

# “Only 10% - 30% of Analytics Projects Succeed”



What's the major obstacle for AI?



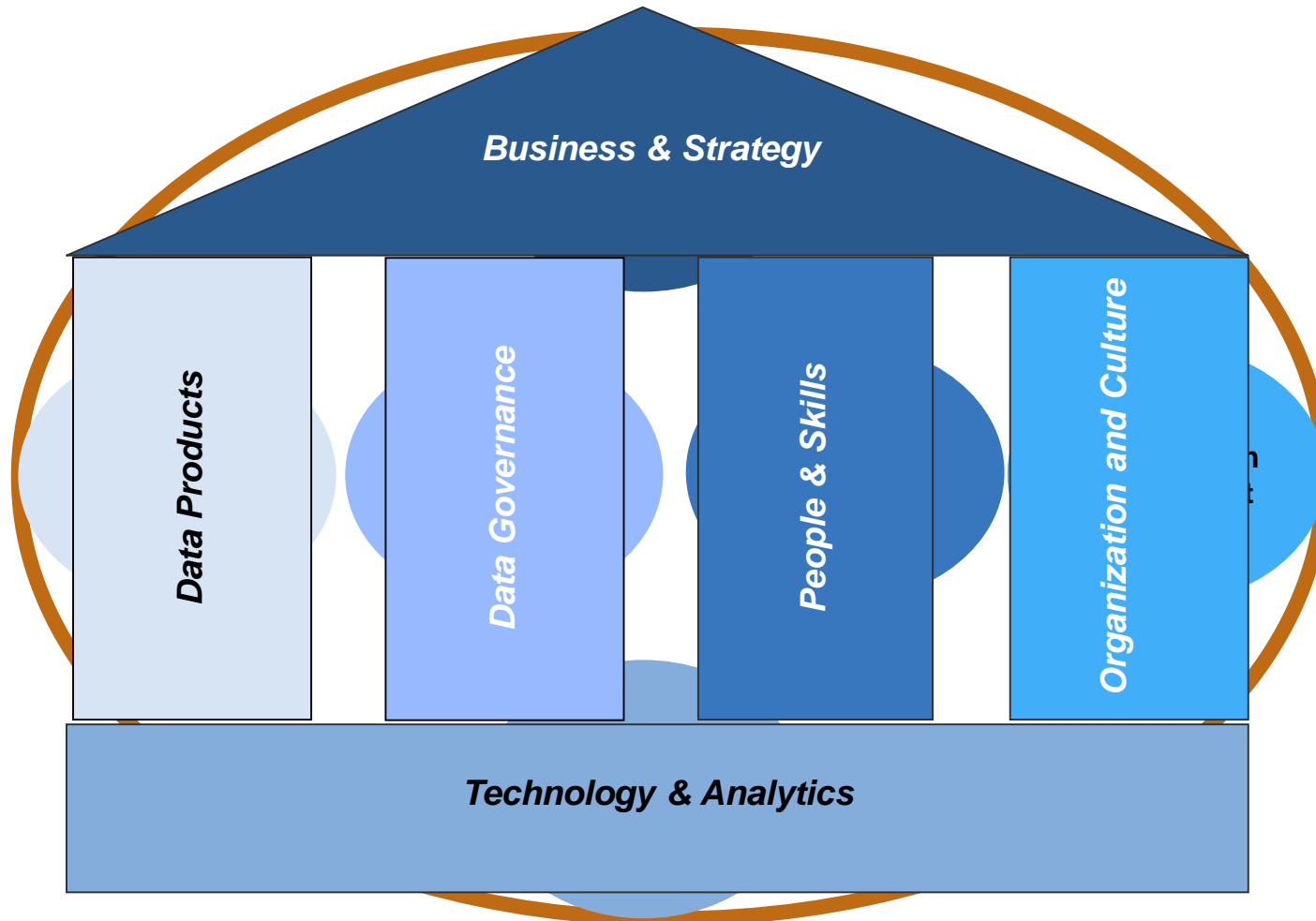


# What's the major obstacle for AI?

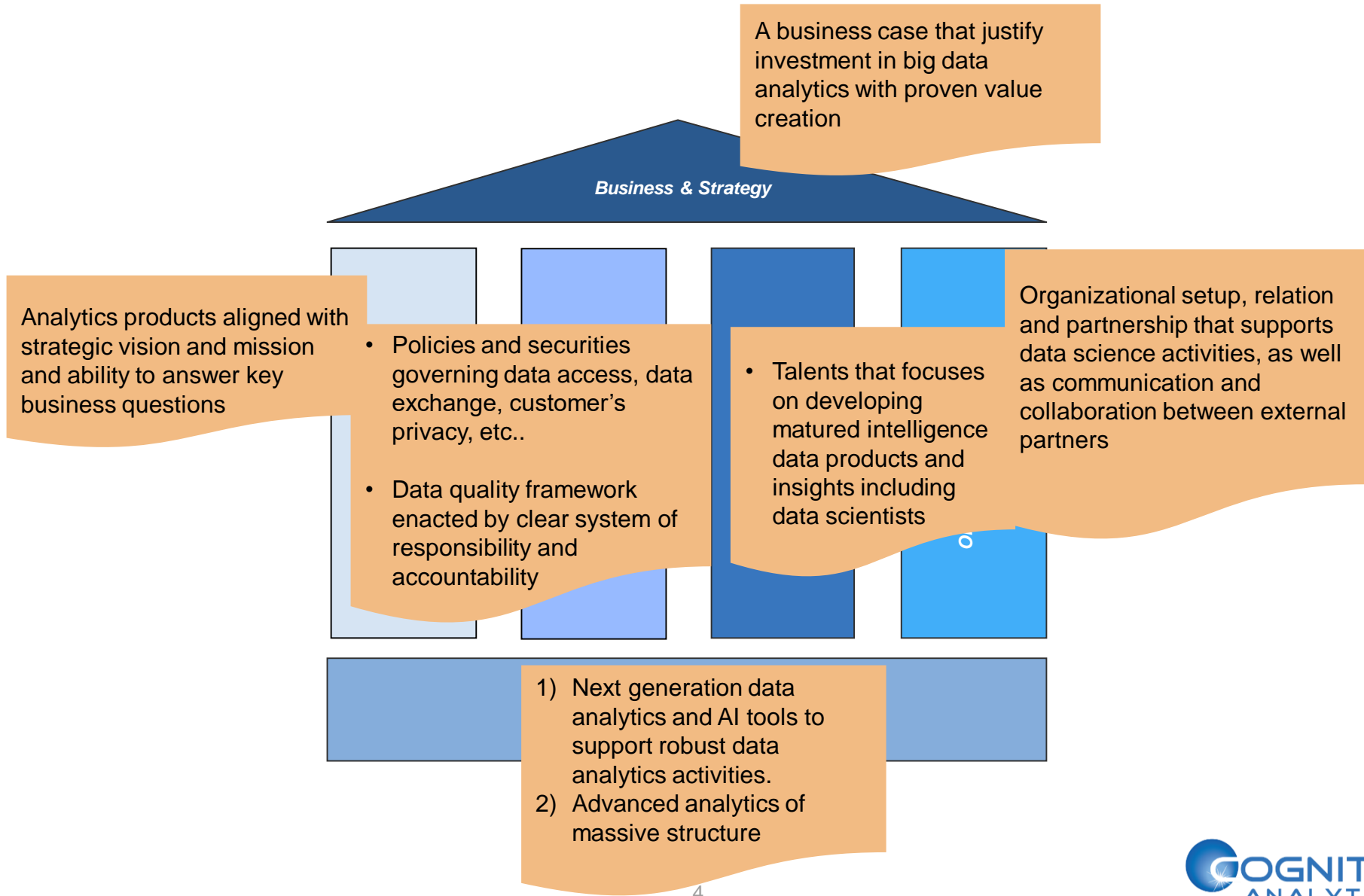
## Top Big Data Challenges for 2015



# So Many Uncertainties ???



# Big Data Analytics Framework



# Big Data Analytics Framework

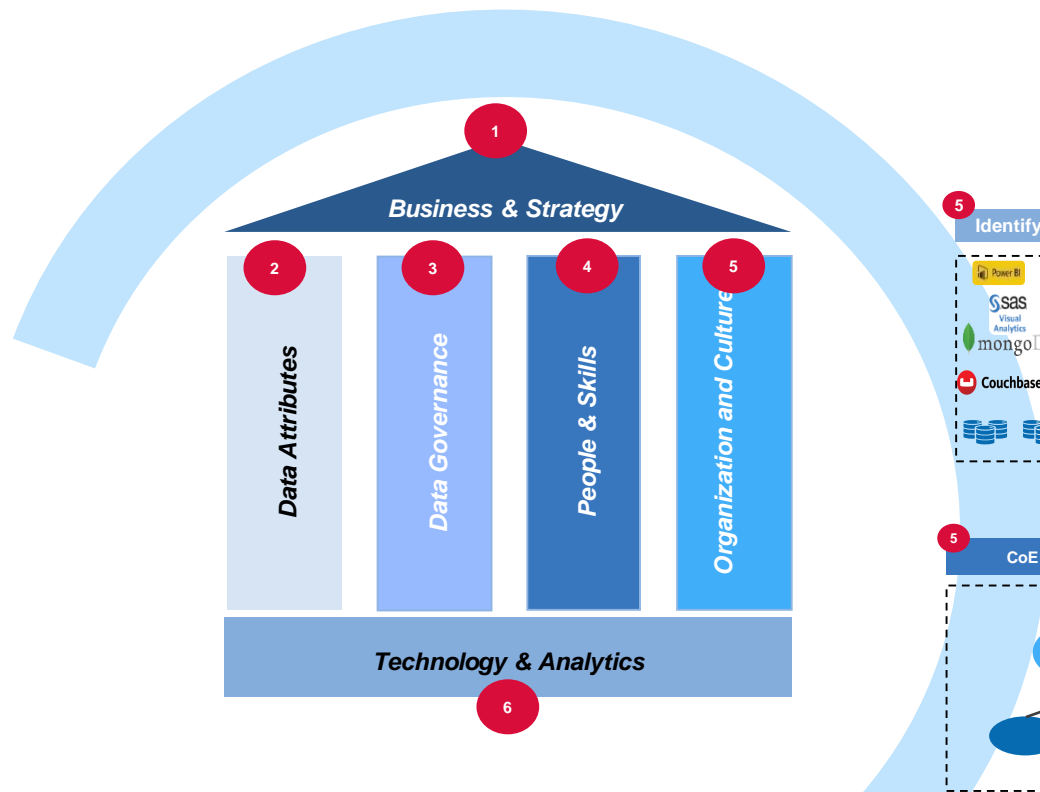
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	Stage 1 Analytical Insight	Stage 2 Insights Analysis	Stage 3 Analytical Applications	Stage 4 Insights Automation	Stage 5 Personalized Insights
Business Strategy	Key insights to drive strategy	Business processes are analyzed and optimized	Decisions are made using data insights	Insights are used to create new business models	Customers can be targeted with personalized offers
Data Platform	Integration of data sources and systems	Data is stored in a centralized data lake	Integration with various data sources	Insights are used to create new business models	Customers can be targeted with personalized offers
Data Governance	Key insights to drive strategy	Business processes are analyzed and optimized	Decisions are made using data insights	Insights are used to create new business models	Customers can be targeted with personalized offers
Technology	Key insights to drive strategy	Business processes are analyzed and optimized	Decisions are made using data insights	Insights are used to create new business models	Customers can be targeted with personalized offers
Organization & Culture	Key insights to drive strategy	Business processes are analyzed and optimized	Decisions are made using data insights	Insights are used to create new business models	Customers can be targeted with personalized offers
People & Skills	Key insights to drive strategy	Business processes are analyzed and optimized	Decisions are made using data insights	Insights are used to create new business models	Customers can be targeted with personalized offers

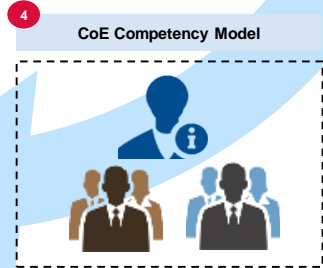
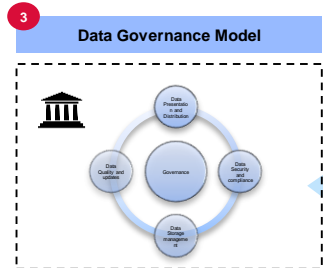
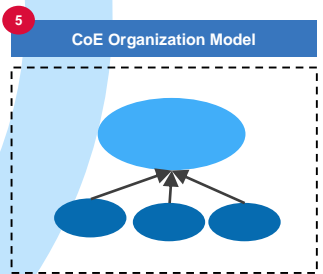
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### Maturity Model

	1	2	3	4	5
Strategic Value					
Data & Governance					
Technology					
People and Skills					
Organization & Culture					



5 Identify Technology platforms



## Session Agenda

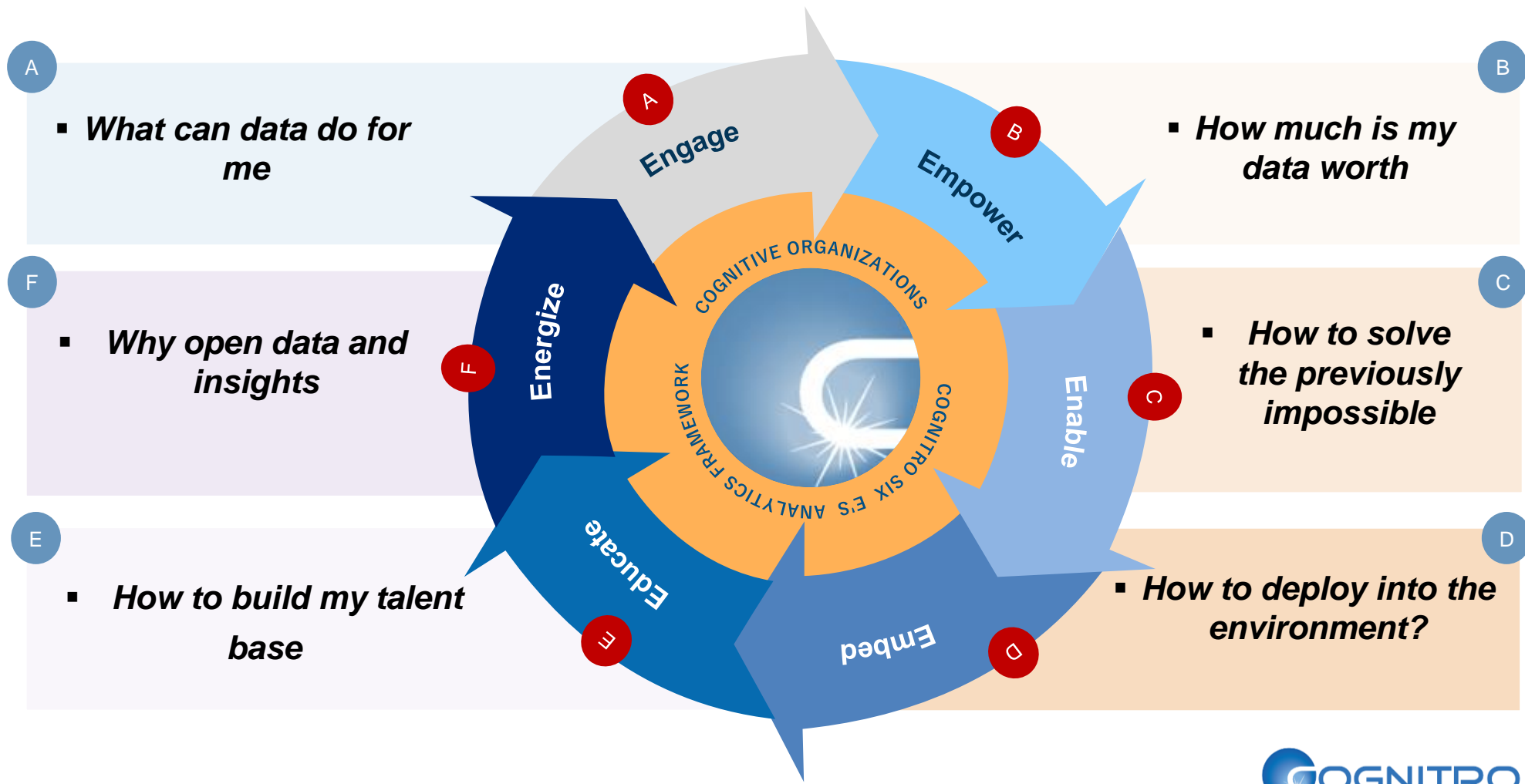
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- About the Speaker & Organization
- AI - Blessing or Curse
- Top Challenges Facing AI & Big Data
- Cognitro Six E's Cognitive Framework
- Example: Health Digital & AI Strategy
- Key Success Factors for Building Sustainable AI

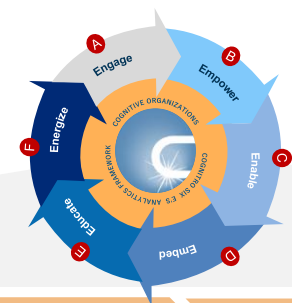




# Cognitro Analytics Six E's Framework for a Cognitive Organization™



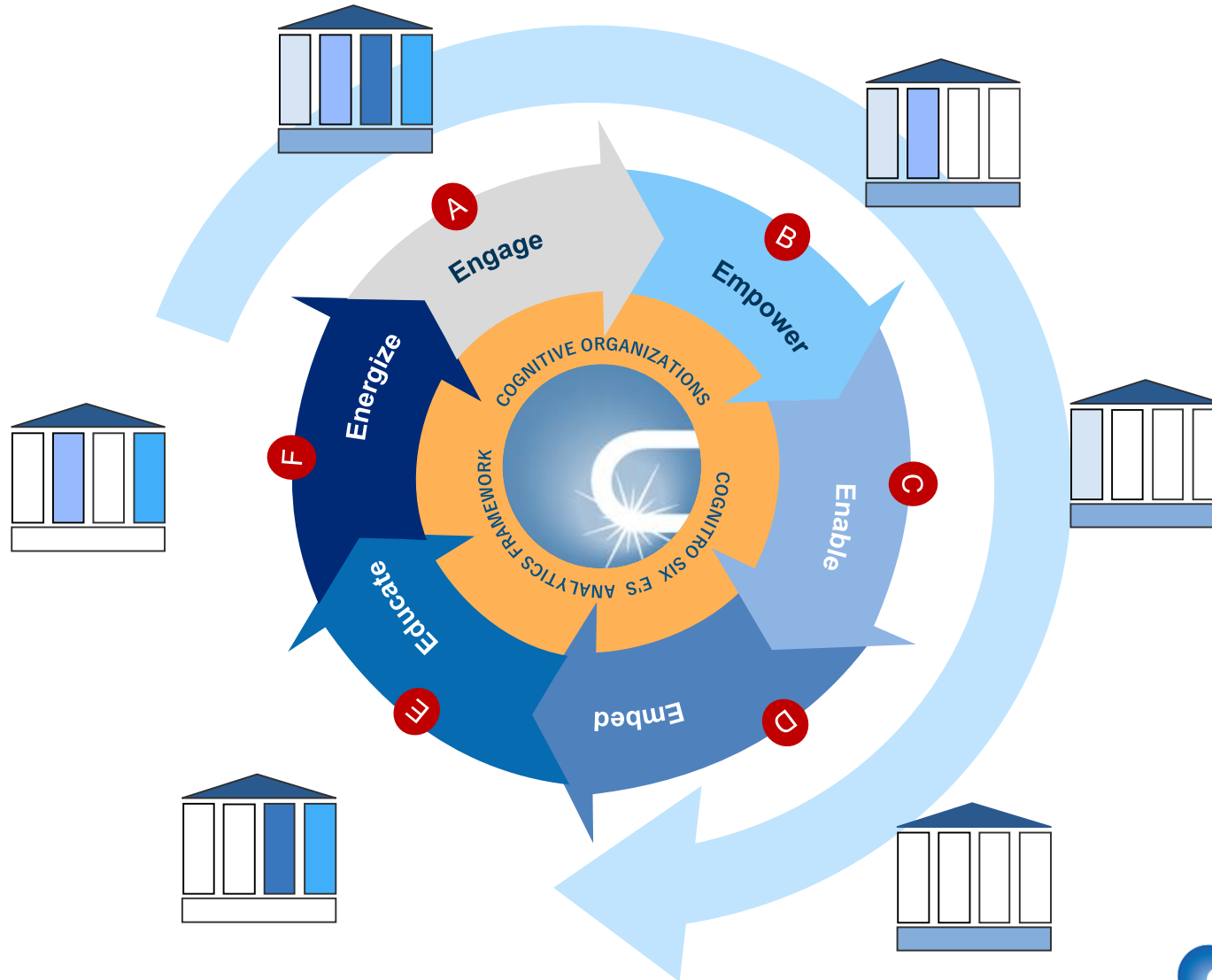
# A comprehensive set of next-generation end-to-end AI and advanced analytics



