Analytical Processing (OLAP)
  - 1989-2005 Business Intelligence (BI)
  - 2005-2010 Analytics
  - 2010-Present **Big Data**

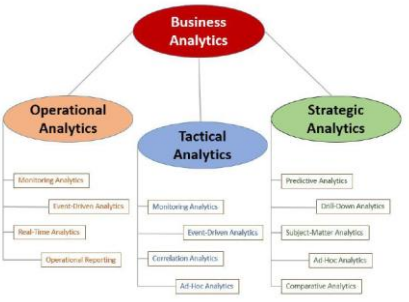
- **The Business Objectives**
  - Cost Savings
  - Faster Decisions
  - Better Decisions
  - Product/Service Innovation
- **The Four Eras (Descriptive to Prescriptive)**



The Leveling Concept

- Managers make decision at all Levels

- **Business Analytics**



Predictive Maintenance
Data Visualization

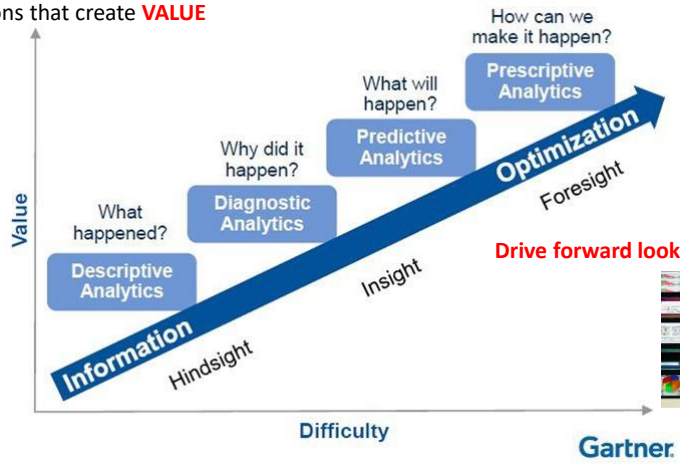
CRM Analytics
People Analytics

Strategic Dashboard
Customer Lifetime Value

- **Business Value**
  - Forecasting
  - Price & Promotion Optimization
  - Predictive Maintenance
  - Personalization
  - Customer Lifetime Value
  - Employee Lifetime Value
  - Talent Acquisition
  - Retention Analytics
  - … subject to the needs & priority of your company

The Types of Business Analytics

An approach to solving problems starts with data, builds models to arrive at decisions that create **VALUE**



Drive forward looking insights

The Analytics Questions

- From Questions to Value

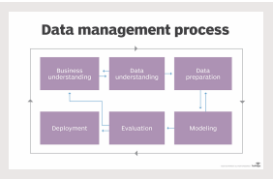
- **Example: The HR Problem – absenteeism**
  - What is the rate of absenteeism?
  - Does anyone have excessive absenteeism?
  - Is it the same across the organization?
  - Does it vary by gender?
  - Does it vary by length of service or age?
  - Can we predict next year's absenteeism?
  - Can we reduce our absenteeism?

- **The Questions span all four types of Analytics**
  - **Descriptive**
    - What is its rate of absenteeism?
    - Does anyone have excessive absenteeism?
  - **Diagnostic**
    - Is it the same across the organization?
    - Does it vary by gender?
    - Does it very by length of service or age?
  - **Predictive**
    - Can we predict next year's absenteeism?
  - **Prescriptive**
    - Can we reduce our absenteeism?

The Analytics Process (Top Down)

- Starts from Business Problems to Translate into Value

- **Starts with a Business Problem**
  - Segment customers to tailor product offers
  - Optimize pricing to boost revenue
- **Plan the Work**
  - Estimate the Effort
  - Build the Case Justification
  - What are the required data?
- **Start the Work**
  - Grab, Store & Clean data
  - **Build Model**
  - Analyze data
  - Visualize data
  - Interpret data



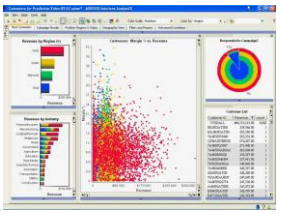
- **Collect the Data**
  - **Determine what & where to collect all the required data (internal & external)**
    - Employee Name
    - Birthday
    - Gender
    - Hire date
    - Job Title
    - Department
    - Location
    - Absent hours and Working hours for each period
  - **Manage the data**
    - It is complete
    - The data is clean
    - The data is in the proper form

The Data Science Tools

- Use the Tools

- **Data Manipulation Tools**
  - Spreadsheet
  - SPSS/SAS
  - SQL
- **Data Visualization Tools**
  - Excel
  - Tableau
- **Data Analysis Tools**
  - SPSS/SAS
  - Python/R
- **Data Repository**
  - Hadoop Cluster (Unstructured data)
  - Data Warehouse (Structured data)

- **Types of Analytics (Algorithms)**
  - **Descriptive**
    - Statistical calculation & Charts
    - Dashboard
  - **Diagnostic**
    - Correlation
    - Regression
    - Factor analysis
    - Principal Component analysis
  - **Predictive/Prescriptive**
    - Regression
    - Decision Trees
    - Random Forests
    - Optimization

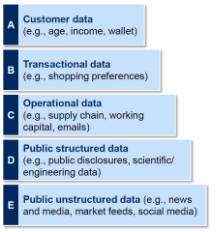


Analytics Grows Across the Whole Value Chain

- From External to Internal

- **Analytics can cover the whole Value Chain**
  - **Customer (Revenue First)**
    - Segmentation, Marketing Mix
  - Suppliers
  - Sales & Marketing
  - R&D
  - Product Development
  - Production & Operation
  - Finance
  - Risk Management
  - **HR (People)**
    - Productivity
  - General Management

- **Identify & Determine the priority (Largest Business Value) to start with**



Example - Analytics Solution (Use Cases)

- From Customer to People

Customer People

Analytics Question	Business Analytics Solutions	Talent/People Analytics Solutions
What Happened?	Customer dashboards and customer reports	Talent dashboards and talent reports
	Customer scorecard and customer key performance indicators	Talent scorecard and talent key performance indicators
	Cubes	Human capital cubes
	Triggers and alerts	Triggers and alerts

Analytics Questions	Business Analytics Solutions	Talent/People Analytics Solutions
What's Happening and Why?	Customer segmentation	Talent segmentation
	Customer profiling	Talent profile analysis for turnover and retention
	Market research	Market research employment conditions
	Customer satisfaction survey	Employee satisfaction survey
	Voice of customer analysis	Voice of candidate analysis Voice of employee analysis
	Competitive intelligence	Competitive intelligence: Who is hiring? Where and when?
	Social media analytics	Candidate social media analytics
	Text analytics	Text analytics
	Mobile analysis	Candidate mobile analytics
	Social graph analysis	Candidate and employee social graph analytics

