DEVELOPING DATA SCIENTISTS AND IDENTIFYING TALENT

John Morton
Vilnus University
Vilnus March 2016

OUTLINE

Guest speaker: Mr John Morton
Talk: Big Data Analytics – Developing Data Scientists and Identifying Talent
Time : 30 mins followed by 2 hrs of open discussion

The US demand for Data aware managers is over 2M with anticipated need for 500,000 data scientists. Europe believes the number to be higher with the UK seeking 50,000 data scientists over the next three years. This discussion is focussed on :

- How do you recognise a data scientist?
- How do you develop one?
- What makes up analytic competencies centres?
- How are business identifying talent?

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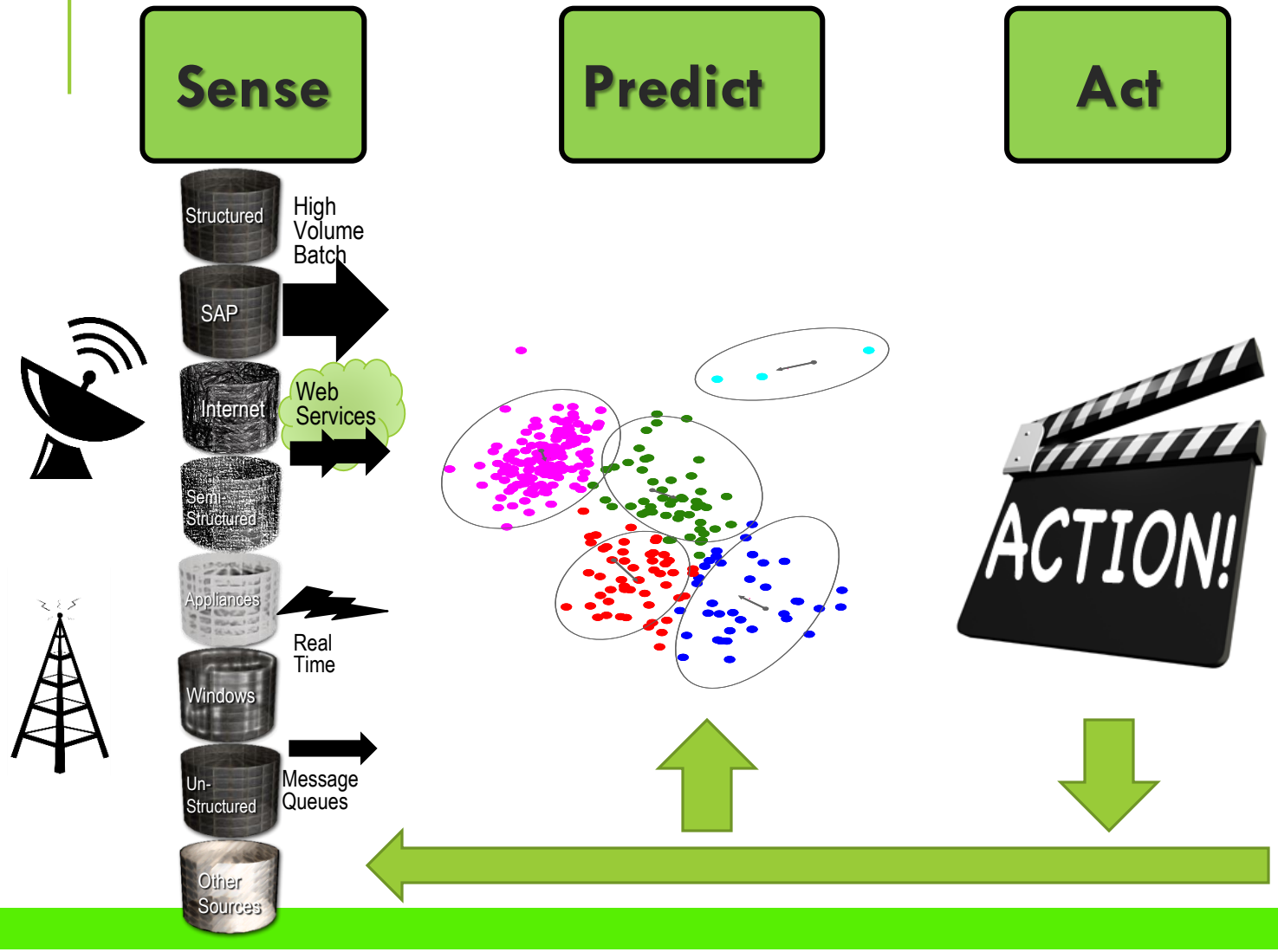