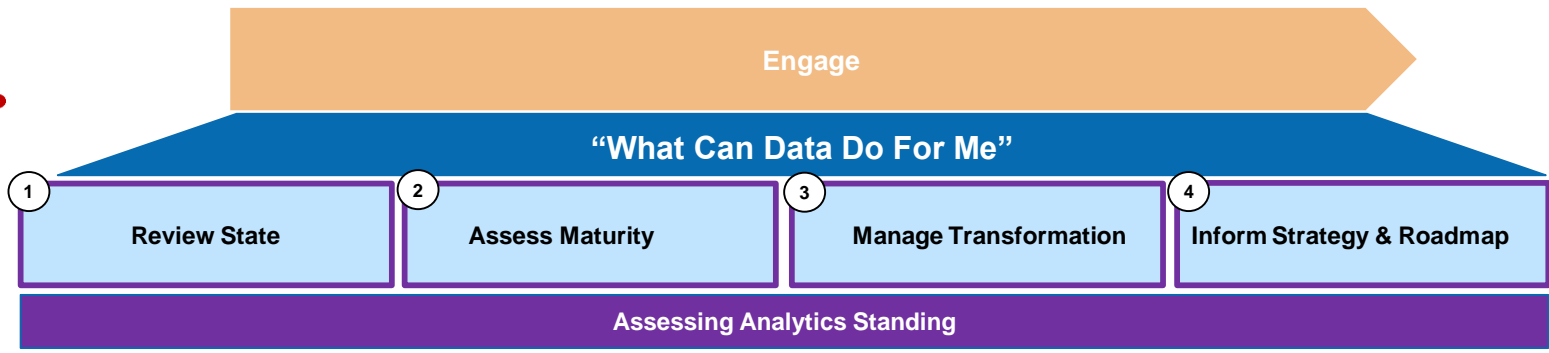
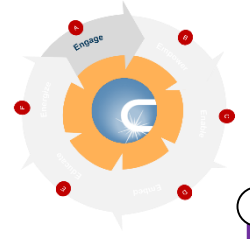
Data Analytics Stand-Up & Scale Up	Realization of Total Data Value	Enablement through Data Science	Operationalization & Insights Generation	Igniting Data Science Talent	Community Outreach
<i>"What Can Data Do for me"</i>	<i>"How much is my data worth"</i>	<i>"How to solve the previously impossible"</i>	<i>"How to build the technology and the environment?"</i>	<i>"How to build my talent base?"</i>	<i>"Why open data and insights?"</i>
<ul style="list-style-type: none"> <li>Review State</li> <li>Assess Maturity</li> <li>Manage Transformation</li> <li>Inform Strategy &amp; Roadmap</li> </ul>	<ul style="list-style-type: none"> <li>Use Case Prioritization</li> <li>Data Identification, Acquisition &amp; Gaps</li> <li>Management &amp; Governance</li> <li>Pilots &amp; Prototypes</li> </ul>	<ul style="list-style-type: none"> <li>Data Cleansing</li> <li>Data Visualization</li> <li>Predictive Modeling &amp; Machine Learning</li> <li>Insight Generation &amp; Contextualization</li> </ul>	<ul style="list-style-type: none"> <li>Decisioning Platform</li> <li>BI Technology</li> <li>Big Data Tools and Infrastructure</li> <li>Insight to Action &amp; RFP Support</li> </ul>	<ul style="list-style-type: none"> <li>Capability Assessment</li> <li>Executive workshop</li> <li>Training &amp; Scaling</li> <li>Capstone Project</li> <li>Competency Model</li> </ul>	<ul style="list-style-type: none"> <li>Impact, Outcomes, &amp; Storytelling</li> <li>Insights to Innovation</li> <li>Data Monetization</li> <li>Organizational Constructs</li> </ul>



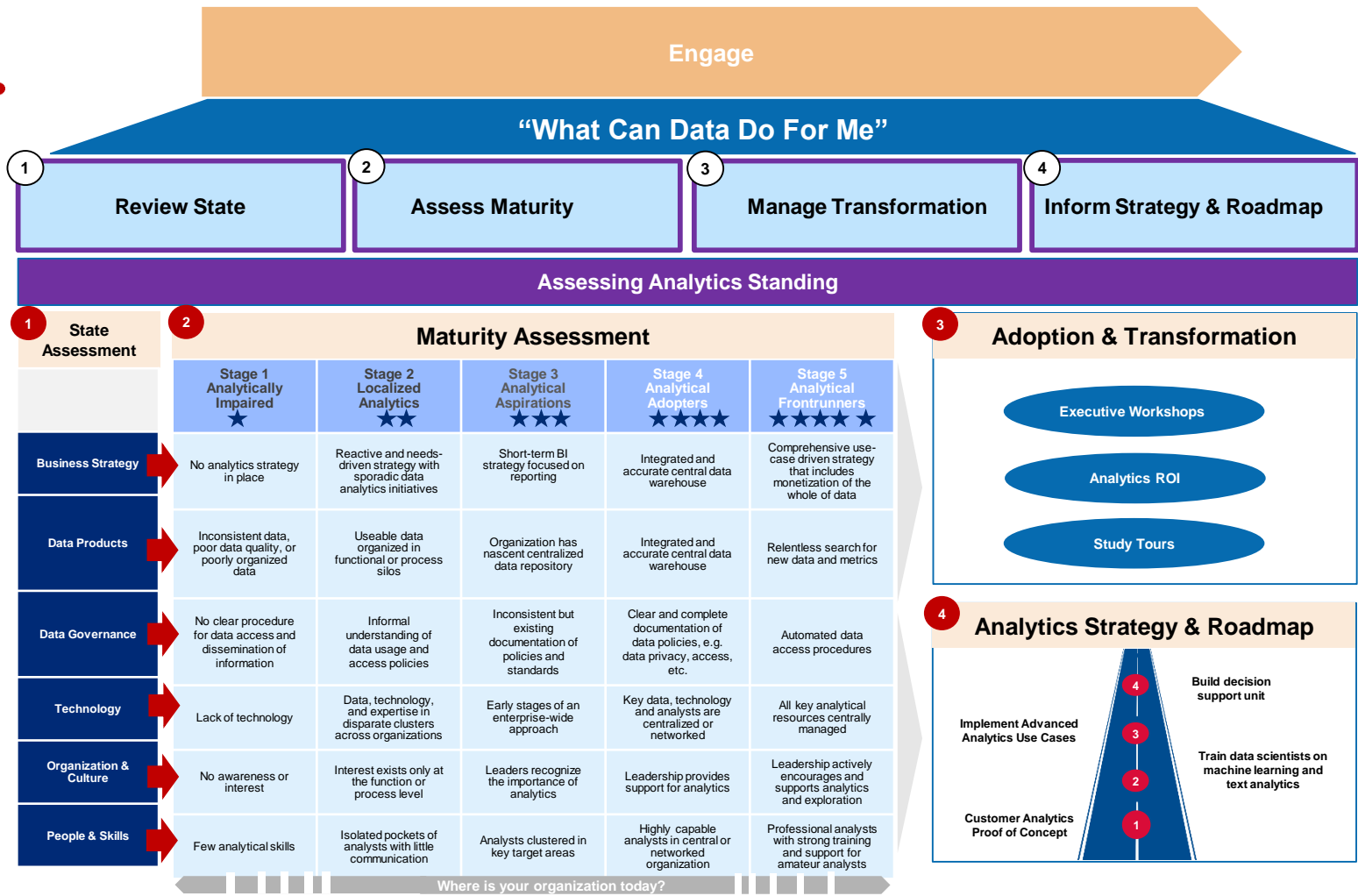
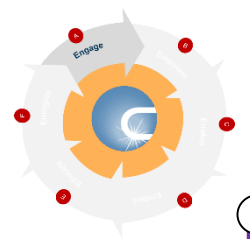
# Six E's Model Driving Big Data Analytics Framework



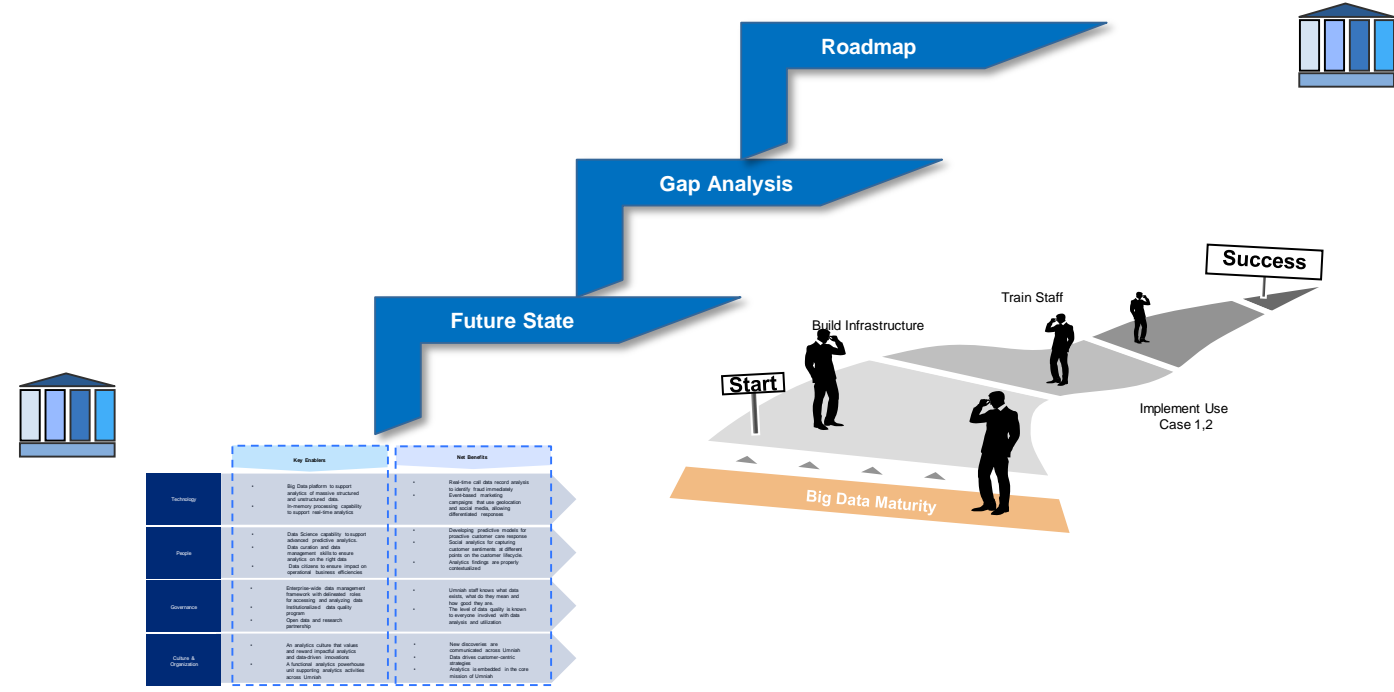
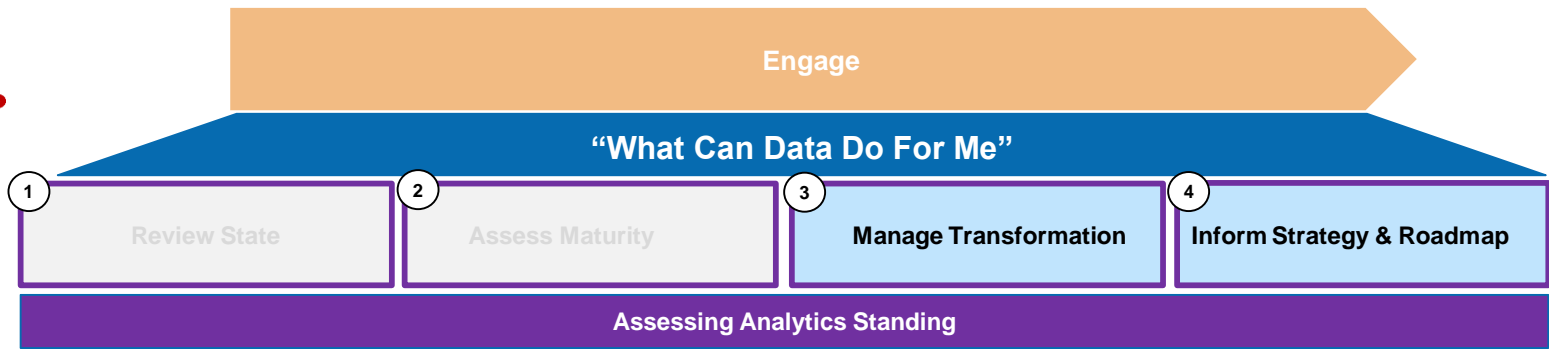
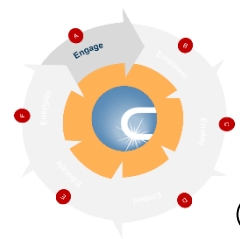
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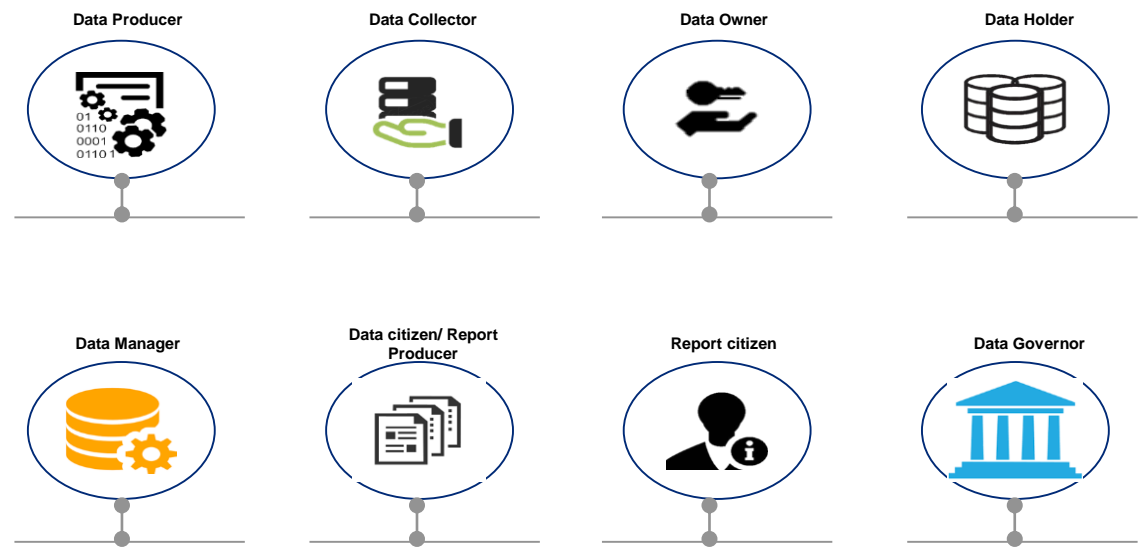
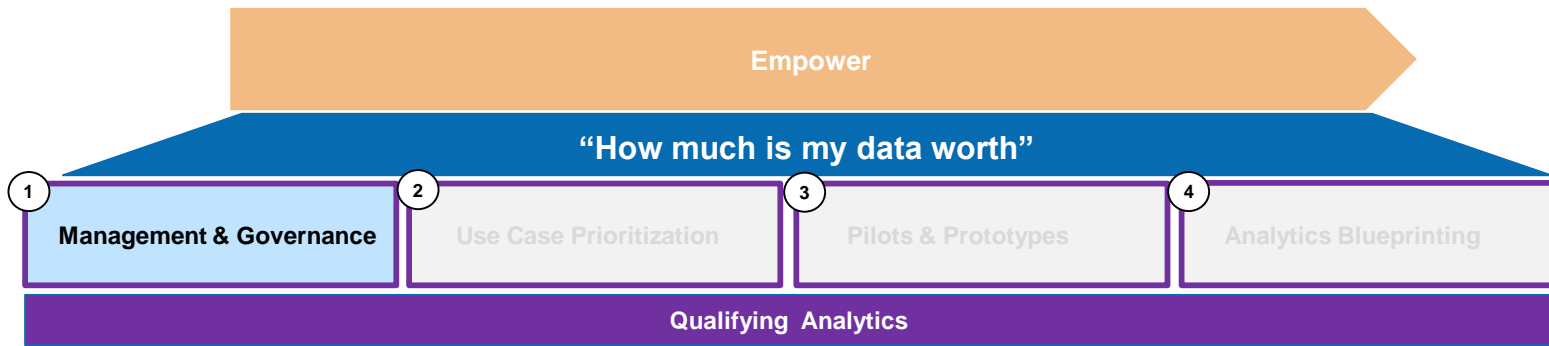
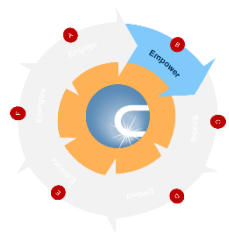
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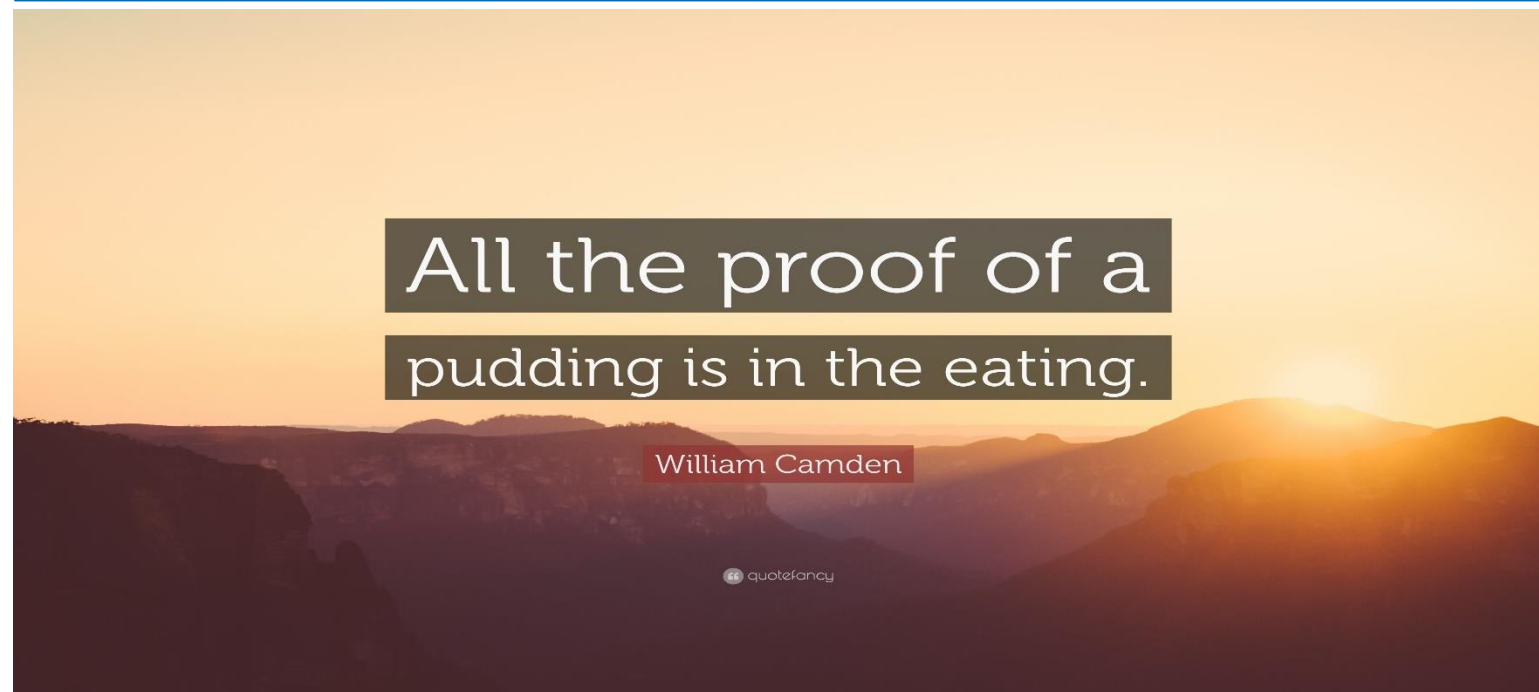
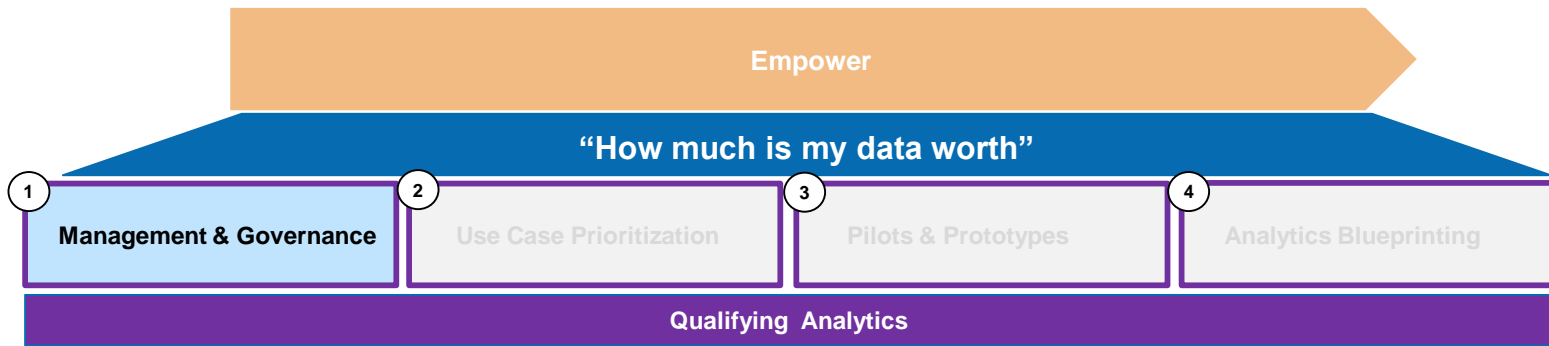
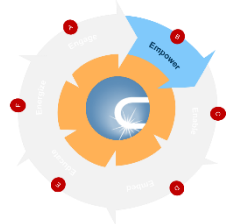
	Data Access & Integration	Data Storage and Warehousing	Data Processing and Analytics	Performance, Scalability & Elasticity
Technology	Limited or no capability for real-time access and integration of structured and unstructured data (not network data)	Structured data stored in a traditional relational data warehouse. Limited capability for "hot" data	Analytics based on batch and periodic data ingestion and processing	Focus on BI as an add-on to existing data architecture
People	Data capacity specifically for unstructured data is constrained by lack of data data management	Lack of skills needed to drive and manage big data infrastructure	Analytics based on periodic and batch processing	Analytics capabilities fragmented across BI and customer data
Governance	Lengthy approval processes for data access from time to time	Ability to tune all data stored in the warehouse for the application	Batch storage access, periodic analytics value	Lack of unified view of data, analytics, and quality of information
Culture & Organization	Limited cooperation between or data exchange	Lack of awareness of value of big data across the organization	Lack of integrated unit and metrics for analytics activities	No clear responsibility of analytics strategy