Customer People

Analytics Questions	Business Analytics Solutions	Talent/People Analytics Solutions
What Will Happen?	**Predictive Models** Customer and prospect predictive models Customer acquisition Customer targeting and selection Customer retention Customer reward and loyalty program Customer upgrade Customer attrition (voluntary churn) Customer involuntary churn (termination due to bad payment)	**Predictive Models** Talent and candidate predictive models Talent acquisition Talent targeting and selection Talent retention Talent reward and incentive program Talent promotion Talent attrition (voluntary churn) Talent involuntary churn (termination due to bad performance)
	Forecasting Forecast market opportunities Forecast number of new customers Forecast number of existing customers Forecast number of lost customers	**Talent Scorecard** Forecast market opportunities Forecast number of new employees Forecast new and existing employees Forecast number of lost employees

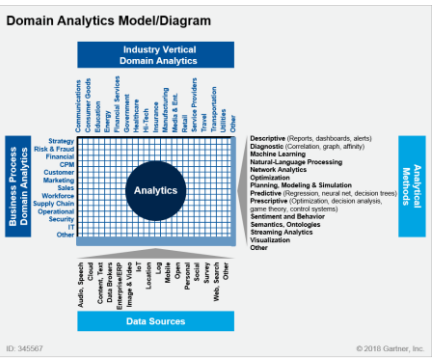
Analytics Questions	Business Analytics Solutions	Talent/People Analytics Solutions
	Forecast churn by business function Forecast bottom line	Forecast turnover by business function Forecast bottom line
	Optimization Customer life cycle management Customer relationship management optimization	**Optimization** Talent life cycle management Talent relationship management optimization

The Basic Approaches to Get Insights

- From all Sources of Data

- **The Basic Approaches**
  - Targeted Industry
  - Targeted Value Chain
    - From external to internal
  - The various Data Sources
    - Data Engines
    - Ecosystems
  - The Analytical Methods
    - Visualization
    - ML

- **The Domain Analytics Model**



Example - Retail & Finance Industry Use Cases

- **Retail**
  - Pricing Management
  - Real Time Inventory
  - Inventory Optimization
  - Omni Channel Order Fulfilment
  - Loyalty Program
  - … ***Recommendation Engine***

- **Finance**

Why is Big Data Analytics Important?

- A New Competitive Advantage

- **Big data analytics** helps organizations harness their data and use it to identify new opportunities. That, in turn, leads to smarter business moves, more efficient operations, higher profits and happier customers

- **Strategic Decision Making**

The Analytics Strategy

- A Roadmap to Data Driven Organization

- **Assess your Organization's Readiness**
  - **The Data Maturity** (5 Level Model)
    - Leadership (Adoption)
    - Culture (Data Driven DM)
    - People (Data Scientists)
    - Process (Insight Generation)
    - IT Infrastructure (Data Engine)
    - Data Maturity (Use Cases)

"Analytics is not just a capability that supports your core strategy. It has to be a core strategy of its own."

- **Develop a Roadmap**
  - **Identify the Strategic DM Required**
    - **Identify the Use Cases & Prioritize Pilots**
    - **Produce Highest Business Value**
      - Product Innovation
      - Customer Intimacy
      - Operational Excellence
  - **Drive the Data Model Development & Adoption Process (Insight Value Chain & Talent)**
    - Hire the Data Scientists & Train Analytics Translator
  - **Build the Data Engine**
    - Make Data Easy to Access
    - Provide Tools to Access, Analyze & Present
  - Train People to Adopt
  - Scale with more use cases

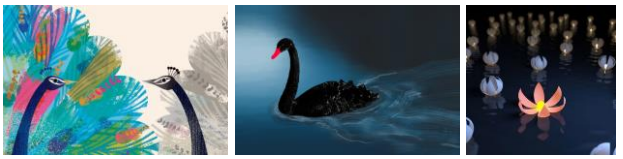
A Data Driven Organization

- Analytics as Source of Competitive Advantage

Make decisions on the basis of data based insights rather than experience or intuition

Let the Customer Journey lead the Way

Data Maturity | Data Talent Readiness | Insight Value



A Data Driven Organization

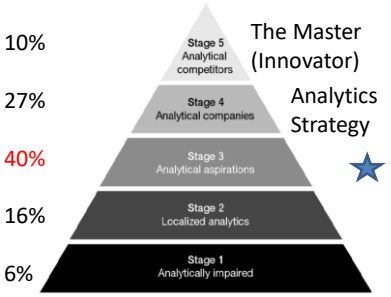
- Data Maturity drives AI

- **CEO needs to be the Lead Champion of Analytics**
  - Making culture a catalyst
  - Appoint Champion (**C**hief **D**ata **O**fficer) to build a core team
- **Organization Level**
  - **Five Level Hierarchy Model** (Your Starting Position & Maturity Level)
    - **Level1**: Reactive mode
    - **Level2**: Isolated analytic function
    - **Level3**: Executive Commitment
    - **Level4**: Corporate Priority
    - **Level5**: Embedded
- **Conceptual Level**
  - **The Insight Value Chain**
    - The weakest link
    - Follow a systematic process
    - Translate Insights into Business Value
- **The Data Architecture & Organization**
  - Business People
  - IT people
  - Data Scientist & Translator

The Analytics Competitor

- Analytics Guru (Tom Davenport)

- **Competing for Analytics (The Five Stages of Analytical Competition)**
  - Where are You? (collect, analyze & act on data)



- **The Capabilities**
  - Pool data generated in-house and data acquired from outside sources for a comprehensive understanding of their customers
  - Use predictive modeling to identify the most profitable customers—plus those with the greatest profit potential and the ones most likely to cancel their accounts

The DELTA Transition

- Build the Analytical Capabilities by Stage

	Stage1 to 2	Stage 2 to 3	Stage 3 to 4	Stage 4 to 5
Data	Gain mastery over local data of importance	Build enterprise consensus around some analytical targets and their data needs	Build enterprise data warehouses and integrate external data	Engage executives in competitive potential of analytical data
Enterprise	Manage data at local level	Select applications with relevance to multiple business areas	Develop analytics strategy and roadmap for major business units ★	Manage analytical priorities and assets at the enterprise level
Leadership	Emergence of leaders in functions	Create an analytics vision	Engage leaders in building analytical capabilities	Encourage leaders to be visible with their analytical capabilities
Targets	Target low hanging fruit ★	Target cross-functional applications	Focus on high value and impact targets ★	Focus on strategic initiatives and building distinctive capability
★ Analysts	Offer analytical skills training	Provide coaching and support for analytical professionals	Form communities of analysts	Formalize analyst role & business role rotation program

Analytics as a Source of Competitive Advantage (Difficult to Copy)

- **Companies that successfully compete on analytics have analytical capabilities that are**
  - Hard to duplicate
    - **Analytical talent**
  - Unique
    - Support strategy execution
    - Primary driver of performance
  - Adaptable to many situations
    - From customer experience to employee experience
  - Renewable
    - Continuous Improvement