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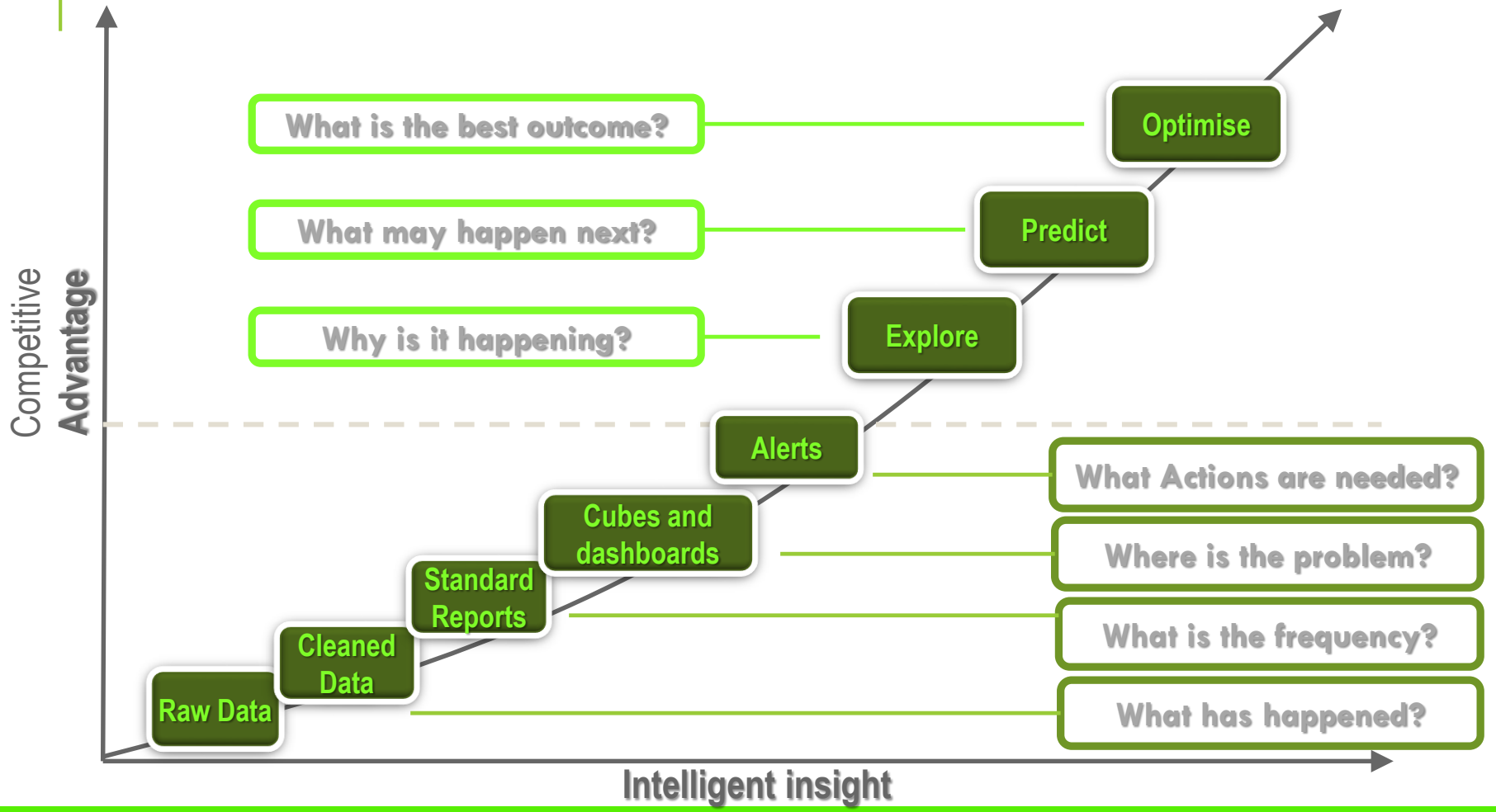
DATA SCIENCE : CAPABILITIES