	Key Enablers	Not Benefits
Technology	Big Data platform to support analysis of massive structured and unstructured data. Incremental processing capability to support real-time analysis	Real-time call data record analysis to identify trend information. Cross-linked marketing campaigns. Real-time generation and audit trails, allowing differentiated responses
People	Data Science capability to support advanced predictive analytics. Data scientist and data management skills to extract insights on the right data. Data science to extract insights on operational business effectiveness	Developing predictive models for product and/or user response. Social analysis for capturing customer sentiment in different points on the customer lifecycle. Analytics insights are primarily contextualized
Governance	Empower data data managers to interact with distributed data in analyzing and analyzing data (heterogeneous) data quality programs. Open data and research partnerships	Unlink and loose what data means, what do they track and how good they are. The need of data quality is broken in a more holistic big data analysis and utilization
Culture & Organization	An analytic culture that values and reward impactful analysis and insights. Cross-functional analytics organization and supporting analytics activities across the organization	New observations are communicated across the organization. Data driven customer-centric strategy. Analytics is embedded in the core mission of the organization

# Realization of Total Data Value: Build analytics momentum, qualify data, setup governance and test-drive analytics

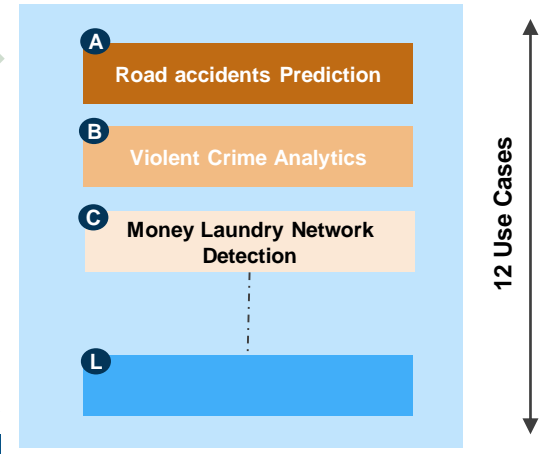
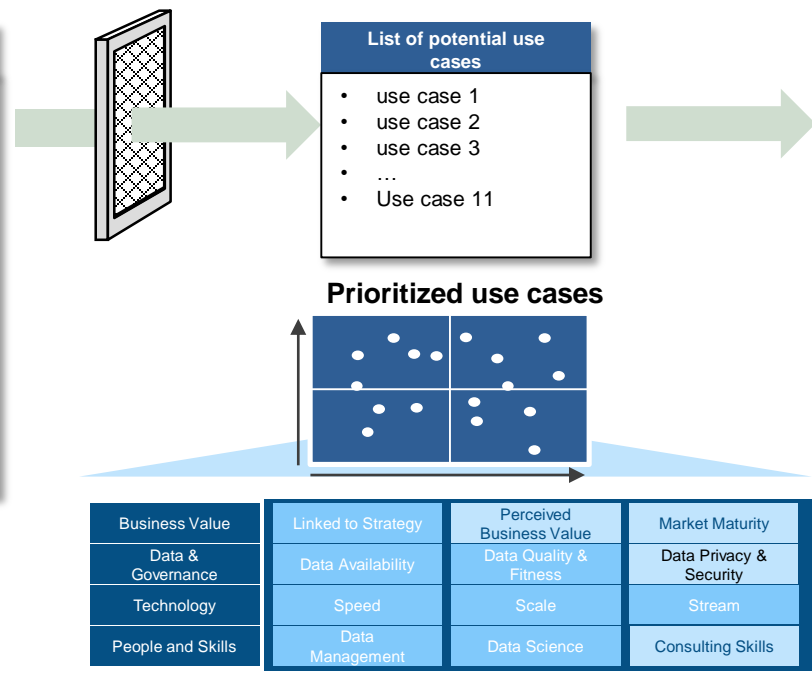
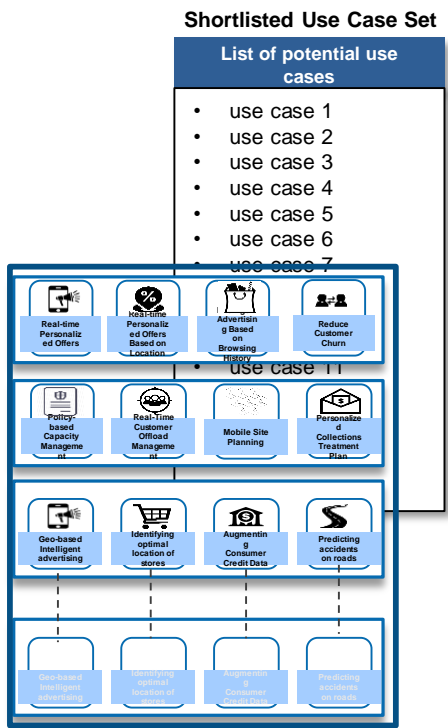
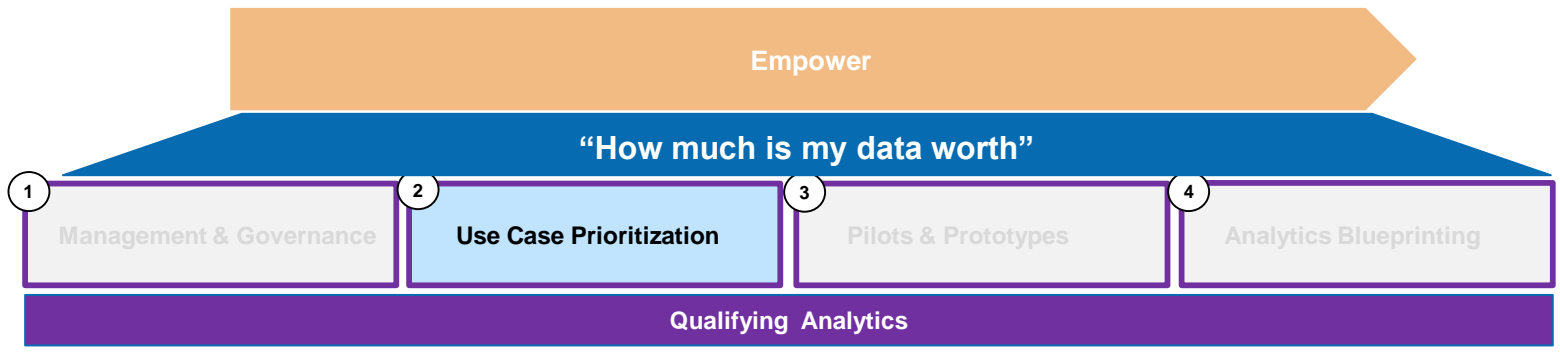
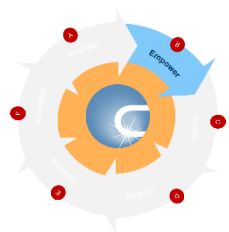


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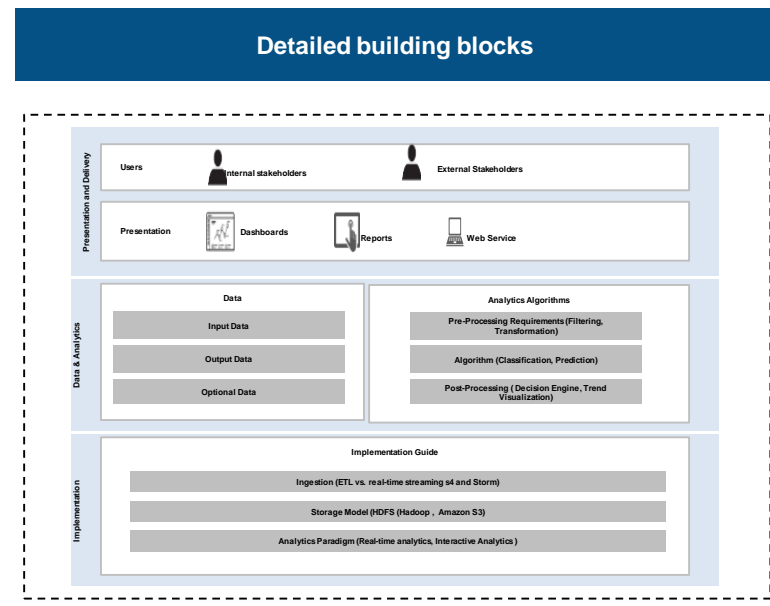
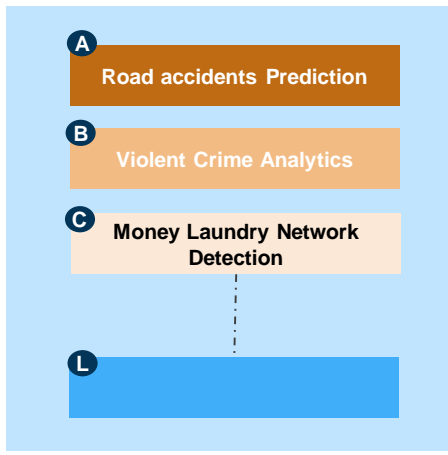
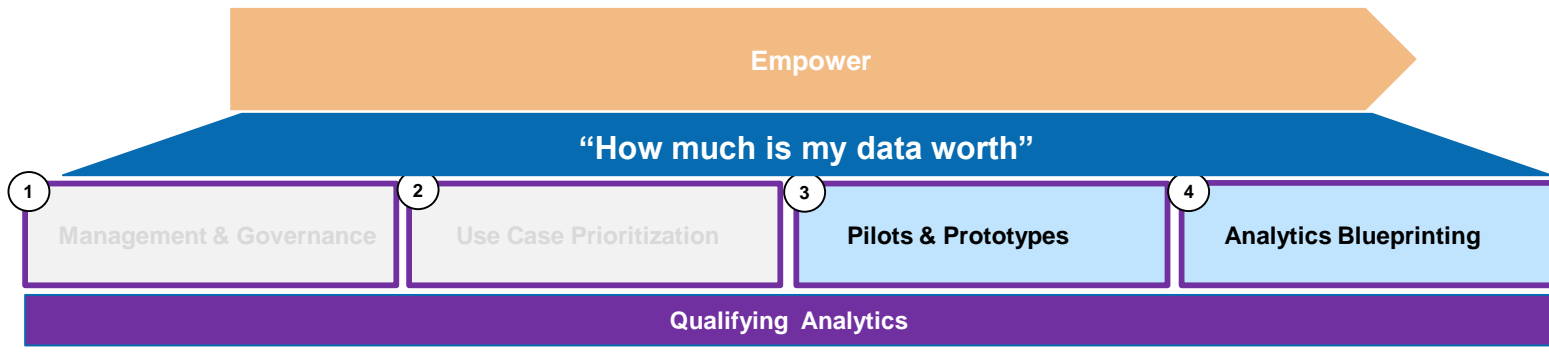
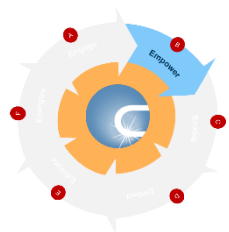