- **From Stage1 to 5**

Stage	Distinctive capability/level of insights	Questions asked	Objective	Metrics/ measure/value
1 Analytically impaired	Negligible, "flying blind"	What happened in our business?	Get accurate data to improve operations	None
2 Localized analytics	Local and opportunistic—may not be supporting company's distinctive capabilities	What can we do to improve this activity? How can we understand our business better?	Use analytics to improve one or more functional activities	ROI of individual applications
3 Analytical aspirations	Begin efforts for more integrated data and analytics	What's happening now? Can we extrapolate existing trends?	Use analytics to improve a distinctive capability	Future performance and market value
4 Analytical companies	Enterprise-wide perspective, able to use analytics for point advantage, know what to do to get to next level, but not quite there	How can we use analytics to innovate and differentiate?	Build broad analytic capability—analytics for differentiation	Analytics are an important driver of performance and value
5 Analytical competitors	Enterprise-wide, big results, sustainable advantage	What's next? What's possible? How do we stay ahead?	Analytical master—fully competing on analytics	Analytics are the primary driver of performance and value

Five Kinds of Organizations

- From Practitioner to Innovator (Data, Culture, Talent)

63% of companies ranked themselves as bottom 3 categories

The Insights Value Chain

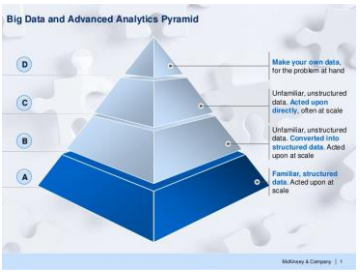
(Data Management to Analytics)

- A Systematic Process with Five Dimensions

Proper Steps to extract value from Data

People Analytics

★ **Where & How to find a Good Performer**
Good Performer Characteristics
Productivity for each Job Category
Trend & Forecast
Benchmark with Industry
ROI in workforce
Total Cost of workforce

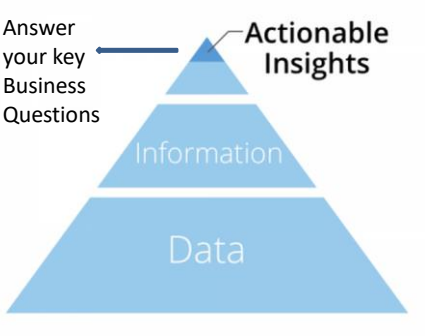


Actionable Insights

- More than Descriptive (**Wisdom**)

- **How do we make data Speak**
  - **Actionable insights** sit at the apex of your data pyramid. An insight that drives action is typically more valuable than one that simply answers a question--especially an insight that makes you rethink something and pushes you in a new direction. They are the highly treasured output of all the work that goes into collecting, preparing and analyzing your data

- **Insights that can drive action is most valuable**



Capitalize on What Data has to Offer

- The Five Dimensions (Insights Value Chain)

- **Data is the new Oil & Gold**
  - The confluence of data, storage, algorithms and computational power today has the stage for a wave of creative disruption
    - Capturing value from data requires excellence in each element of each link of the "**insights value chain**"

- **The Components**
  - **Data**
    - The entire process of collecting, linking, cleaning, enriching the internal information
  - **Analytics**
    - Describes the set of digital methodologies deployed to extract insights from data
  - **IT**
    - The technical layer enabling the storing and processing of data
  - **People**
    - Translate data driven insights into business implications and actions
  - **Processes**
    - Ability to deliver at scale

The Insights Value Chain

- A Process with Five Dimensions (Tech + Business)

Capturing value from data requires excellence in all components of the "insights value chain."

	Technical foundations			Business foundations		
	Data ×	Analytics ×	IT ×	People ×	Processes =	Value captured
Insights value chain	New data sources	Descriptive statistics	Cloud sourcing	Cultural change	Adaption business processes	The insights value chain is multiplicative, ie, you are only as good as the weakest link in the chain
	Orchestration of data	Classical predictive statistics	Horizontal scaling (No-SQL, Hadoop)	Data-enabled decision making	Automation business processes	
	Unstructured data	Machine learning	Analytical program languages	Role profiles	Data and analytics governance	
	Privacy and legal considerations	Cognitive modeling	Data visualization	Organization	Cross-functionality	
	Data security	Optimization	In-memory analytics	Analytics talent	Agile processes	
		Simulation	IT stack		Ecosystem management	

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As Good as its Weakest Component

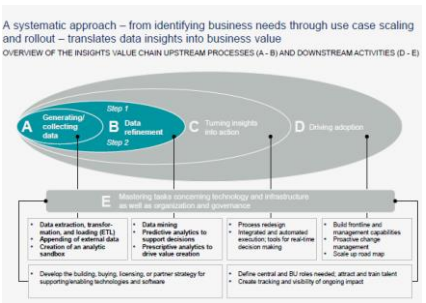
- Capturing value from data depends on the integrity of the entire insights value chain, and the chain is only as good as its weakest component. Organizations looking to be successful in data insight must ensure excellence in all components and steps of the insights value chain
  - Need to work on ALL components
- **The Value Creation Model (Top & Bottom line)**
  - **Revenue Growth**
    - The use cases can enhance activities in the areas of pricing, churn prevention, cross- and upselling, and promotion optimization to drive growth
  - **Cost Reduction**
    - Insights to optimize internal processes include Predictive maintenance, supply chain optimization, and fraud prevention

A Systematic Process

- From Upstream to Downstream

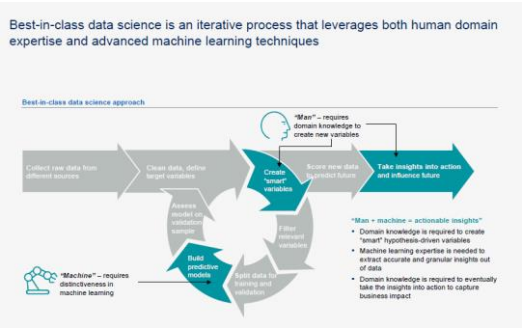
- **1.Data Scientists** use smart algorithms to extract meaningful information from high quality data
  - Opportunity Identification
  - Source Data
  - Build Model
- **2**.Require **Analytics Translators** & Adoption Processes to turn the insights distilled into business action
  - Process redesign & Rollout
  - Tech Enablement
  - Analytics Academy

A Five Step Process (From Insight to Adoption)



An Iteration Process between Man & Machine (Data Scientist + Analytic Translator)

- Take the right data to train the machine with the right algorithm to generate insights (**Machine**) and hence make decision with domain knowledge (**Human**: turn insight into action & business value).