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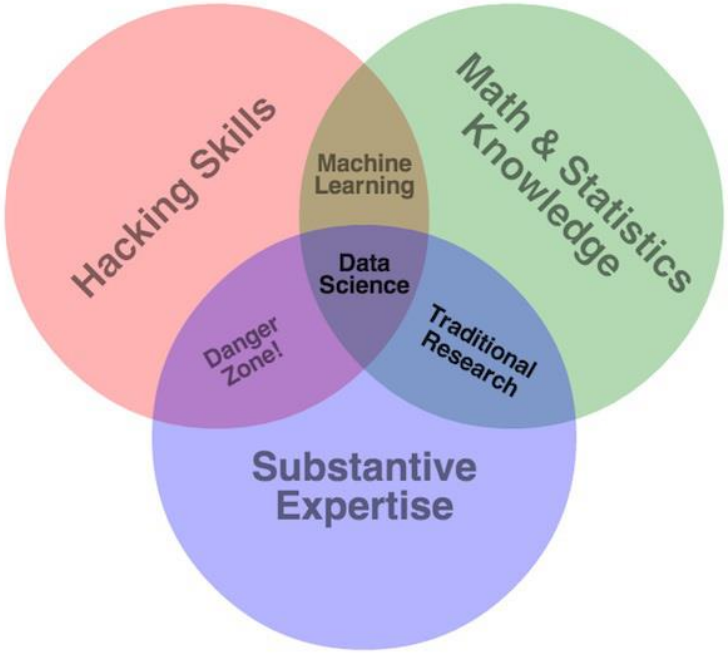
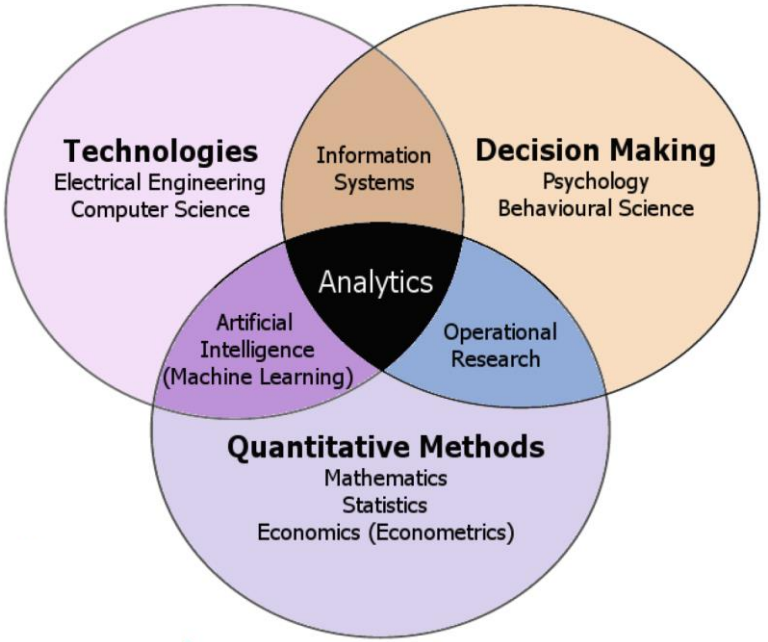