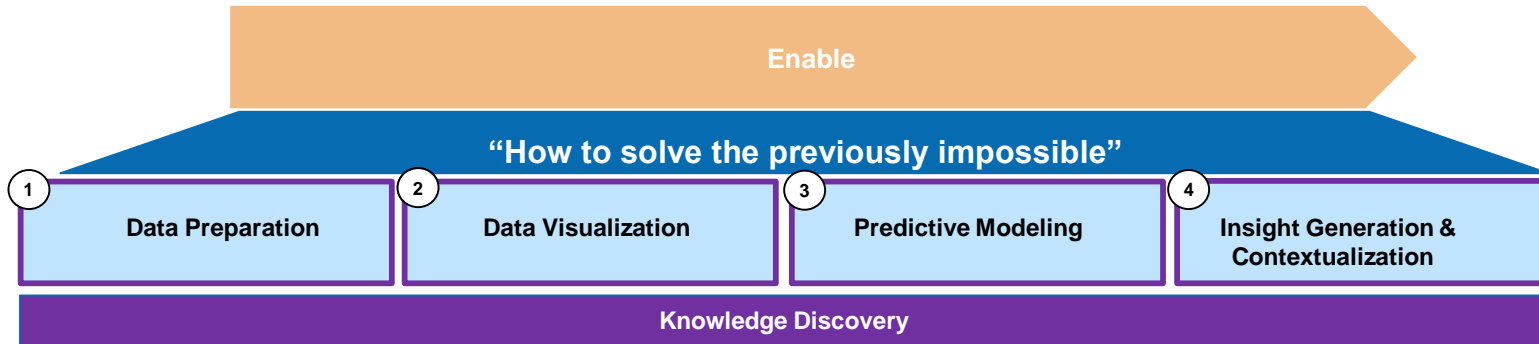
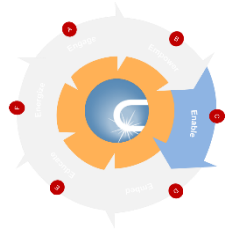
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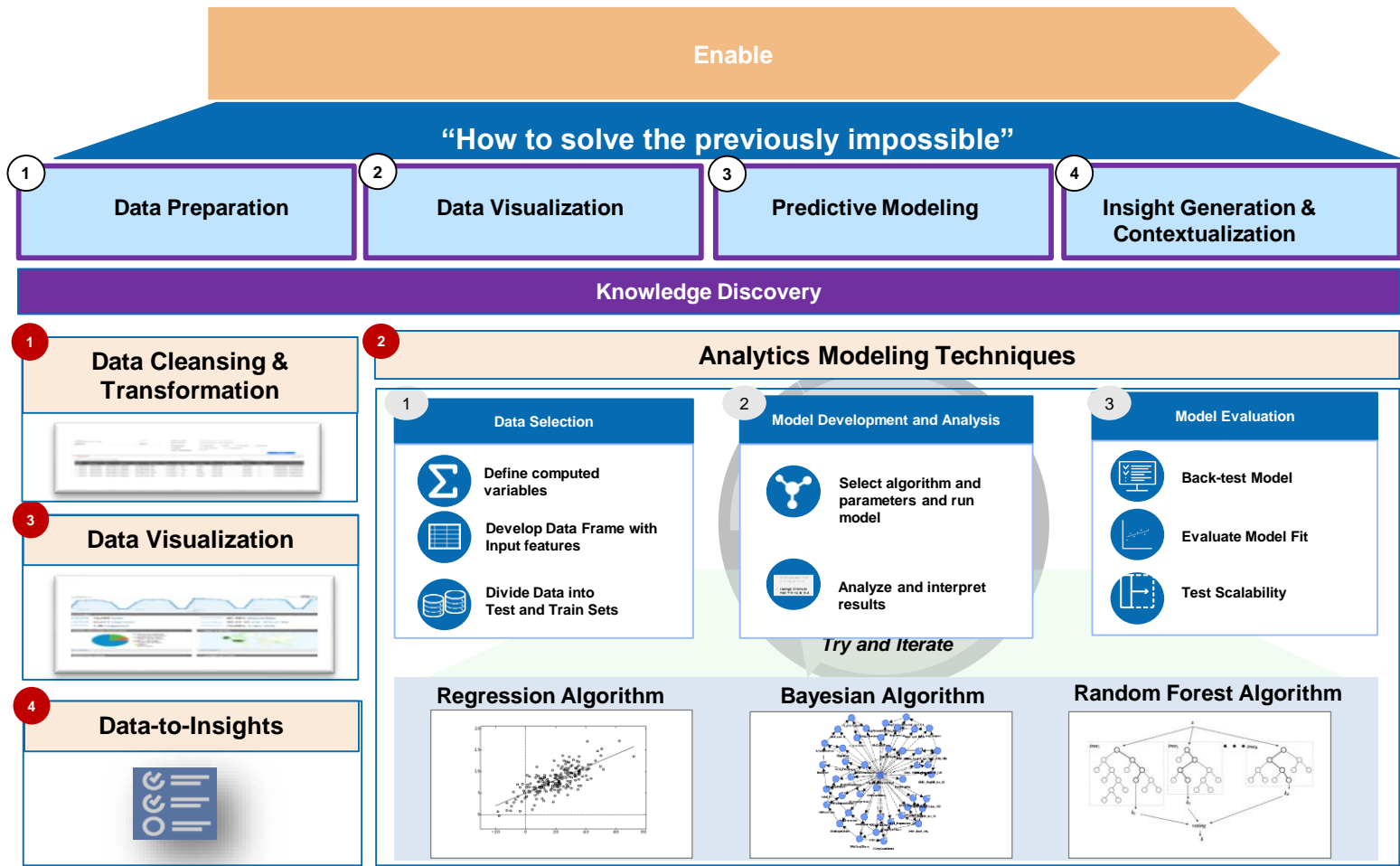
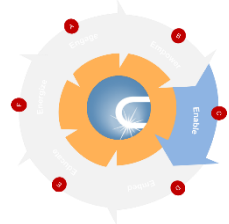
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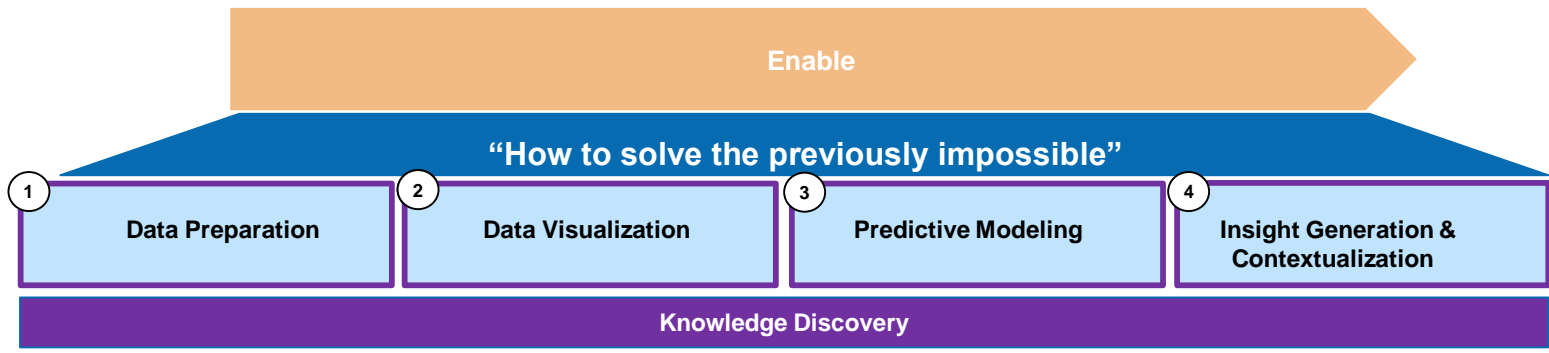
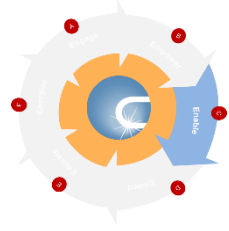
# Analytics Enablement: take the first step to the realization of data value through the generation of valuable insights



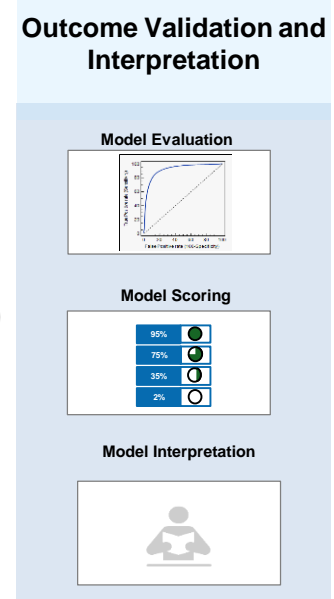
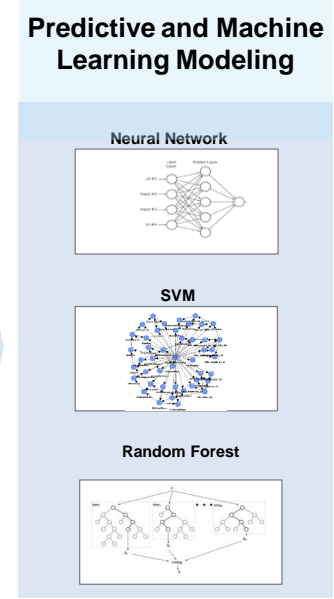
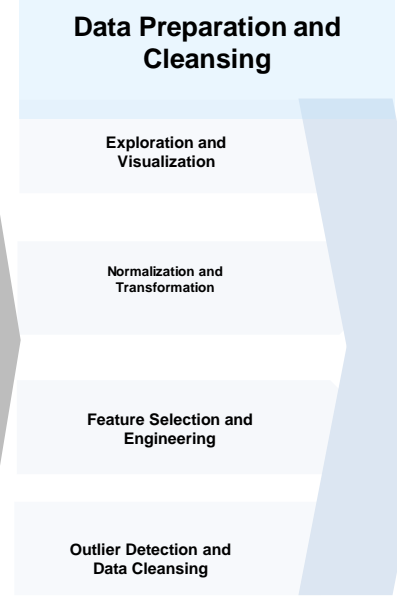
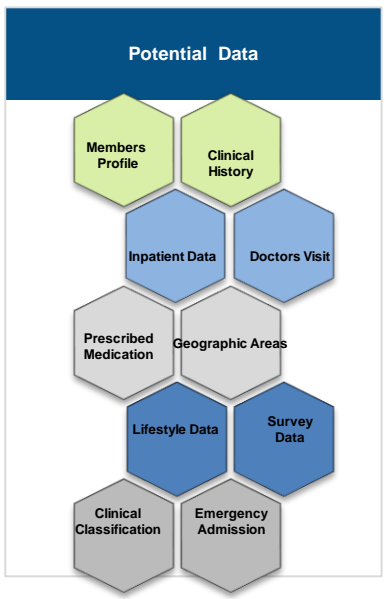
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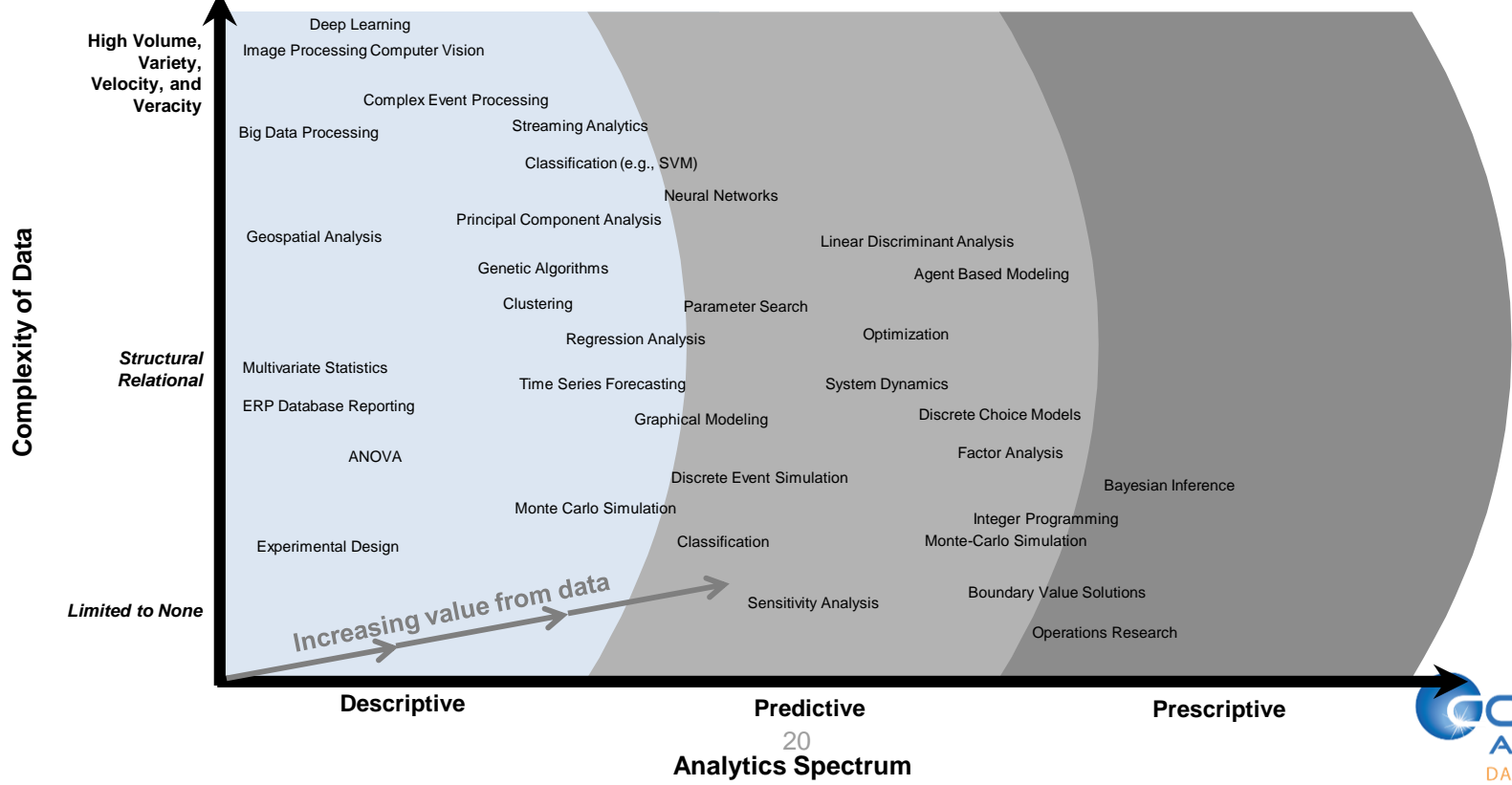
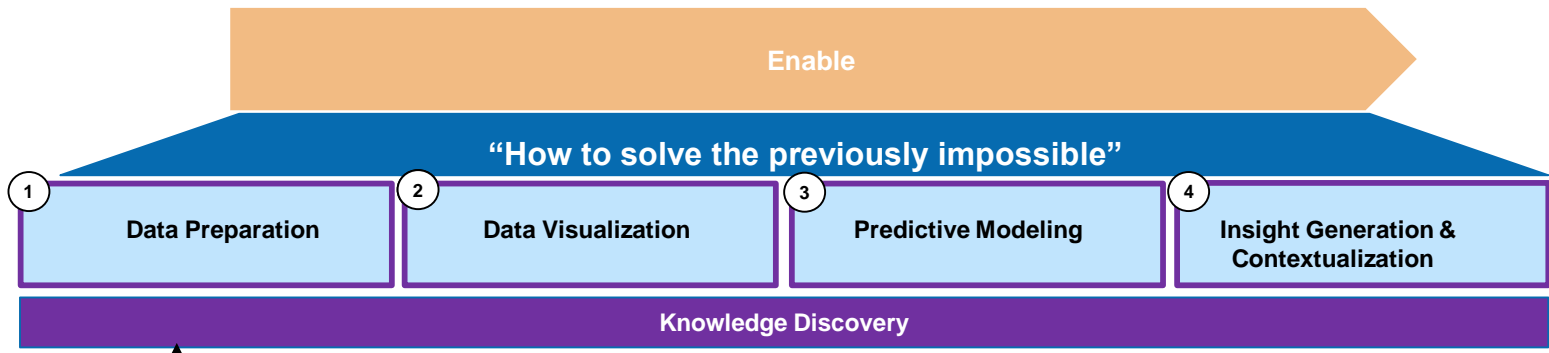
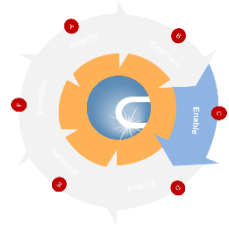
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## Predictive Modeling Process

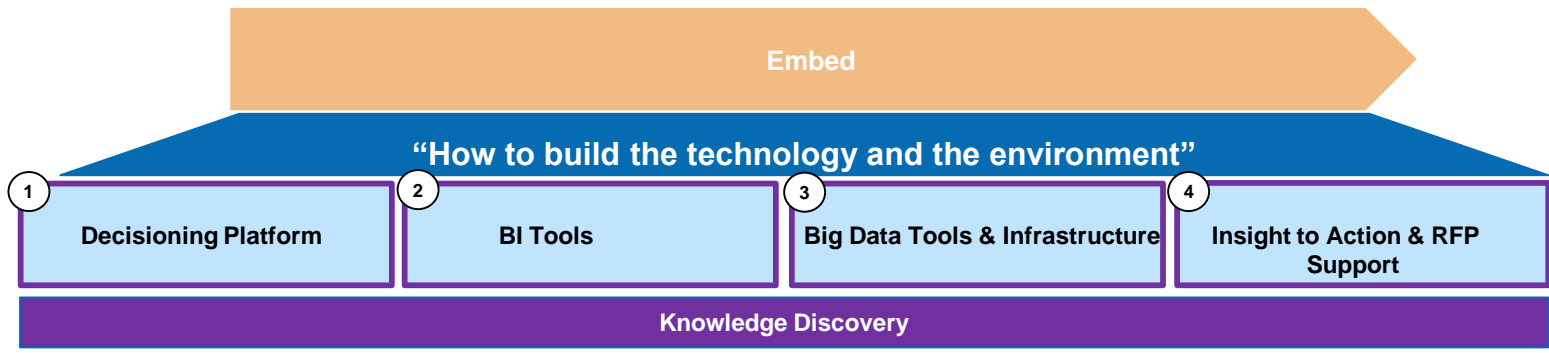
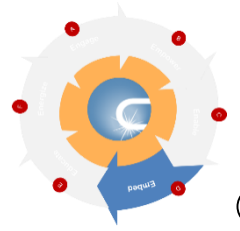


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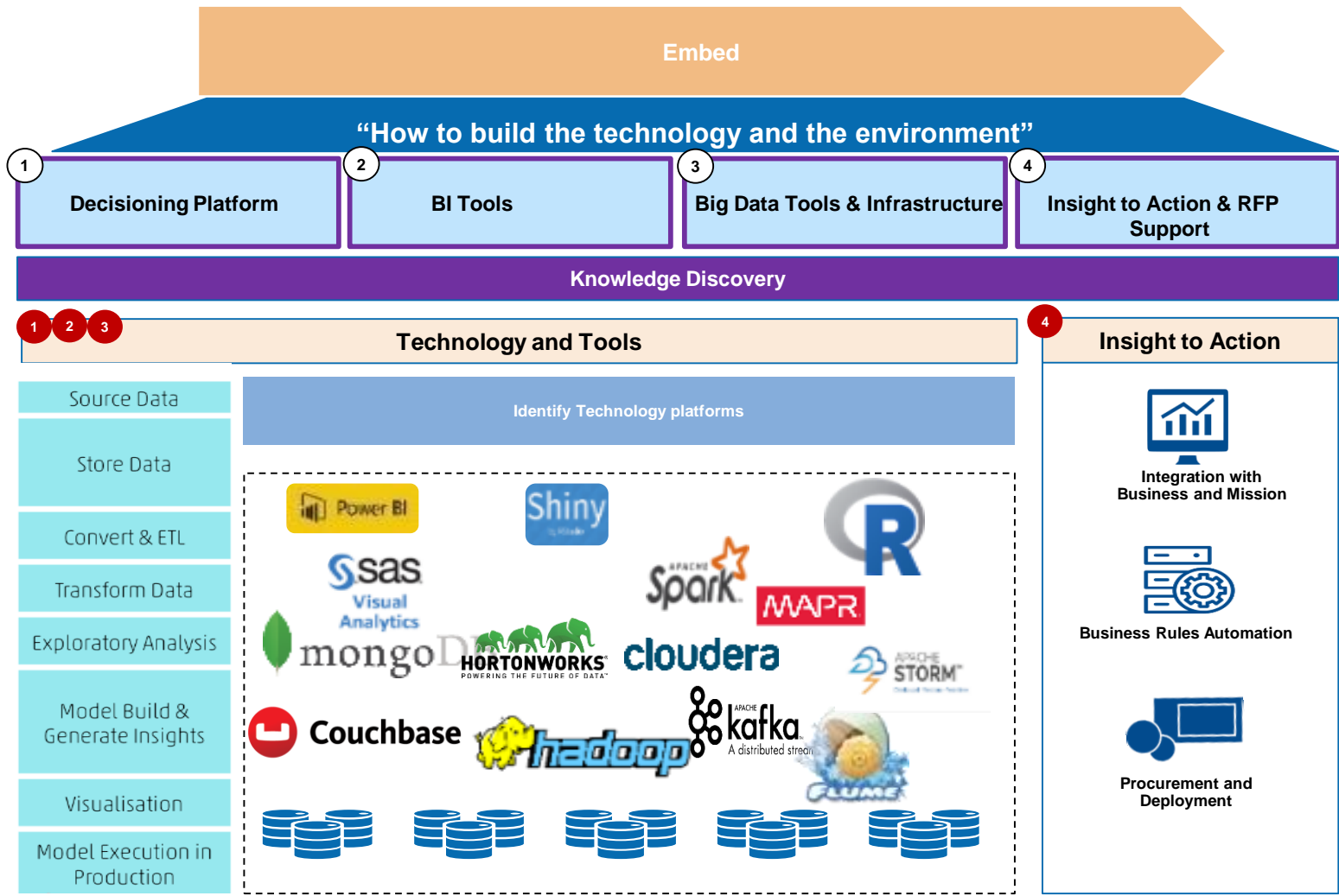
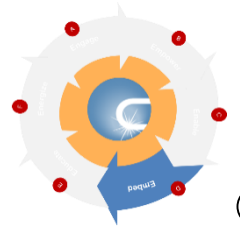