A Systematic Approach of Translation

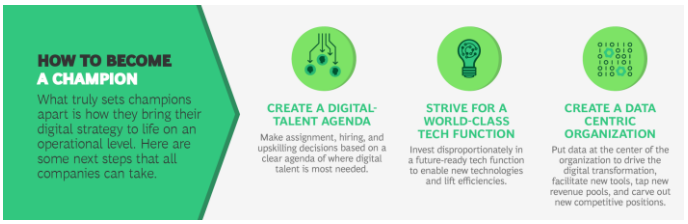
- Drive Adoption to ensure Easy to Use

- Develop detail digital strategy based upon Technology Strategy as a framework
- Experiment use cases to drive adoption into day to day activities & operations
  - Eg Stitch Fix, Netflix
- Develop capabilities as enablers to integrate the use of technologies & business together eg. Analytic Translator training

The Data Architecture & Organization

- From Data to Insights then Action

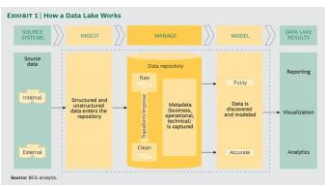
IT (Data Engine); Data Scientist; Translator



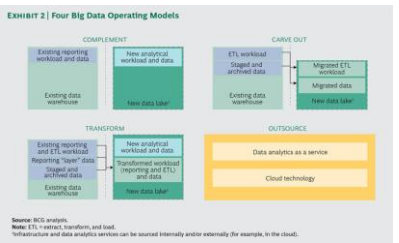
The Internal Data Architecture

- Integrate Data Warehouse to Data Lake

- **Data lakes have three core functions (timeliness, low cost)**
  - To ingest structured and unstructured data from multiple sources into a data repository
  - To manage data by cleaning, describing, and improving it
  - To model data to produce insights that can be visualized or integrated into operating systems



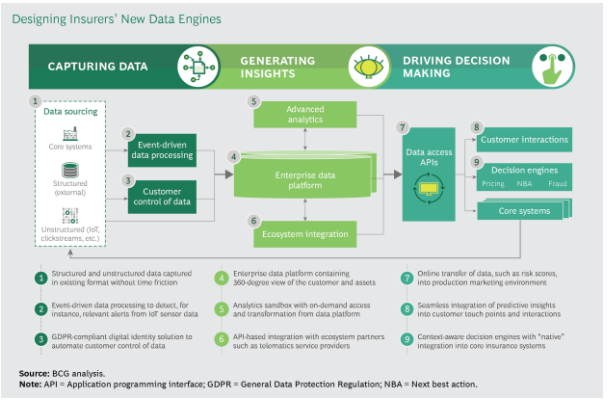
- **Select the Operating Models**
  - Complement (separate)
  - Curve Out (replace part of DW)
  - Transform (replace DW)
  - Outsource (cloud & partner)



Build the Data Engine to Scale

- Capture; Generate; Integrate

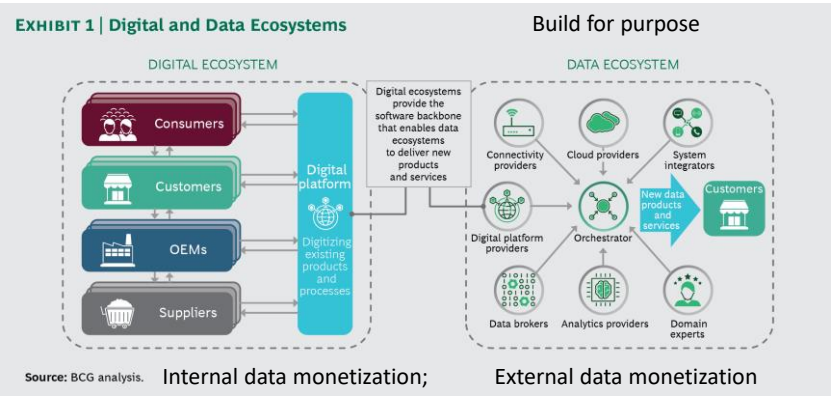
- Tomorrow's data engines must perform three essential actions: **Capture** diverse types of data, **Generate** comprehensive insights, and **Integrate** data with decision making



Build the Data Ecosystem

- Across Organizations (B2B IoT)

For example: **Xiaomi**'s smart-home platform, whose many "contributors" —the device makers—add a variety of smart, connected products, such as air purifiers, and rice cookers

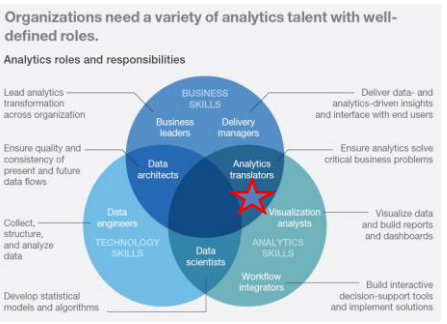


Develop Analytics Translators

- Across the Organization

- **If there is one analytics role that can do most to start unlocking value, it's the analytics translator**
  - This critical role can best filled by someone on the business side who can help leaders identify high impact analytics use cases and then translate the business needs to data scientists, data engineers and other tech experts

- **Need a variety of Analytics Talent (Business + Analytics Skills)**



Why Translators are so Important

- Certainly, **data scientists** are required to build the analytics models—largely machine learning and, increasingly, deep learning—capable of turning vast amounts of data into insights
- Companies are recognizing that success with AI and Analytics requires not just data scientists but also entire cross-functional, agile teams that include data engineers, data architects, data-visualization experts, and—perhaps most important—translators

- **They help ensure that organizations achieve real impact from their analytics initiatives**
  - Translators play a critical role in bridging the technical expertise of data engineers and data scientists with the **operational expertise of marketing, supply chain, manufacturing, risk, and other frontline managers**
  - Help ensure that the deep insights generated through sophisticated analytics translate into impact at scale in an organization

Scale Analytics

- Nine Critical Drivers (Shape business around Analytics)

- Embed Analytics into every layer of Organization

Breakaway companies scale analytics by significantly outperforming in nine critical areas across three categories.

Aligning on strategy	Building the right foundations of data, technologies, and people	Conquering the last mile by embedding analytics into decision making and processes
1. Obtaining a strong, unified commitment from all levels of management	3. Developing a clear data strategy with strong data governance	7. Prioritizing top decision-making processes
2. Increasing analytics investments, with a focus on the last mile	4. Using sophisticated analytics methodologies	8. Establishing clear decision-making rights and accountability
	5. Possessing deep analytics expertise enabled by a tailored talent strategy	9. Empowering the front lines to make analytics-driven decisions
	6. Creating cross-functional, collaborative agile teams	