(a)
the data scientist (Conway, 2011)



(b)
business analytics (Robinson, 2014)

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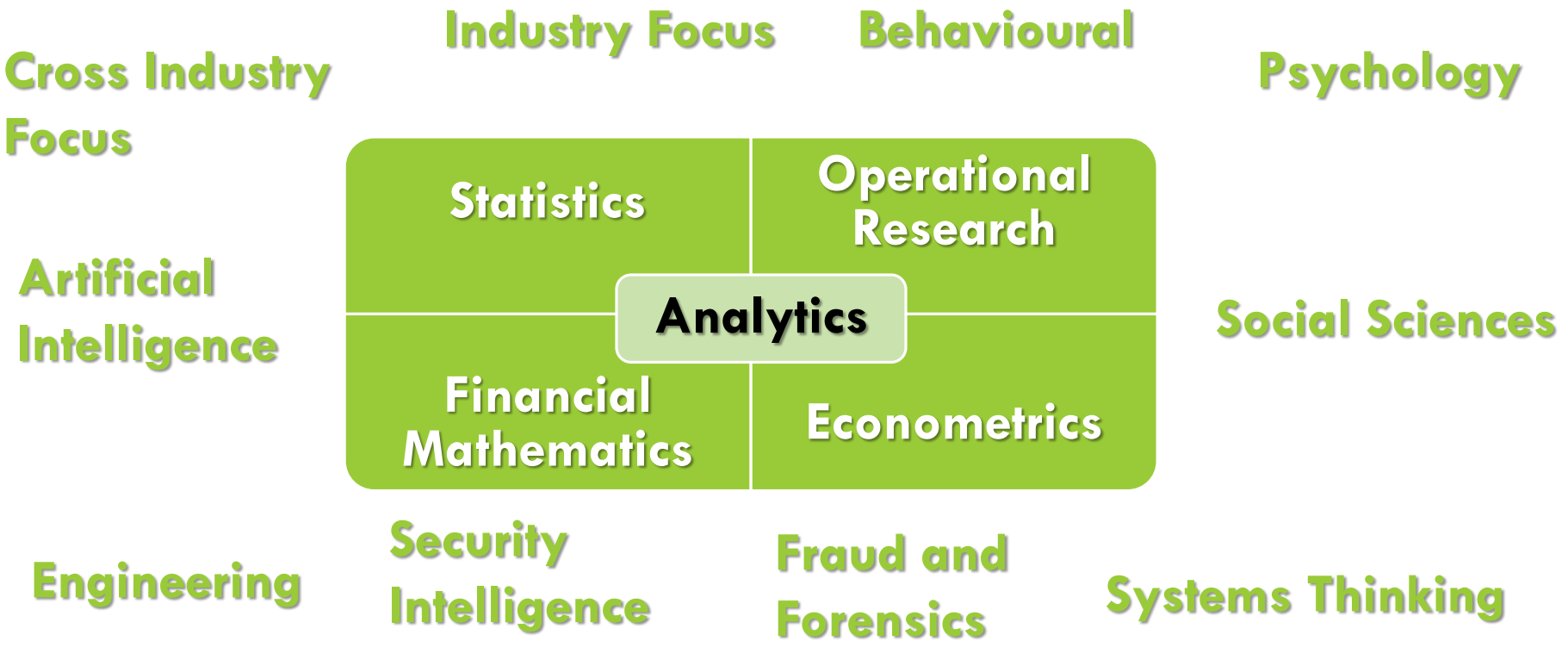
ANALYTICS AND DATA



..... AND WHAT DOES THAT MEAN?

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STEM + ?