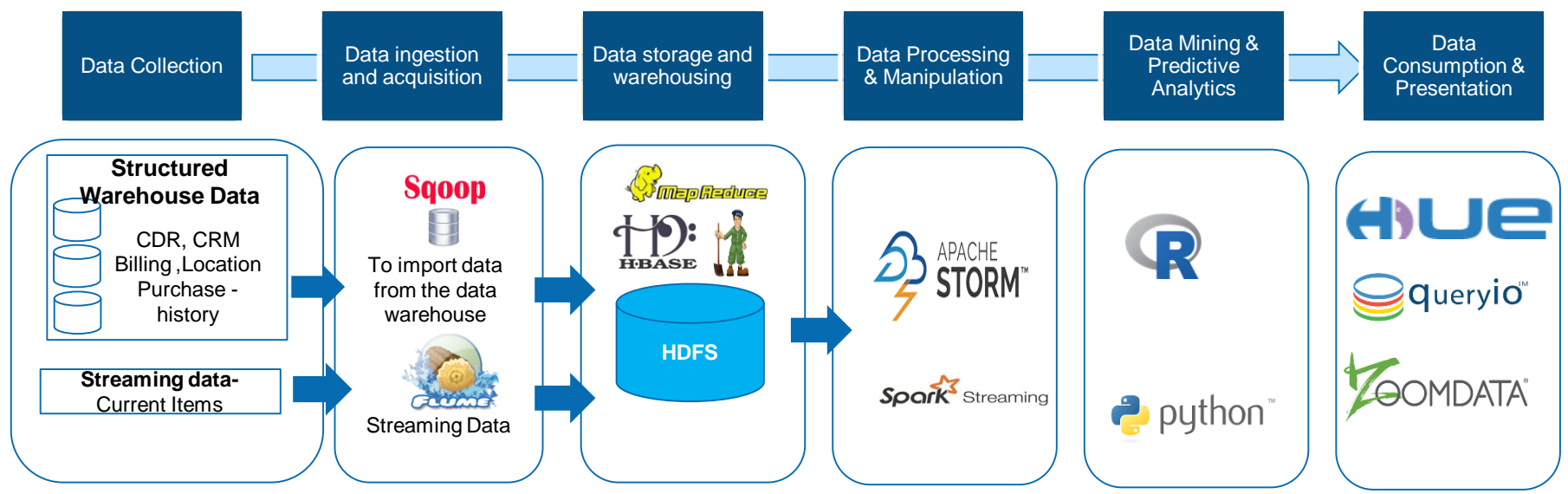
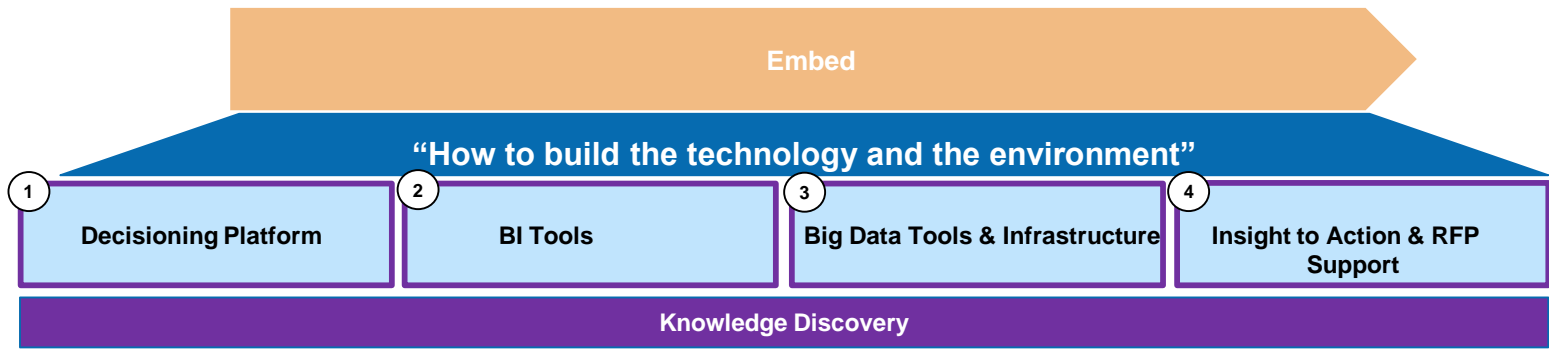
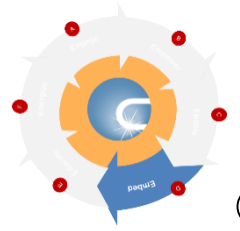
# Operationalization & Insights Generation: Harnessing the full powerful of open-source tools and commercial technologies



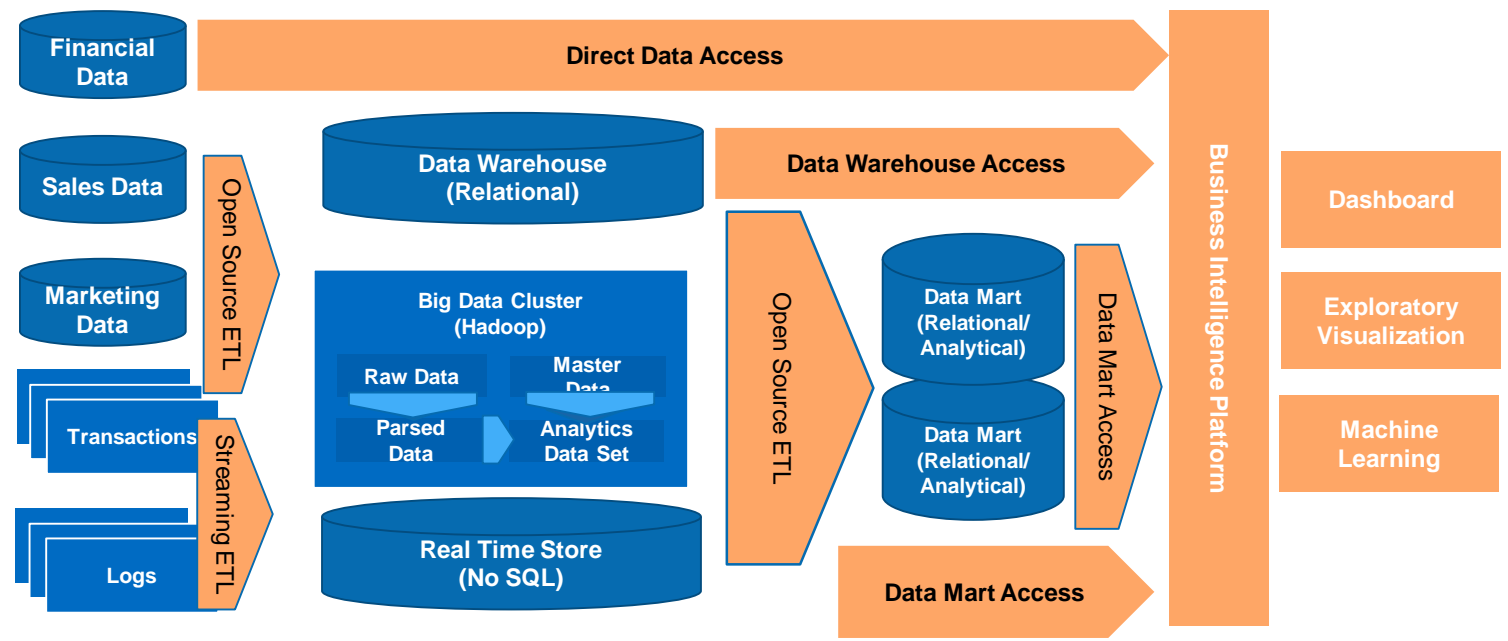
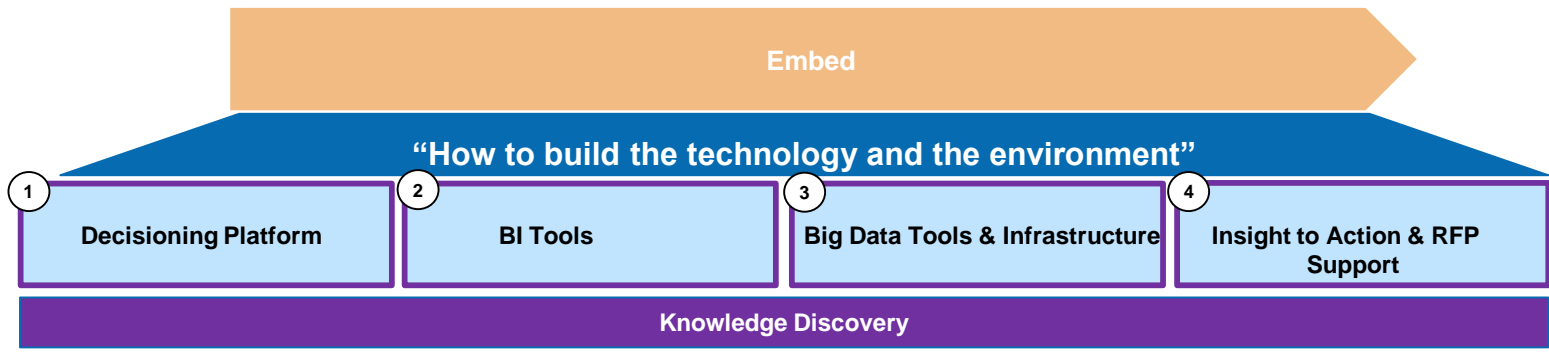
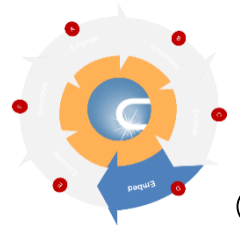
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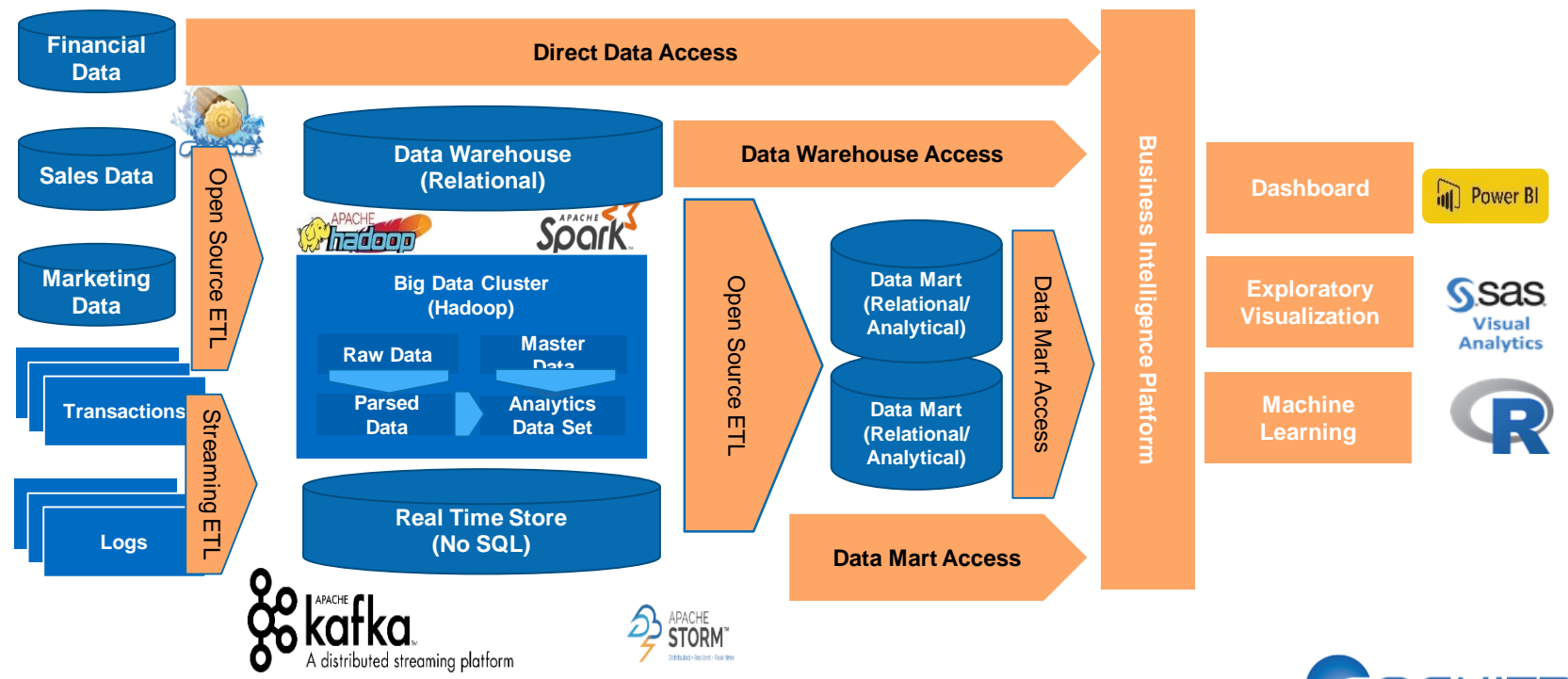
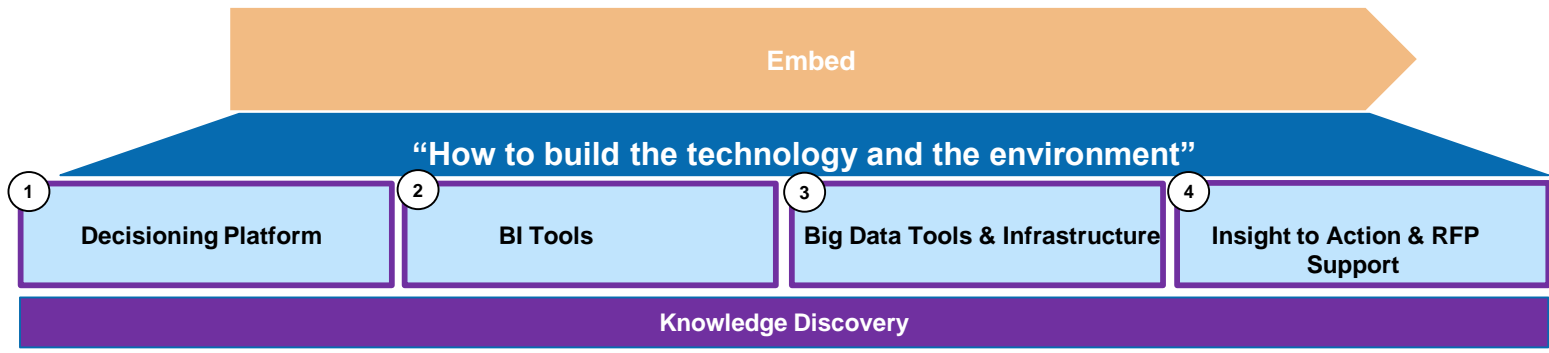
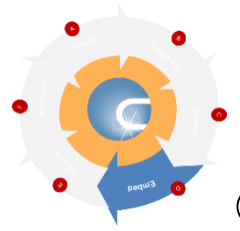
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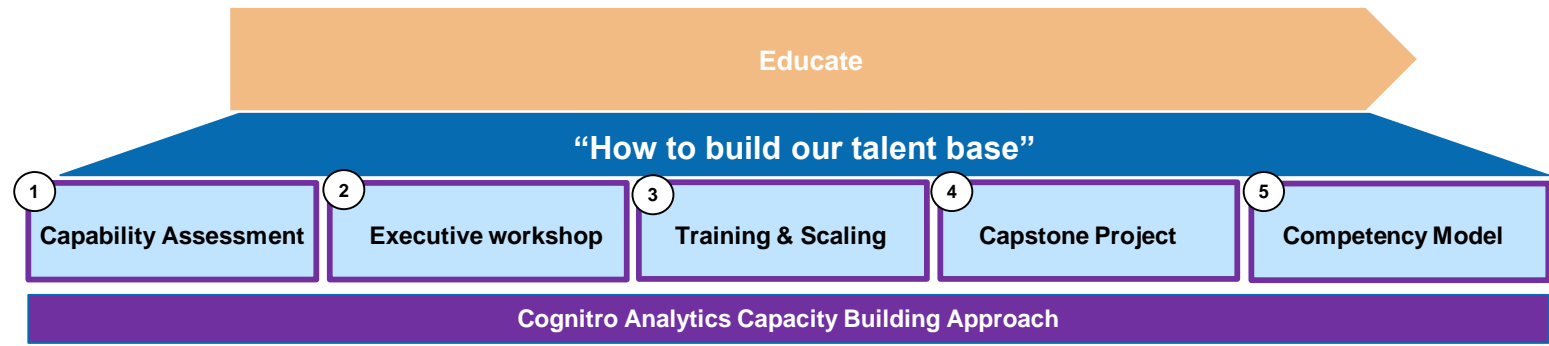
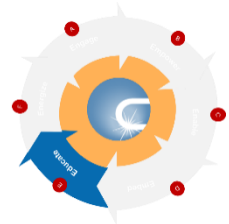
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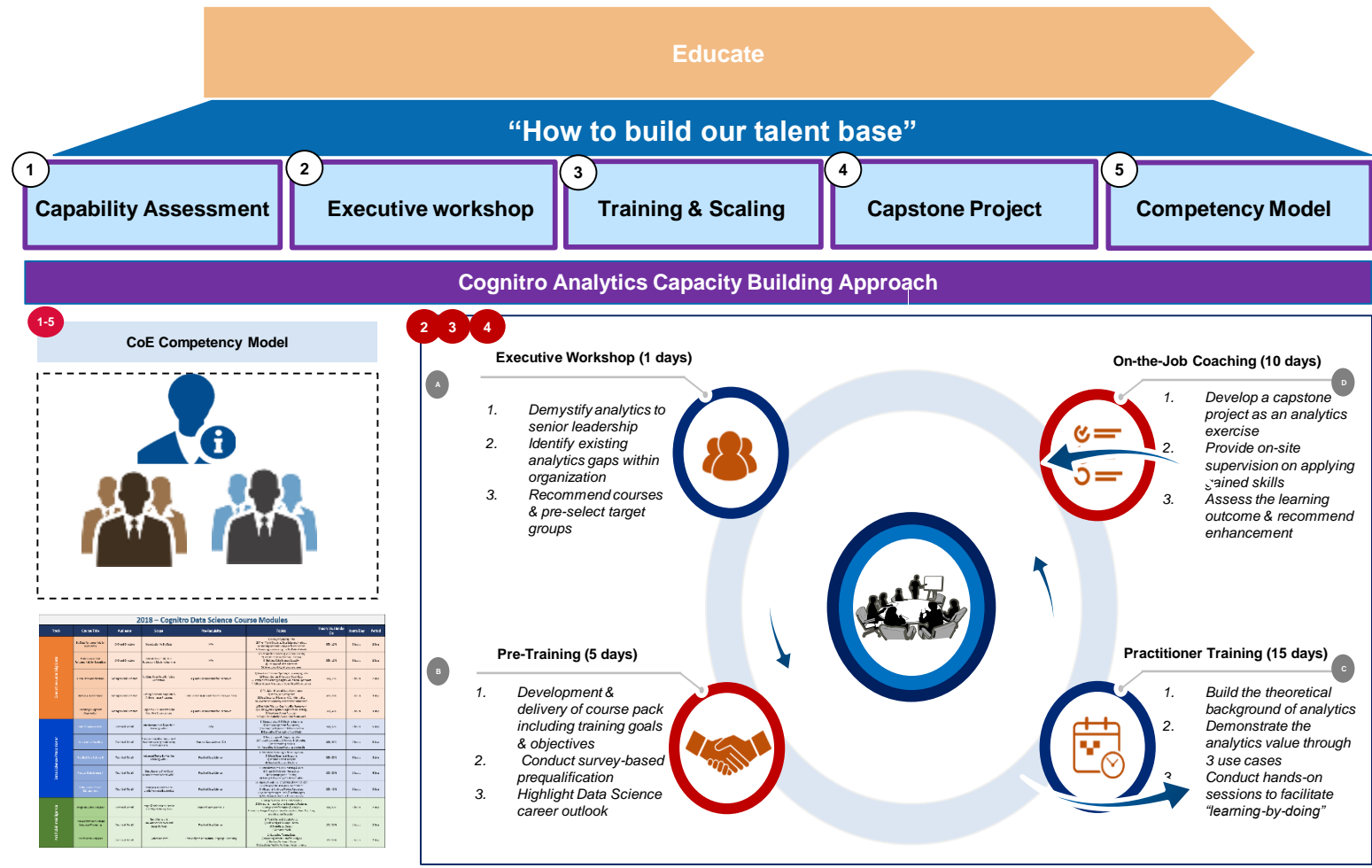
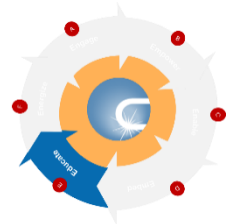