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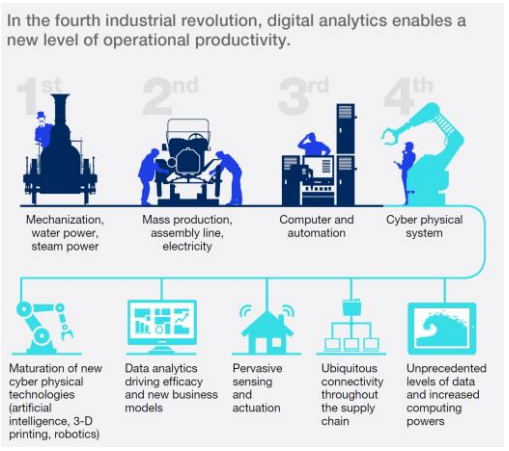
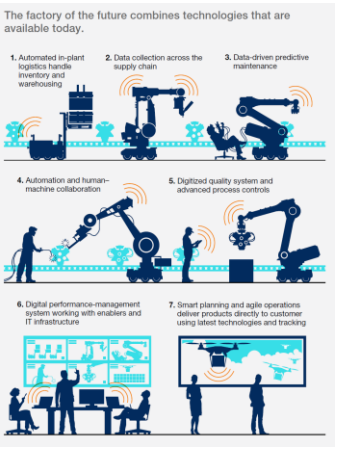
Start by identifying DM process to Improve then work backward to determine what types of data insights are required

Data Driven Organization – Q&A Session

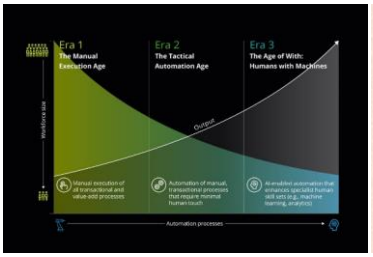




The Analytics Applications from Different Perspectives

Industry & Function Levels

- Decision Making across the whole Organization



Create & Prioritize the Use Cases

- Ideation, Pilot then Scale Up

Analytics use cases should be prioritized based on feasibility and impact.

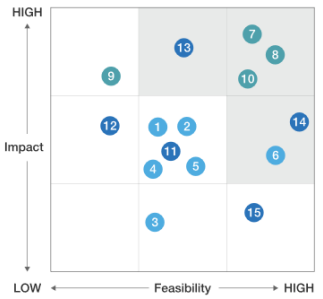
Step 1: Create a list of use cases.
Sample list for consumer-packaged-goods company

Sales/customer relationship management (CRM)
1. Overall brand management
2. Overall campaign management
3. 360° view of shopper
4. Targeted acquisition campaigns
5. Real-time image advertising (awareness)
6. Retargeting campaign

Marketing
7. Optimization of spend across media
8. Optimization of spend within digital media
9. Digital attribution modeling
10. Performance advertising (sales)

Innovation
11. Consumer insights (social listening/sentiment analysis)
12. New product success (predictive behavior model)
13. Product customization at scale
14. Open innovation on promotion mechanisms
15. New digital sales models

Step 2: Prioritize them.
Sample impact vs feasibility matrix



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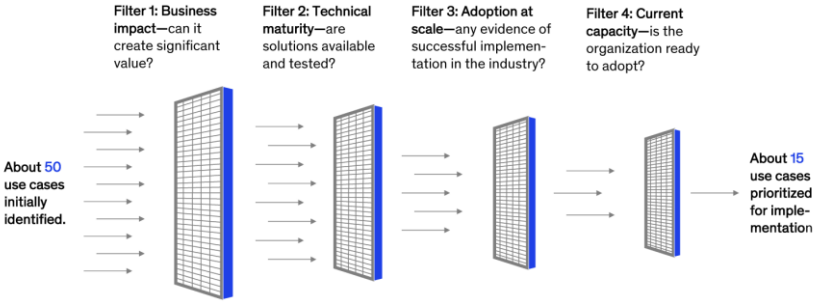
The Filters

- Target 10 to 15 Use Cases to Start

A prioritization filter can help select use cases and sequence them for implementation.



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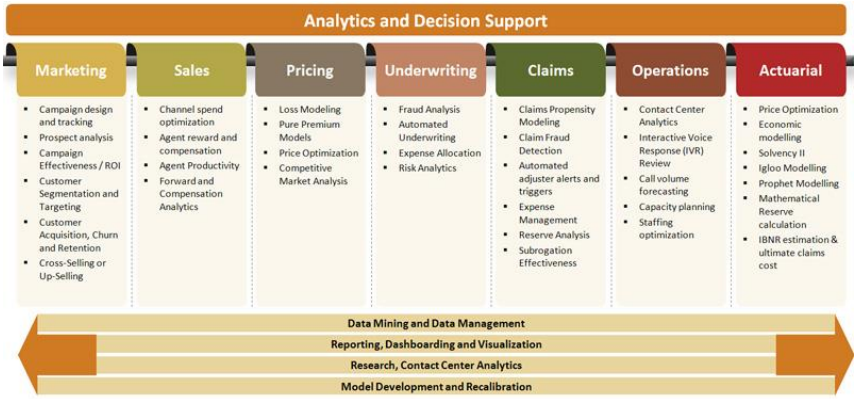
Strategic Applications

- Importance to your Company

- **Solve Strategic Business Problems**
  - From new business opportunities to customer satisfaction, efficient operation & cost reduction
    - Eg Stitch Fix, Netflix
- **Enhanced Decision Making**
  - Smart Cities
  - Health Care
  - Insurance
  - Customer Care
- **Personalization**
  - Retail
  - Health Care
- **Massive Data Integration**
  - Banking
  - Insurance
  - Public Sector

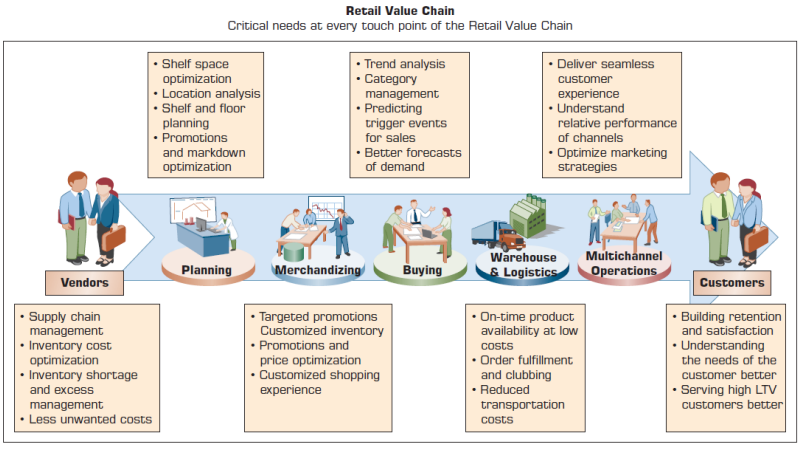
Analytics in Insurance

- Across the whole Value Chain



Analytics in Retail

- Covers every Touch Point



Analytics Example in Hospitality

- Know your Customer to Ensure Best Experience

3 The hospitality industry captures and acts on customer preferences on a multi-national basis

Hospitality: know your customer...