# Igniting Talents: analytics knowledge and skills to help shape capacity to produce intelligence





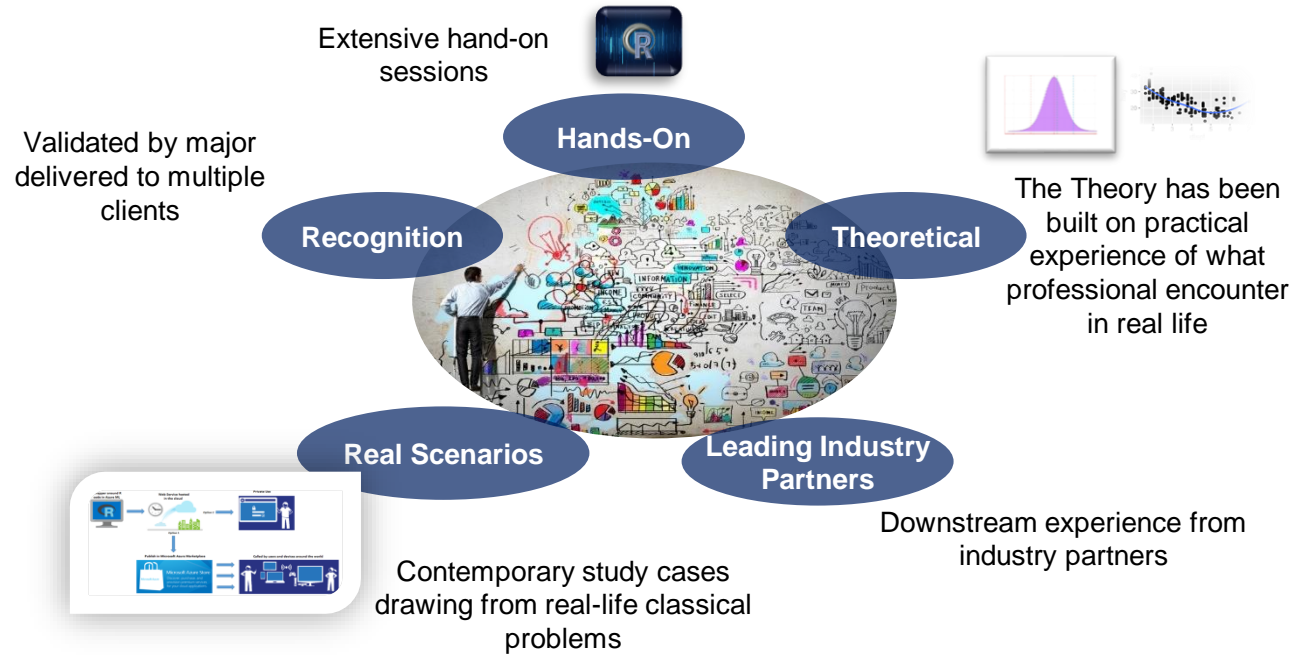
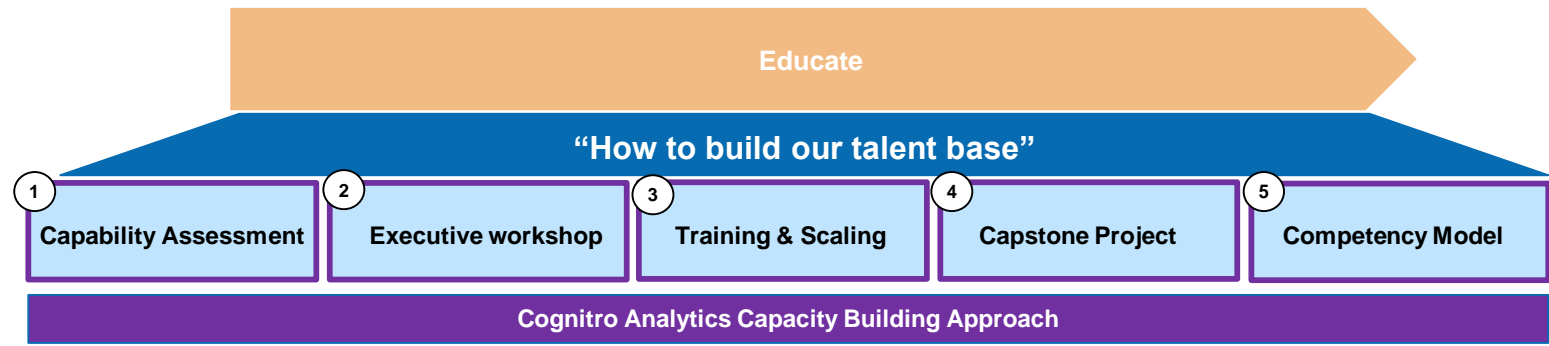
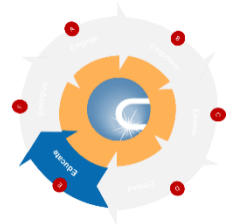
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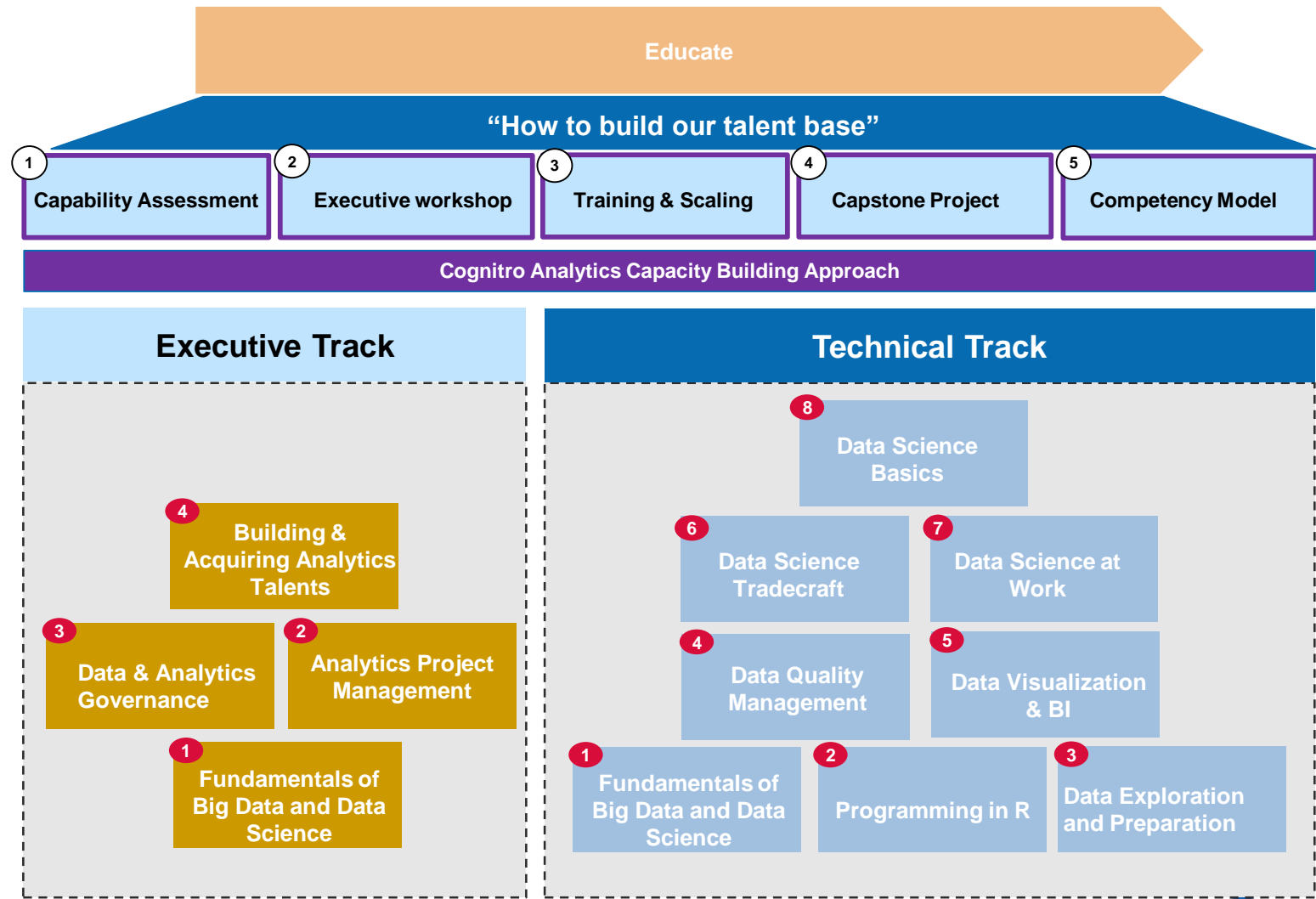
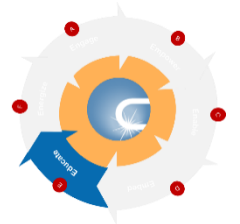
**2018 – Cognitro Data Science Course Modules**

Year	Category	Course	Duration	Start Date	End Date	Participants	Cost
2018	Executive	Executive Workshop	1 day	2018-01-15	2018-01-15	10	\$500
		Pre-Training	5 days	2018-01-16	2018-01-20	10	\$2500
		Practitioner Training	15 days	2018-01-21	2018-02-05	10	\$7500
		On-the-Job Coaching	10 days	2018-02-06	2018-02-16	10	\$5000
2018	Professional	Executive Workshop	1 day	2018-02-17	2018-02-17	10	\$500
		Pre-Training	5 days	2018-02-18	2018-02-22	10	\$2500
		Practitioner Training	15 days	2018-02-23	2018-03-08	10	\$7500
		On-the-Job Coaching	10 days	2018-03-09	2018-03-19	10	\$5000
2018	Advanced	Executive Workshop	1 day	2018-03-20	2018-03-20	10	\$500
		Pre-Training	5 days	2018-03-21	2018-03-25	10	\$2500
		Practitioner Training	15 days	2018-03-26	2018-04-10	10	\$7500
		On-the-Job Coaching	10 days	2018-04-11	2018-04-21	10	\$5000

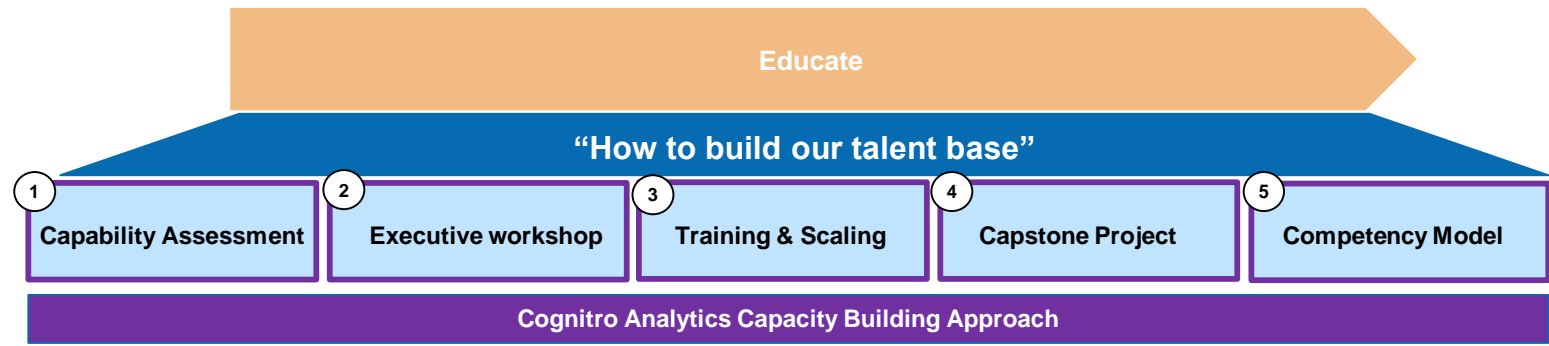
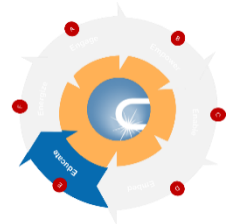
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## 1 Get Good At Stats, Maths and Machine Learning

### Math

- > Khan Academy's math track
- > Linear algebra by MIT OpenCourseware

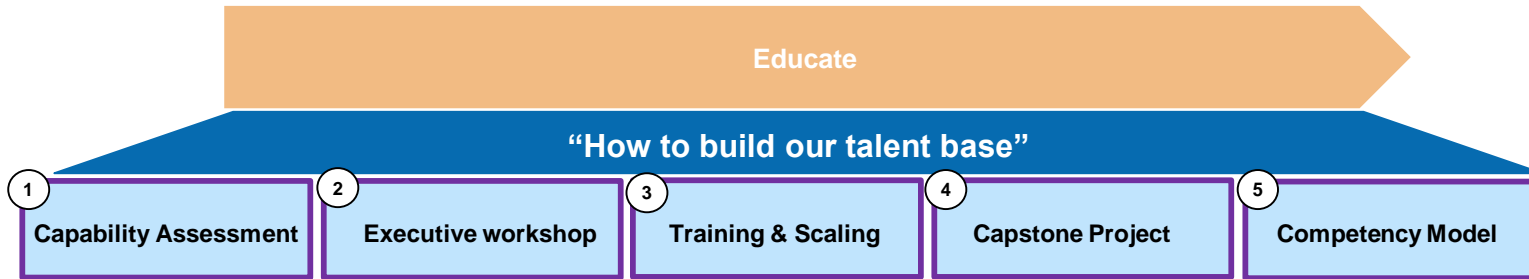
### Stats

- > Intro to Statistics by Udacity
- > OpenIntro Statistics
- > Intro to Statistics with R: Introduction by DataCamp

### ML

- > Machine Learning by Stanford Online
- > Practical Machine Learning by Coursera
- > Introduction to Machine Learning by DataCamp

# Igniting Talents: analytics knowledge and skills to help shape capacity to produce intelligence

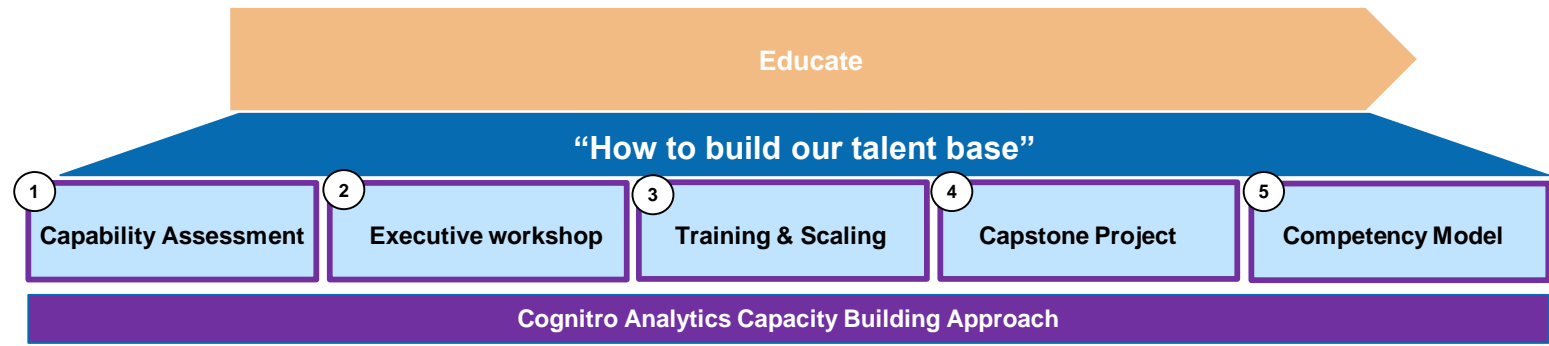
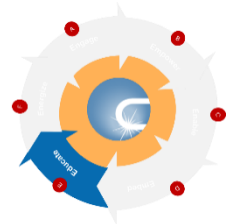