- Room preferences
  - No smoking
  - Pool view
  - Ground floor
- Personal preferences
  - Welcome drink
  - Entertainment
- Usage history
  - Internet usage
  - Fitness usage
  - Restaurant meals
- Commercial details
  - Employer relationship
  - Travel partnerships
  - Payment/ credit card

...everywhere in the world

- Provide the same of personalized service
  - Cloud based architecture
  - Traditional architecture
- The data is not different from what was in a paper based system

SOURCE: McKinsey Marketing practice

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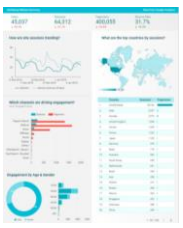
Web Analytics

- Google Analytics

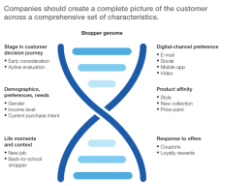
- The measurement, collection, analysis and reporting of web data for purposes of understanding and optimizing web usage
- Popular Tool
  - **Google Analytics (free)**



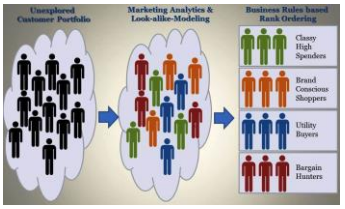
- **Examples of Measurement**
  - Query Terms
  - Time on page (Engagement)
  - Bounce rate
  - New Visitor/Repeat Visit
  - Conversion rate
  - Average order value
  - …

Marketing Analytics
- Adobe Analytics

- **Marketing Mix Modeling**
  - Determine the effectiveness of spending by channel
- **Reach, Cost & Quality of each Touch point (RCQ)**
- **Mapping a Shopper's DNA**
  - A disciplined system for collecting and organizing those insights

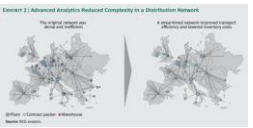


- **Customer Profile & Predictive Marketing**
  - Find your customers in the data
  - Automate the personalization effort
  - Predict the future by delivering right experience at the right time
    - Who & When to target
    - Based upon Touch Point Data & Customer Profile



Analytics in SCM

- **Three High Potential Opportunities**
  - **Visualizing Delivery Routes (Real time Fleet Management)**
    - Allow companies to dynamically analyze millions of data points and model hundreds of potential truck-route scenarios. The result is a compelling **visualization** of delivery routes—route by route and stop by stop
  - **Pinpointing Future Demand**
    - Companies that have a better understanding of what they are going to sell tomorrow can ship products whenever customers request them and can also keep less stock on hand
  - **Simplifying Distribution Networks**

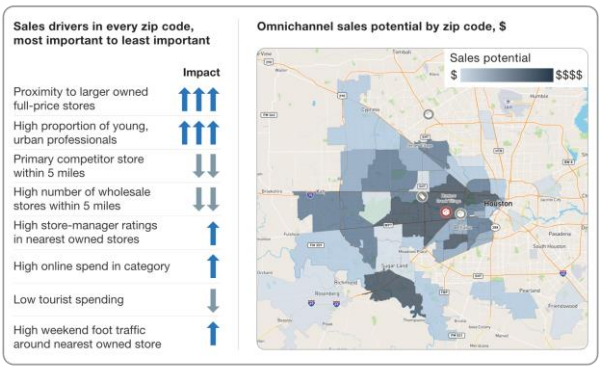


Geospatial Analytics for Retailers

- Identify the Sales Drivers (Who is shopping where)

Using geospatial machine learning, a retailer identified the factors that most affect a zip code's sales potential.

Illustrative example



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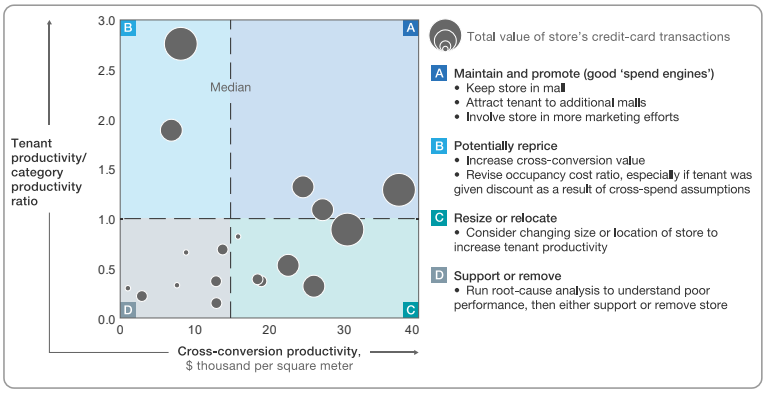
Analytics to Improve Mall Tenants' Performance (Keep, Change, Remove)

With advanced analytics, a mall owner can quantify—and help improve—tenant performance.

Sample tool, illustrative



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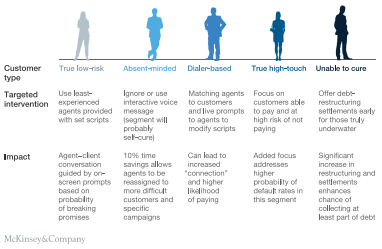
A Next Generation Collection Model

- Deeper understanding of your Customers

- By using advanced analytics and applying machine-learning algorithms, banks can move to a deeper, more nuanced understanding of their at-risk customers (**Microsegments** for targeted **interventions**: **from low risk to unable to cure**)

Advanced analytics and machine learning can classify customers into microsegments for more targeted interventions.



Customer type	True low-risk	Absent-minded	Dialer-based	True high-touch	Unable to cure
Targeted intervention	Use least-experienced agents provided with set scripts	Ignore or use interactive voice message (segment will probably self-cure)	Matching agents to customers and live prompts to agents to modify scripts	Focus on customers able to pay and at high risk of not paying	Offer debt-restructuring settlements early for those truly underwater
Impact	Agent–client conversation guided by on-screen prompts based on probability of breaking promises	10% time savings allows agents to be reassigned to more difficult customers and specific campaigns	Can lead to increased "connection" and higher likelihood of paying	Added focus addresses higher probability of default rates in this segment	Significant increase in restructuring and settlements enhances chance of collecting at least part of debt

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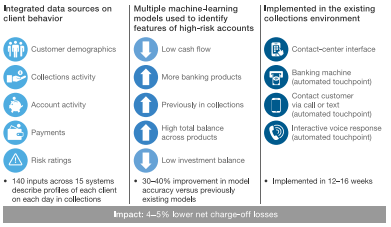
Two major issuers adopted a new approach using more than 100 variables and machine learning to accelerate development of treatment and contact strategies.



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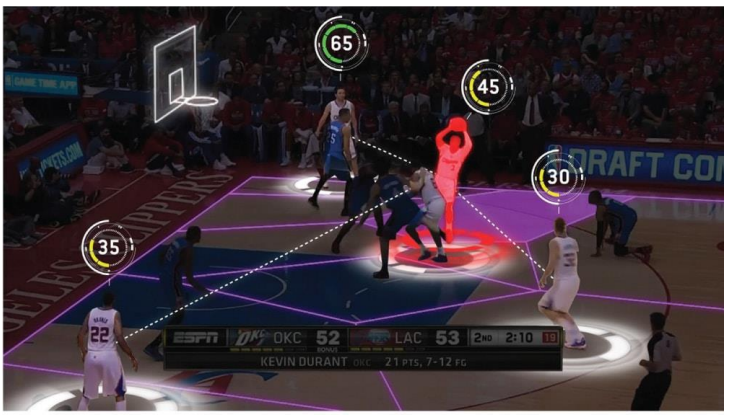
Sport Game Analytics

- Coach for Players

Figure 1. A Second Spectrum game

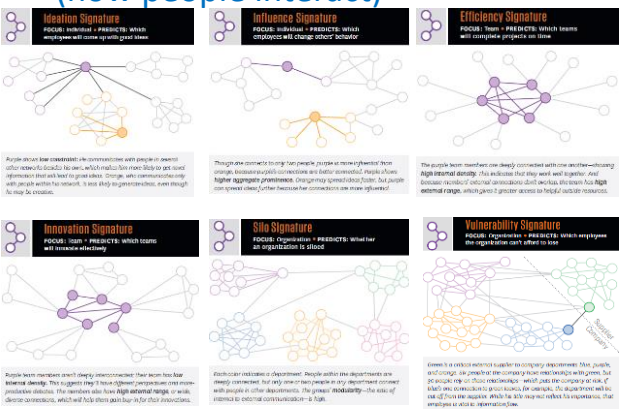


Source: Second Spectrum. Reprinted with permission.

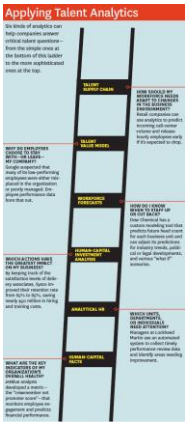
People Analytics

- How to get the best from your People?

- **Relational Analytics** (how people interact)



- **Talent Analytics**



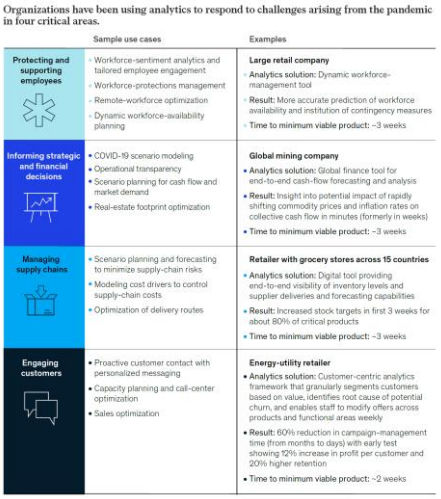
Google Reinvents HR

- A new kind of People Management

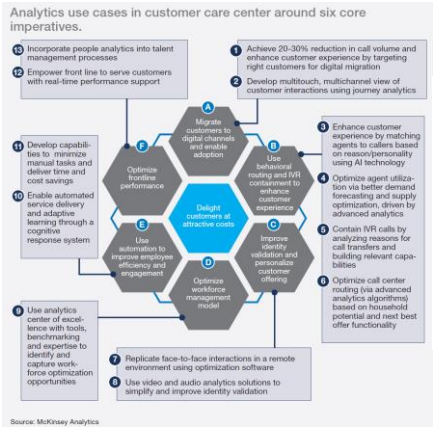
- **All people decisions at Google are based on data and analytics**
  - **A Retention Algorithm**
    - Predicts which employees are most likely to become a retention problem
  - **Predictive Modelling**
    - Use what if analysis to improve their forecast of upcoming people management problems
    - Produce more effective workforce planning
  - **An Effective Hiring Algorithm**
    - Predict which candidates have a higher probability of succeeding after hiring
  - **Calculate the value of Top Performers**
    - Calculate the performance differential between an exceptional employee versus an average one

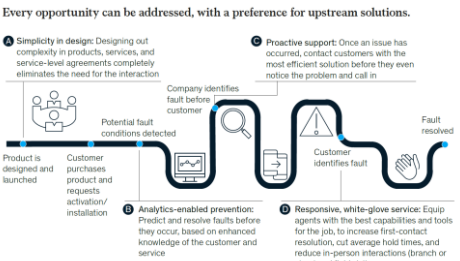
Analytics to Respond to COVID-19

- **Four Critical Areas**
  - Protecting & Supporting Employees
    - Remote workforce Optimization
    - Sentiment Analytics
  - Informing Strategic & Financial Decisions
    - Cash Flow Forecasting
  - Managing Supply Chains
    - Delivery routes Optimization
  - Engaging Customers
    - Personalized Messaging
    - Sales Optimization



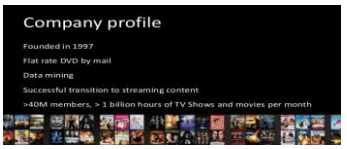
Analytics Application – Q&A Session





Tutorial Session

- **Group Discussion**
  - Finalize the Final Presentation (deadline: **Mar18** 11:00am)
    - Tell a great story to convince us that it is a Winning Company
    - Reference McKinsey Pyramid, Presentation Content Checklist, Strategy Map (wk4) & Technology Strategy (wk6)
    - Follow the Schedule to Present



- **Case: Netflix**
  - Netflix started as a website where people could rent DVDs through the mail, serving as a small competitor to bricks and mortar movie hiring shops such as Blockbuster
  - **Netflix** is now a television and movie streaming service based in the US
  - The service is subscription based with millions of subscribers worldwide. Content is ad free and enables the user to skip the title sequence for shows
  - Featuring a huge selection of thousands of hours worth of shows and movies, many are top and award winning originals

Final Group Presentation Submission

- **Submit Final Presentation** on or before Mar18 11:00am (< 20 MB ppt) – Team Leaders
  - Please pay attention to your individual presentation skills & actively participate in the Q&A session (5 marks)
  - Preferably Business Dress
  - Group Presentation (25 marks)
- **Submit Peer Evaluation** on or before Mar18 11:00am – All students
  - Appreciate your Open & Honest Feedback to your group members
    - Be Specific & Advise who contributes the most & in what areas

- **Final Group Presentation Schedule**
  - Group1 **MUJI**
  - Group2 **Uniqlo**
  - 20min + 5min Q&A
- **Note: Appreciate your attention on the following expectations**
  - Please turn on your Video Camera
  - Know the whole Story
  - Don't read a Script
  - If you are absent from the scheduled group presentation then you will get zero mark

Final Group Presentation

- A Professional Presentation

- **Executive Summary** (Introduction)
  - The Future World
  - A Winning Company
  - The Strategy Map
  - The Technology Strategy
- **The Transformation** (Main Body)
  - Situation Analysis
    - Business Performance
    - Product/Business Portfolio
    - Data (Industry; Market; Customer; Competition)
  - Problem Identification
  - New Vision
  - Recommended Solutions
- **Conclusion**
  - We are a Winning Company
- High Quality Slides
- Great Presentation Skills
  - Group & Individual
  - Feel the Passion & Energy

McKinsey Pyramid

- A Great Story (Top down + Data Driven)