## Cognitro Analytics Capacity Building Approach

### 2018 – Cognitro Data Science Course Modules

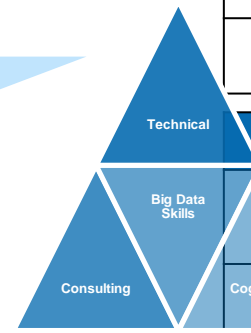
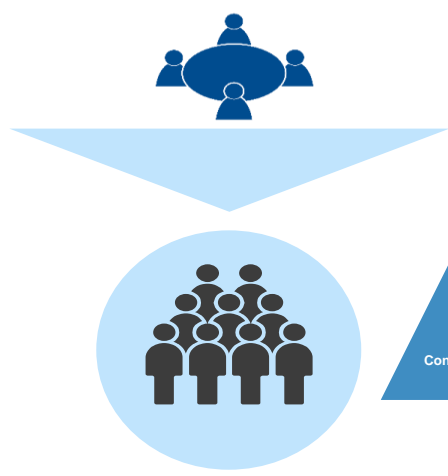
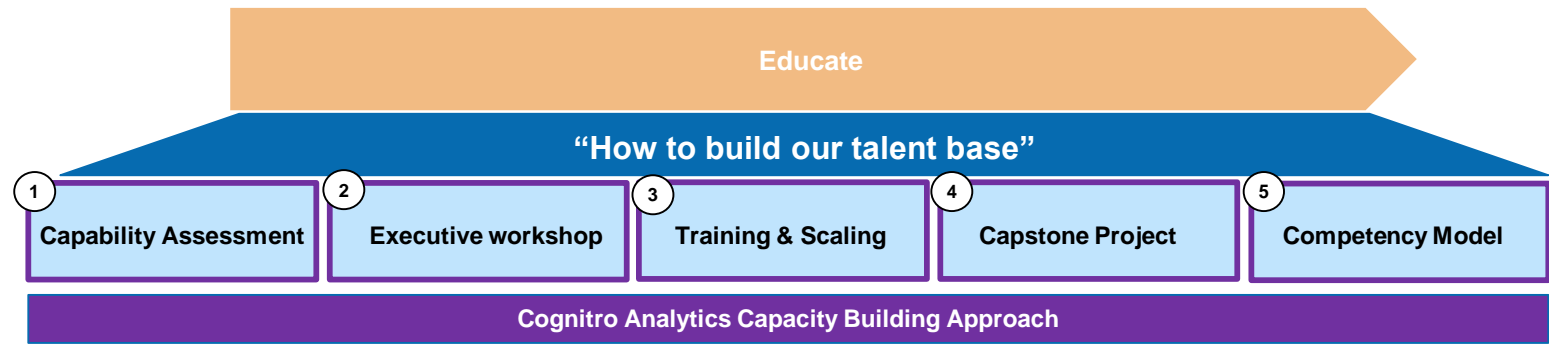
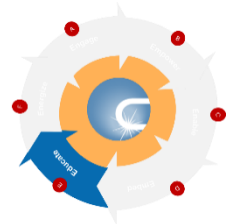
Track	Course Title	Audience	Scope	Pre-Requisite	Topics	Theory Vs. Hands-On	Hours/Day	Period
Executive-Level Big Data	Big Data Fundamentals for Executives	CXO and Directors	Introduction to Big Data	N/A	1) Demystifying Big Data 2) The 4 Vs of Big Data, Data Lake and Hadoop 3) Enabling Realtime Analytics & Predictions 4) Assessing & advancing the Big Data Maturity	90%, 10%	6 hours	2 Days
	Data Science & AI Fundamentals for Executives	CXO and Directors	Introduction to AI, Data Science and Machine Learning	N/A	1) AI vs Machine Learning vs. Deep Learning 2) Latest Trends in Machine Learning 3) Building Data Science Capacity 4) The DNA of Data Scientists 5) Developing & Qualifying use cases	90%, 10%	6 hours	2 Days
	Open Data Monetization	Managers and Directors	Utilizing Open Data For Value Generation	Big Data Fundamentals for Executives	1) How Countries are Opening & Leveraging Data 2) Types, Sources & Value of Open Data 3) Examples for Creating Insights Value from Open Data 4) Ethical & Legal Practices of Open Data Monetization	80%, 20%	6 hours	2 Days
	Data & AI Governance	Managers and Directors	Building & Maintaining Data & AI Governance Programs	Data Science & AI Fundamentals for Executives	1) The Main Pillars of Data Governance 2) Data Quality Programs 3) Data Security, Privacy and Confidentiality 4) Governance Maturity Assessment Framework	70%, 30%	6 hours	3 Days
	Becoming a Cognitive Organization	Managers and Directors	Cognitro 6 E's Framework for Cognitive Organizations	Big Data Fundamentals for Executives	1) The Main Pillars of Cognitro 6E's Framework 2) Building your Cognitive Organization Strategy 3) Use-Case Driven Approach 4) Cognitive Maturity Assessment Framework	60%, 40%	6 hours	3 Days
Data Science Practitioner	Practical Data Science I	Technical IT staff	Introduction to AI & Machine Learning with R	N/A	1) Demystifying AI & Machine Learning 2) Data Management & Cleansing 3) Building Log Regression & Decision Tree 4) Evaluating & Validating Your Model	50%, 50%	6 hours	5 Days
	Data Science Coaching	Technical IT staff	Hands-on development of an R machine learning model using real-life datasets.	Practical Data Science I & II	1) Importing and integrating data 2) Preparing your data & Feature Engineering 3) benchmarking models 4) Interpreting & Contextualizing the results	10%, 90%	4 hours	5 Days
	Practical Data Science II	Technical IT staff	Advanced Topics in Machine Learning with R	Practical Data Science I	1) Statistical Modeling & Naive Bayesian 2) Model Bagging & Boosting 3) Random Forest Analysis 4) Gradient Boosted Machine	50%, 50%	6 hours	5 days
	Practical Data Science III	Technical IT staff	Deep Learning & Artificial Neural Network (ANN) with R	Practical Data Science I	1) Introduction to Deep Learning & ANN 2) Single & Multilayer Perceptron 3) Backpropagation Training 4) Tuning & Deploying Pre-Trained ANN	50%, 50%	6 hours	4 Days
	Data Science Project Management	Technical IT staff	Managing an end-to-end predictive modeling project	Practical Data Science I	1) Industry Standards - CRISPDM, SEMMA & KDD 2) Setting Up the Analytics Environment 3) Allocating Analytics Project Resources 4) Selecting the Right Tools & Technologies 5) Monitoring & Tracking Project Success	60%, 40%	6 hours	3 Days
Artificial Intelligence	Image and Video Analytics	Technical IT staff	Image & Video Faces, People and Objects Recognition	Practical Data Science III	1) Image & Video Data Fundamentals 2) Extracting Image Color & Geometric Features 3) Image Transformation for Analysis 4) Practical Image Analytics: Face Recognition, Head Counting and Agitation Detection	50%, 50%	6 hours	2 Days
	Text Analytics and Natural Language Processing	Technical IT staff	Text Mining and Link Analysis for Web and Semantic Web	Practical Data Science I	1) Text-Mining & Cloud Words 2) Link-Analysis & Graph Theory 3) Tree-Based Search 4) Semantic-Web	50%, 50%	6 hours	2 Days
	Social Media Analytics	Technical IT staff	Twitter Analytics	Text Analytics and Natural Language Processing	1) Extracting Tweets Data 2) Preparing Tweets Data for Analysis 3) Building Sentiment Score 4) Classifying Positive Vs. Negative Sentiments	50%, 50%	6 hours	2 Days

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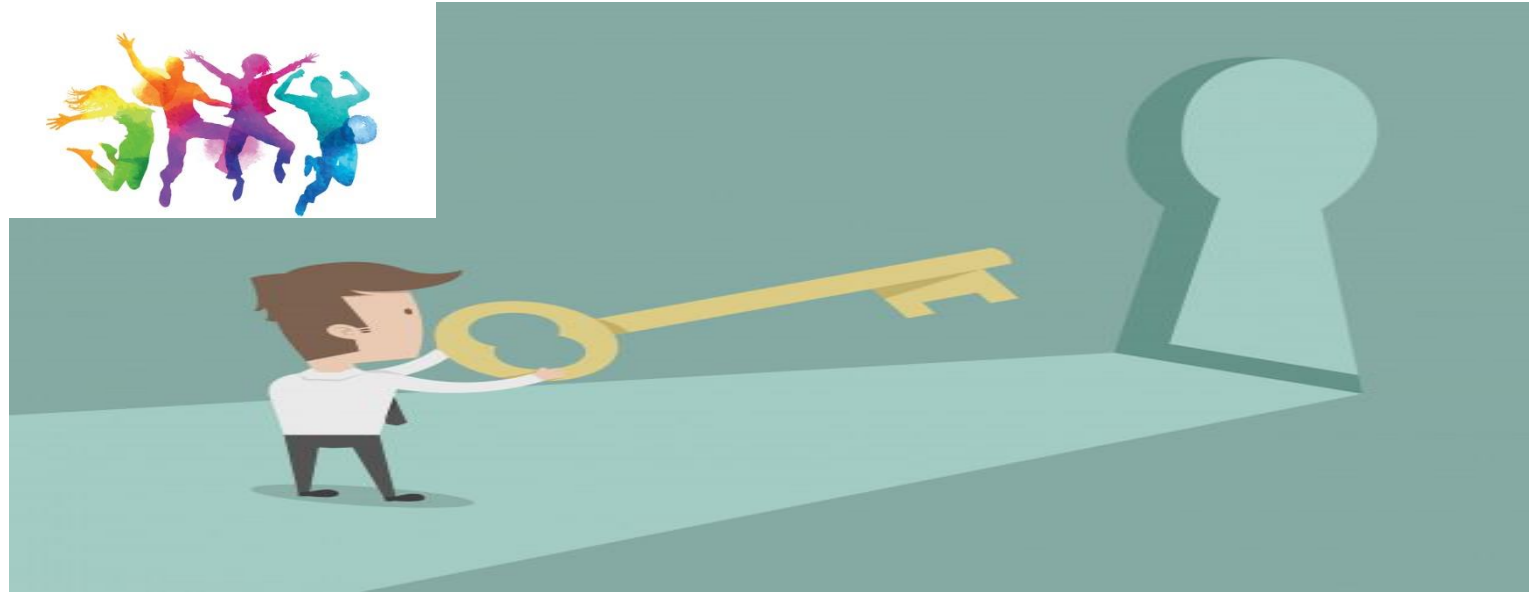
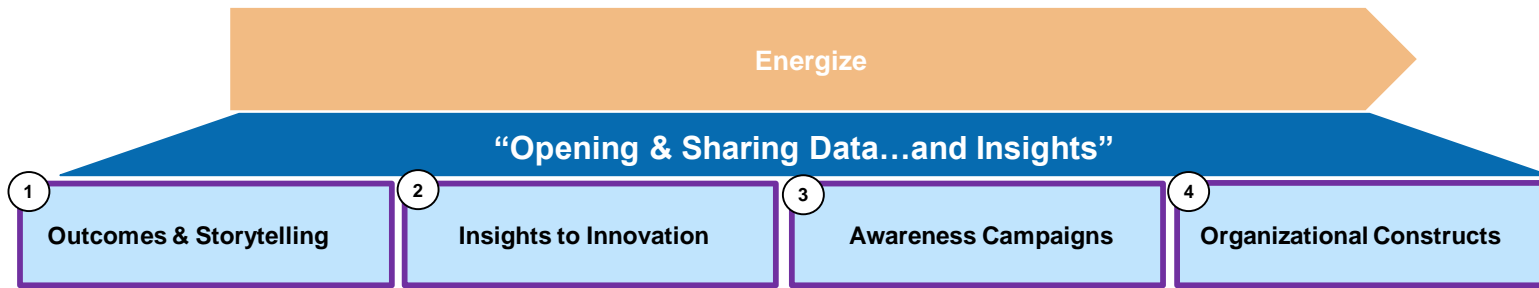
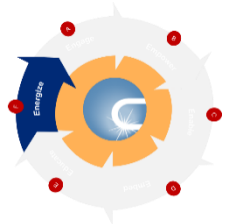


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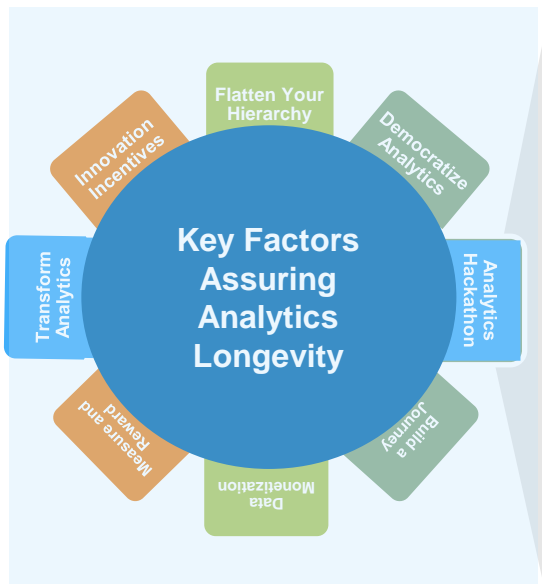
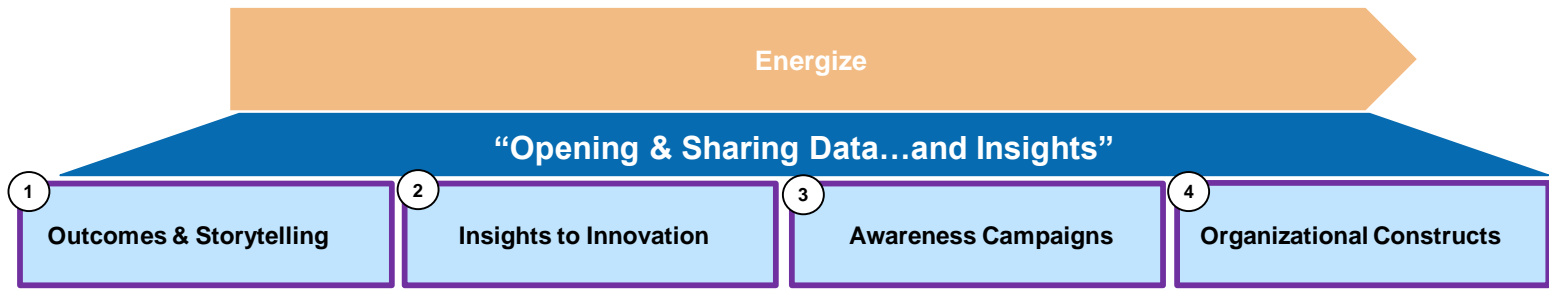
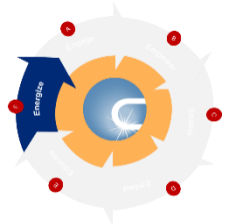


TECHNICAL COMPETENCY "Knows How and What to Do"					
Statistical Modelling	Mathematics	Operations Research	Research Design	Data Mining & Integration	Data Visualization
Computer Science	Database Science		Machine Learning	Programming & Scripting	Information Assurance
CONSULTING COMPETENCY "Can Do in Client and Customer Environments"					
Collaboration & Teamwork		Domain Expertise	Business Acumen		Program Management
Cognitive Science Consulting	Resource Allocation	Self-Development		Ethics	Communications
COGNITIVE COMPETENCY CLUSTER "Able to Do or Learn to Do"					
Critical Thinking		Problem Solving		Inductive/Deductive Reasoning	

# Community Outreach: fostering a culture of innovation through transformational and sustainable Analytics

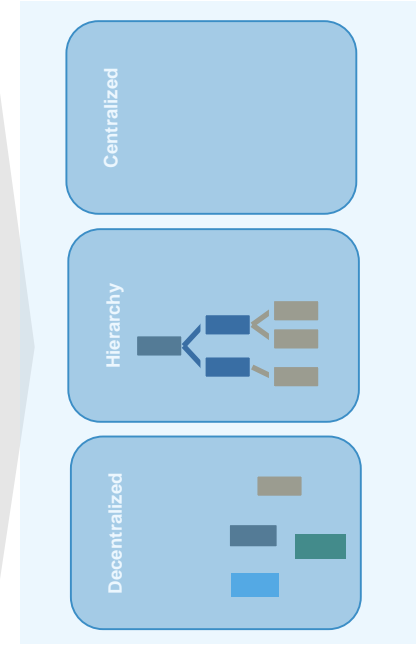


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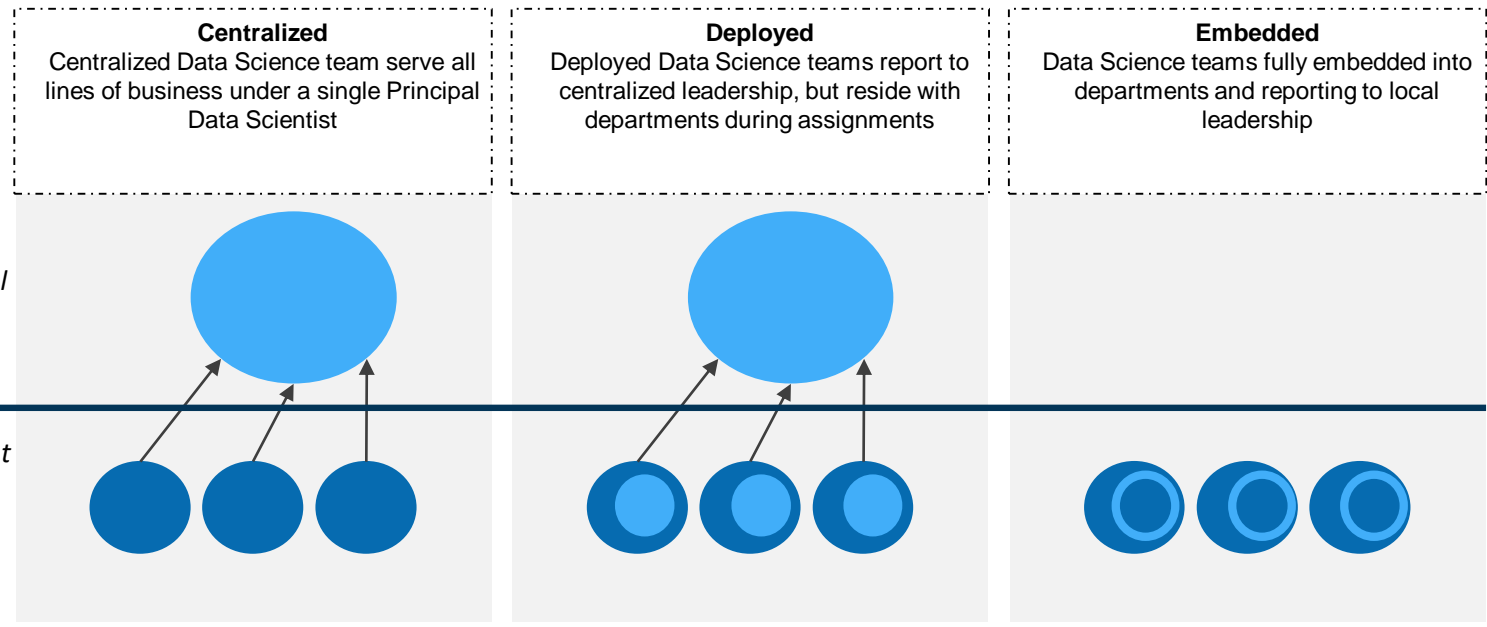
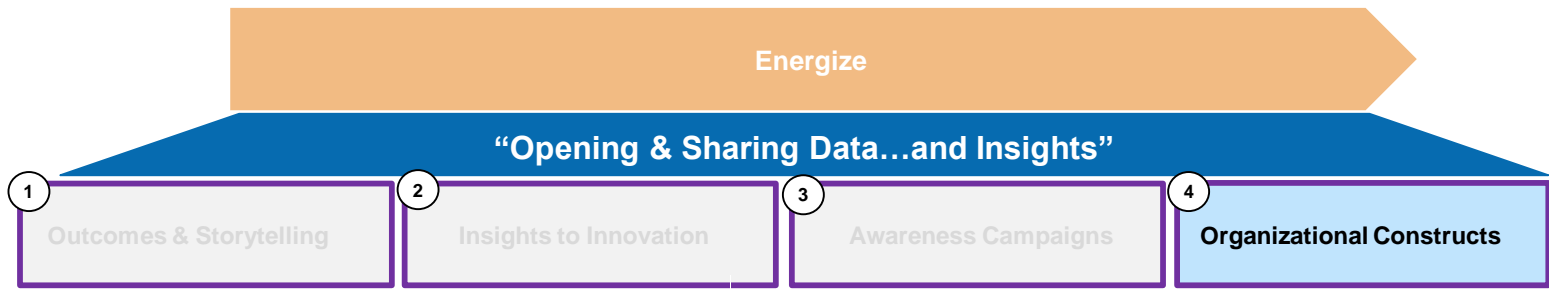
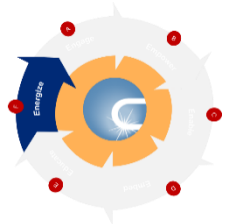


### Driving Analytics Culture

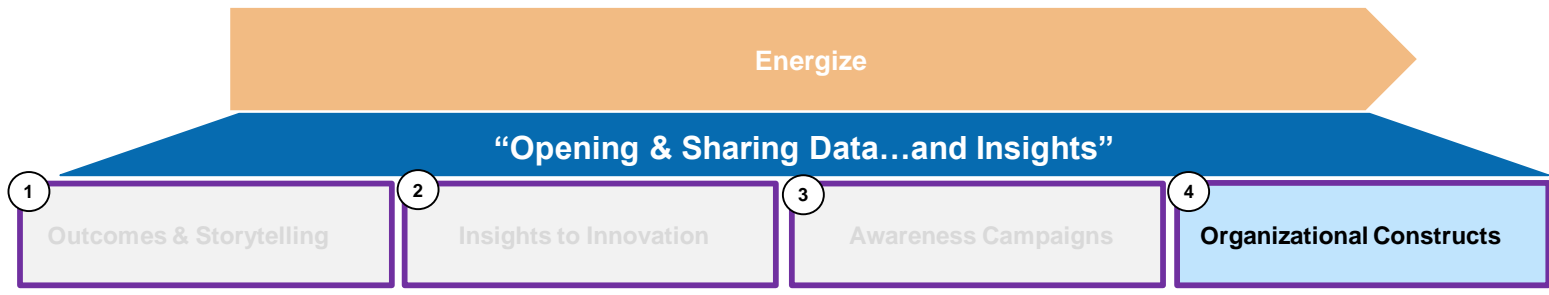
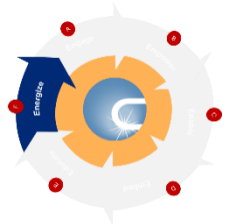
- How to get buy-in for data science throughout the entire organization.
- Where to place your data science teams in your organization. Should they be centralized, Dispersed or Permanently embedded in individual business units?
- How to stand up the position of Chief Data Officer (CDO).
- How you can leverage our Data Science Talent Management Model.
- Why design thinking-when applied to data science-can unlock organizational value.



# Community Outreach: fostering a culture of innovation through transformational and sustainable Analytics



# Community Outreach: fostering a culture of innovation through transformational and sustainable Analytics



## The UAE has Appointed the World's First Minister of Artificial Intelligence

Politics | October 23, 2017, Monday // 17:16 | Views: | Comments: 0



Pixabay.com

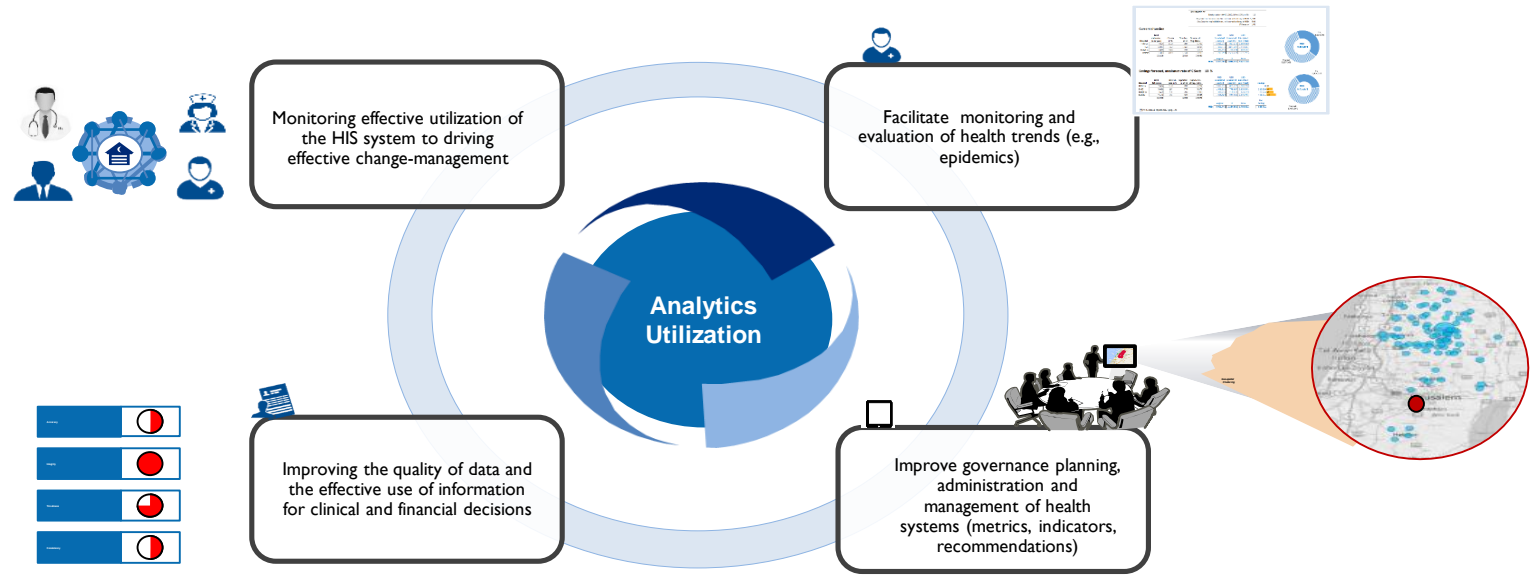
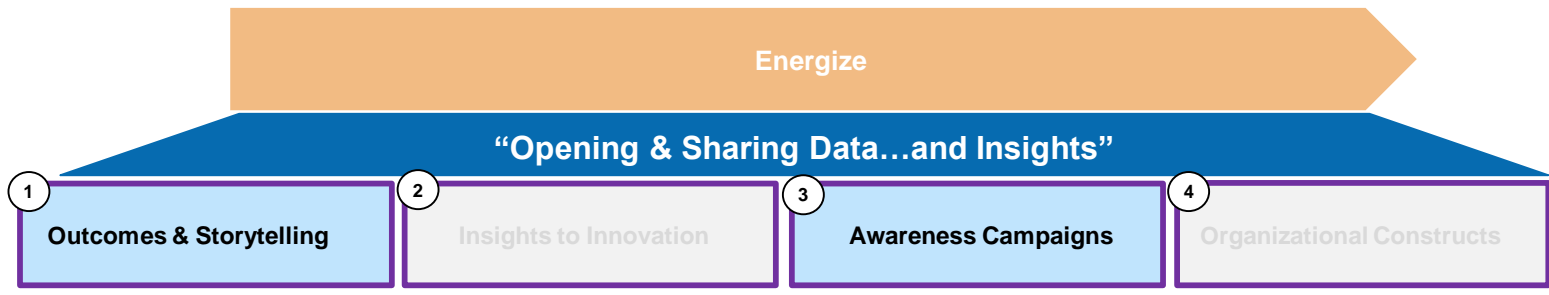
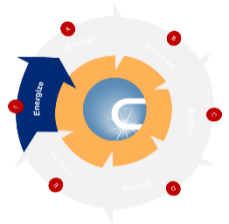
Tweet 1

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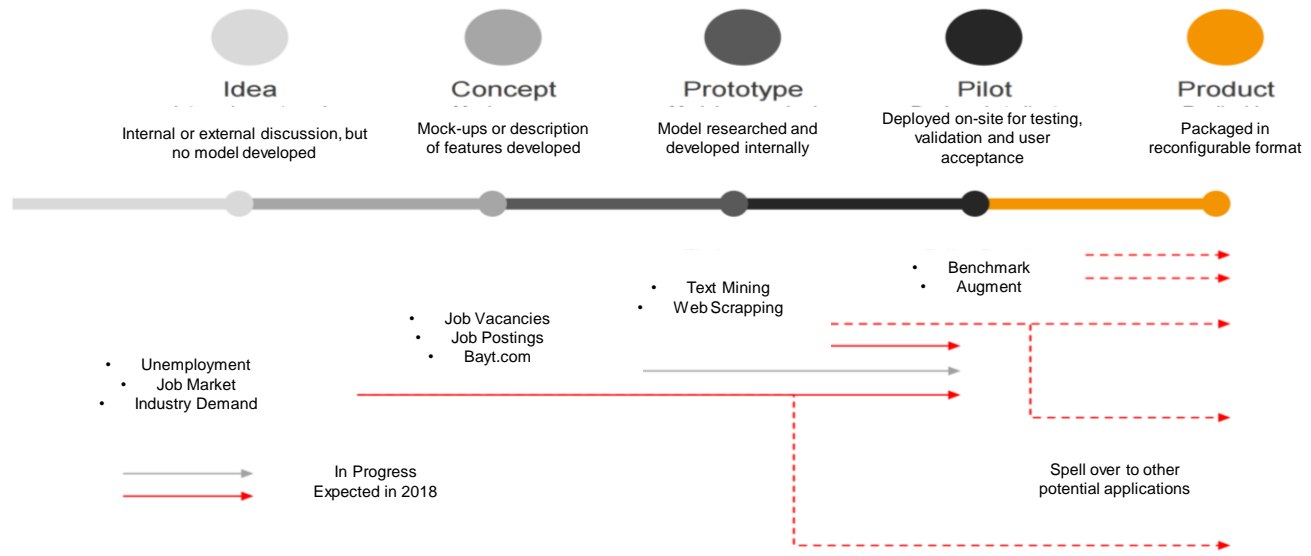
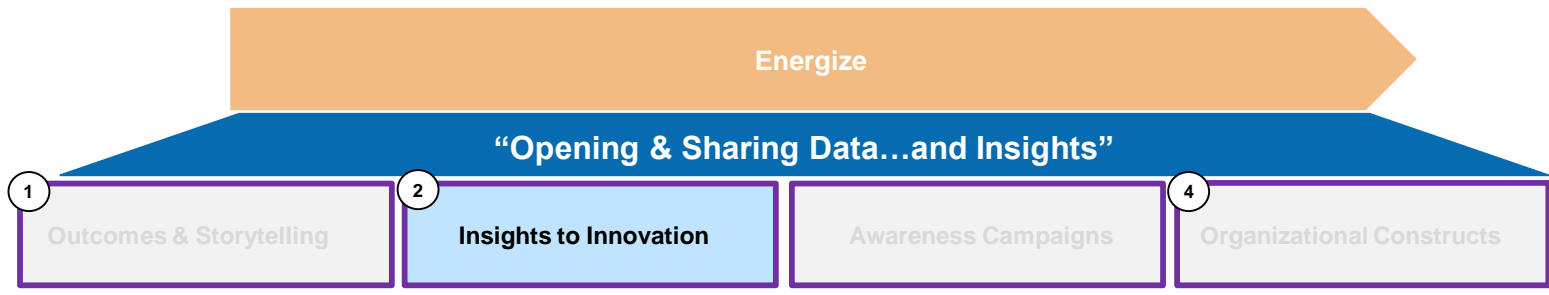
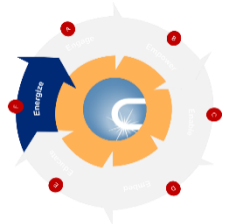
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# Community Outreach: fostering a culture of innovation through transformational and sustainable Analytics



# Community Outreach: fostering a culture of innovation through transformational and sustainable Analytics





## Session Agenda

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- About the Speaker & Organization
- AI - Blessing or Curse
- Top Challenges Facing AI & Big Data
- Cognitro Six E's Cognitive Framework
- Example: Health Digital & AI Strategy
- Key Success Factors for Building Sustainable AI

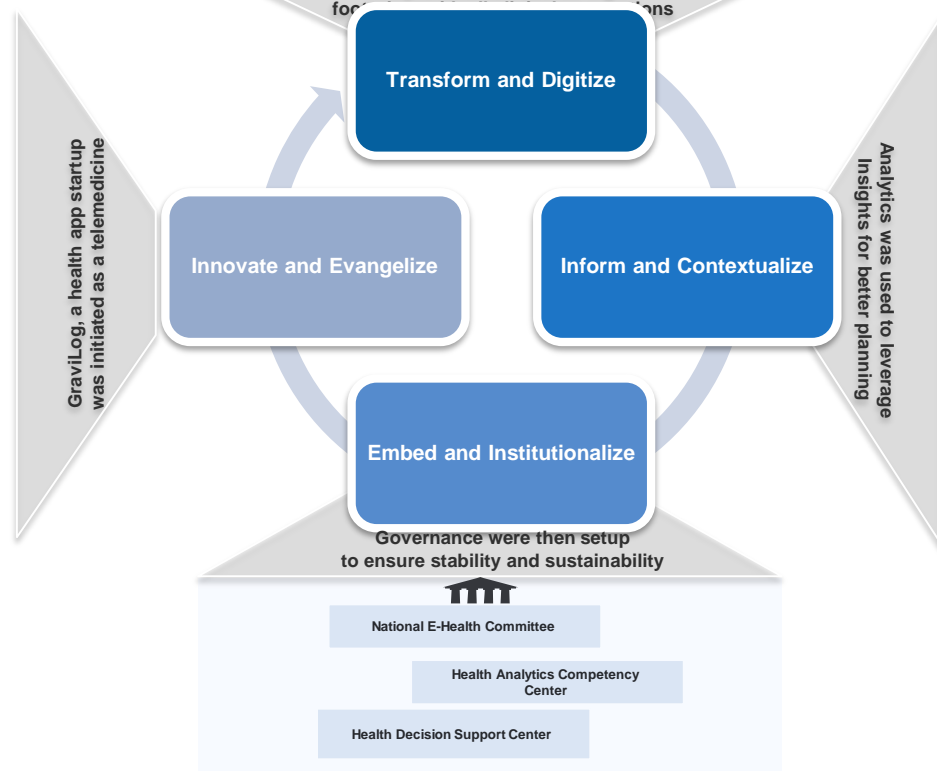
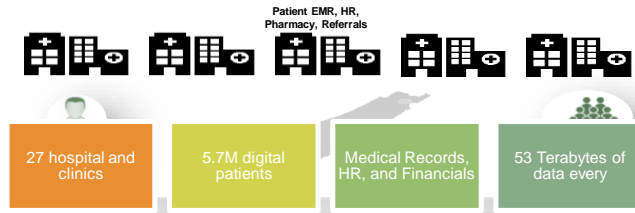




Analytics was combined to Hospital Data and Geolocation data

Controlling C-Sections increases compliance with international best practices and introduces a cost saving of over \$1.5M

Pregnancy is the 2nd leading contributor to people movements after cancer



Predictive Resources and Capacity Planning

Predictive Resource Optimization and Capacity Planning

MOH

What are the main regions suffering from a supply gap? Which regions are expected to face gaps in the future?

What are the main regions and conditions with an emergency of medicines facilities?

Which preventive medical conditions are not being effectively treated?

Admission and Discharge

Beneficiary Attributes

Claim Date

Claim Amount

Provider ID

Diagnosis Code

Procedure Code

Date/Time Stamp

Pharmacy Code

Prescribe Medication

**Readmission Prediction**

Low Risk

Medium Risk

High Risk

Patient 1

Patient 2

Patient 3

Patient 4

Patient 5

Patient 6

Patient 7

Patient 8

Patient 9

Results with 75% accuracy were used to improve referrals to hospitals outside the MOH network (Cost Saving of 2.5M USD in the first year)

Waste and abuse cases discovered in 7 major hospitals produced a recoverable items of up to 1.3M USD

Readmission prediction improved utilization by 32% on all 23 hospitals and clinics

GraviLog app was born to manage patients doctors communication and generate new data

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# Tips for Building AI Capability



**Cross-Collaboration & Partnership**

**Innovation & Disruption**

**Organization & Culture**

# Core Principles for Government Big Data Translated into a Set of Key Initiatives

## Core Principles

From “Protect before you share” to “Share with Protection”

Never Stop Experimenting

No Data Is Left Behind

Becoming an Analytics Powerhouse

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## Core Principles

From “Protect before you share” to “Share with Protection”

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## Key Initiatives

- 1) Open Data Initiative
- 2) Open Data Policies

- 1) Innovation Data Lab
- 2) Sandbox Environment

- 1) Data Governance Program
- 2) Big Data Platform

- 1) Invest in Data Science Training
- 2) Chief Data Scientist

# Questions



# Where Will You Start !

# Thank You