- Top-down Approach
- Start from Executive Summary
  - Draw the attention
- Explain supporting arguments with evidences & examples in a logical manner
- Conclude with the Key messages
  - A Winning Company

- **Pyramid Principle**
  - Can talk from a few minutes to an hour (A Winning Company to create the future)

MGNT4090 – Course Grading Guideline

- **Individual Assignment (25 marks)**
  - A 23 or above
  - A- 21 or above
  - B+ 19 or above
  - B 17 or above
  - B- 15 or above
- **Test (40 marks)**
  - A 85 or above
  - A- 80 or above
  - B+ 75 or above
  - B 65 or above
  - B- 60 or above
- **Group Presentation (30 marks)**
  - A 27 or above
  - A- 25 or above
  - B+ 23 or above
  - B 20 or above
  - B- 17 or above

Will talk about Test2 in Course Revision

Group Presentation Guidelines

- Print Presenter Name on each Slide

MGNT4090 Principles of Management

Final Group Presentation Assignment Guidelines

1. Submit a softcopy of your final group presentation on or before **Mar19 Fri 11:00am** to my email account in ppt format. Mar18
2. It's only the MS Powerpoint software can be used to develop and prepare your presentation.
3. Please strictly follow the format as listed below for your presentation:
   - Slide1: include your group number, project title, all members' full name and student number
   - Slide2: list the task allocation summary for each member
   - Remaining Slides: print the presenter name (and full name) on the bottom right hand side of each slide that the person is responsible to present
   - Include other relevant information in appendix.
4. For each student, you're responsible to submit the Peer Evaluation Sheet on **Mar19**.
5. Group presentations will start on the week of **Mar23**. The presentation sequence will be determined on **Mar02** in class.
6. No late submission of work/presentation will be considered.
7. For any student who is absent from the presentation will get **zero** mark.
8. Each group member is expected to have a good participation and understanding on the whole presentation but not just the part you are being responsible to present.
9. Business dressing is recommended. Business Dress is Preferable
10. Presentation duration is **20 minutes** followed by **5min** Q&A. Each student should have more or less equal time to present.
11. Please also refer to the group presentation evaluation for your additional reference & preparation.

Tell a Great Story

Group Presentation Content Checklist & Evaluation

Pay attention to your individual presentation skills

CUHK 2020-21 Term2 Group Presentation Content Checklist

Group Project Presentation Content Checklist – Company Transformation

Present a story in **20 min** by using a MS ppt format that covers the following main points:

1. Hypothesis: A Winning Company
2. The Future World
3. Executive Summary (Strategy Map; Technology Strategy)
4. The Current Situation
   - Company Background
   - Business Performance & Product Portfolio
   - The PEST (China country & customers)
   - The Industry Trends (multi-industries)
   - The Competition Landscape (within & across industries)
   - The SWOT
   - The Problem Identification
     - Core Problem; Adjacent Problem; Frontier Problem
5. Proposed New Vision
6. Recommended Solutions (Use of Blue Ocean; New Tech)
   - Core Problem Solution
   - Adjacent Problem Solution
   - Frontier Problem Solution
7. Conclusion - A Winning Company
8. Appendix - Sources of Information from HBR, BcG & McK

MGNT4090 Group Presentation Evaluation

Evaluator (Teacher): _____ **Group :** _____

Evaluation Criteria	**Score (1-2: blow average; 3 average; 4-5: above average)**
Create the Future (5 marks) - Hypothesis (A Winning Company) - The Future World - Executive Summary	**Score:**
Situation Analysis (5 marks) - PEST & Country - Company Background & Performance - Industry - Competition Landscape & SWOT - Problem Identification	**Score:**
Recommended Company Transformation (5 marks) - New Vision - Core, Adjacent & New Frontiers	**Score:**
Creative Ideas (5 marks) - Blue Oceans - DI (Use of Tech)	**Score:**
Quality & Format (5 marks) - Quality of Slides - Conclusion (A Winning Company) - Q&A & Team Co-ordination	**Score:**
Total Score (Max 25 marks)	**Total Score:**
Note: **Average rating:** Demonstrate a reasonable understanding on the assigned company & industry; Able to make a logical recommendation on corporate & digital transformation **Above average rating:** Demonstrate a good understanding on the assigned company & industry; Able to make a logical and good recommendation on corporate & digital transformation **Below average rating:** Not able to demonstrate a basic understanding on the company & industry; Not able to make a logical recommendation on corporate & digital transformation	**Additional Comments:** **Best Presenter** (able to feel the passion, energy & keep a smiling face with eye contact; able to answer the questions in a professional manner):

Peer Evaluation

- Promote Professionalism & Ensure Fairness

- **Will deduct individual group presentation mark from one minor sub grade to zero mark depending upon the seriousness of the negative behavior & incident**
  - If we receive more than one member's consistent negative comments and unsatisfactory score (score 1 or 2)

MGNT4090 2020-21 Term2 Technology and Innovation Management

Peer Evaluation Form

Your Name _____

Student Number_____

Group Number_____

The purpose of this evaluation is to fairly understand the actual contribution of your team members (excluding yourself) in the group project. You should make this evaluation yourself but not jointly with other members. Your evaluations are confidential. Please return directly this form to your instructor.

Score: 1 - Poor (Inactive) 2 - Fair (Passive) 3 - Satisfactory (Average) 4 - Good (Able to give opinions) 5 - Excellent (Core member)

Group Members (full name)	Score	Comments (**Mandatory**)
		Be Specific

Additional Comments

_____

Netflix Recommendation Engine

- **Netflix**'s recommendation systems are well-developed by the engineers to understand the interests and habits of their users based on **multiple factors**
  - The recommending process starts as soon as you open your account on Netflix and create your profile
  - The more time you spend on Netflix, the more accurate your recommendations get
  - Every time you open Netflix, you see a dozen rows filled with immersive content. Every row falls under a specific genre like "**Trending now**", "**Continue Watching**", "**New Releases**" and so on
- Viewer interactions with Netflix services include the viewer ratings, viewing history, etc
- Data of categories, year of release, title, genres, and more
- Other viewers with similar preferences and interests
- The time duration of a viewer watching a show
- The device on which a viewer is watching
- The time of the day a viewer watches

Typical Questions to Discuss

- Netflix: a DI & BOS

- **Discuss the Sustainable Competitive Advantage of Netflix**
  - Change the Way people renting & watching Movies
  - Subscription Service Model
  - Affordability, Accessibility & Availability
  - Original Content
- **What key technologies are used by Netflix?**
  - Cloud based solution
  - Recommendation Engine (Analytics)
- **Is Netflix a Disruptive Innovation?**
  - Netflix started off as a video on demand and DVD by mail kind of a platform and then later expanded its services to even online video streaming which was the spotlight of its developments
  - **Netflix disrupts the television & movie industries for those under served customers & then the mainstream**
- Is Netflix a Blue Ocean?
- Describe the ERRC framework of Netflix