Science	Technology	Engineering	Maths
builds and organizes knowledge in the form of testable explanations and predictions	collection of techniques, methods or processes used in the production of goods or services	application of scientific, economic, social, and practical knowledge in order to invent, design, build, maintain, research, and improve structures, machines, devices, systems, materials, and processes	Mathematicians seek patterns and to formulate new conjectures. Mathematicians resolve the truth or falsity of conjectures by mathematical proof. Good models of real phenomena, provide insight or predictions

Humanities

Social science is concerned with society and the relationships among individuals within a society

Psychology is the study of mind and behaviour

Anthropology is the study of humanity: social and cultural.

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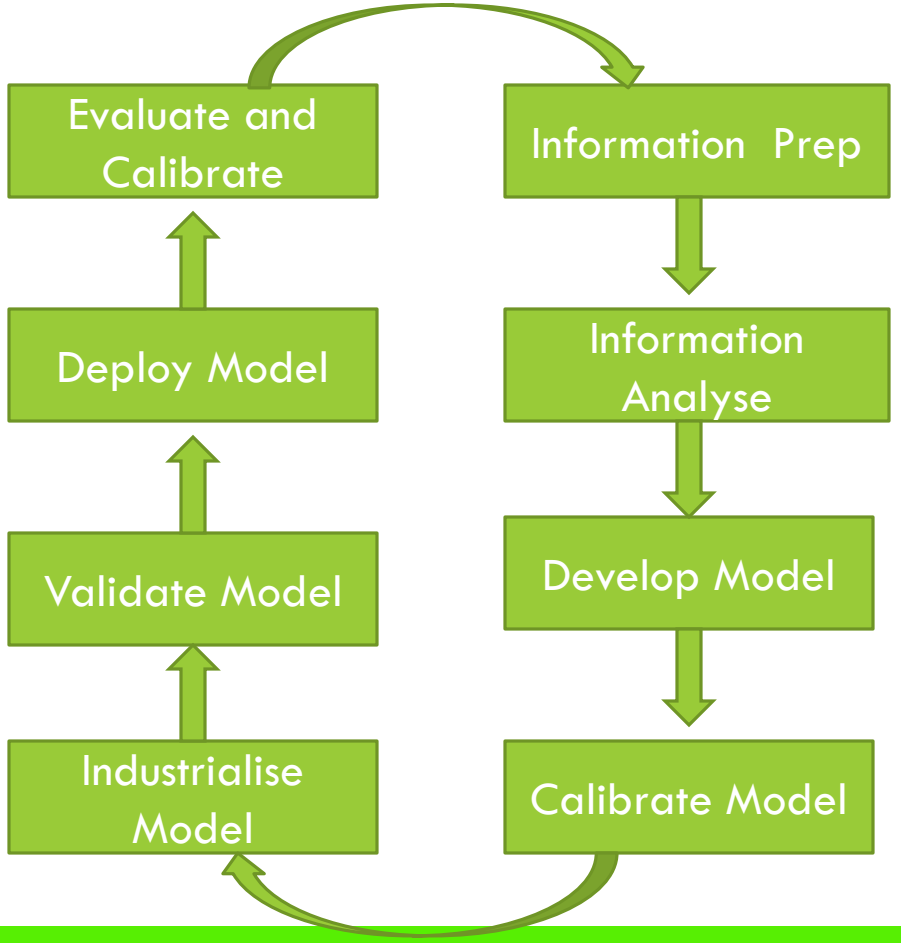
EXPERIMENTATION, OUTCOMES AND ENGINEERED ANALYTICS

Business Operations

Evaluates processes
Assesses Effectiveness
Calibrates model

IT Operations

Model Validation
Model Deployment
Model Monitoring
Information Preparation



Business Analyst

Frames Problem in context
Establishes metrics of success
Agrees outcomes

Data Analyst

Information Preparation
Information Exploration
Information Visualization
Report Creation

Analytics Analyst

Exploratory Analysis
What if assessment
Correlations
Descriptive Segmentation
Predictive Modeling

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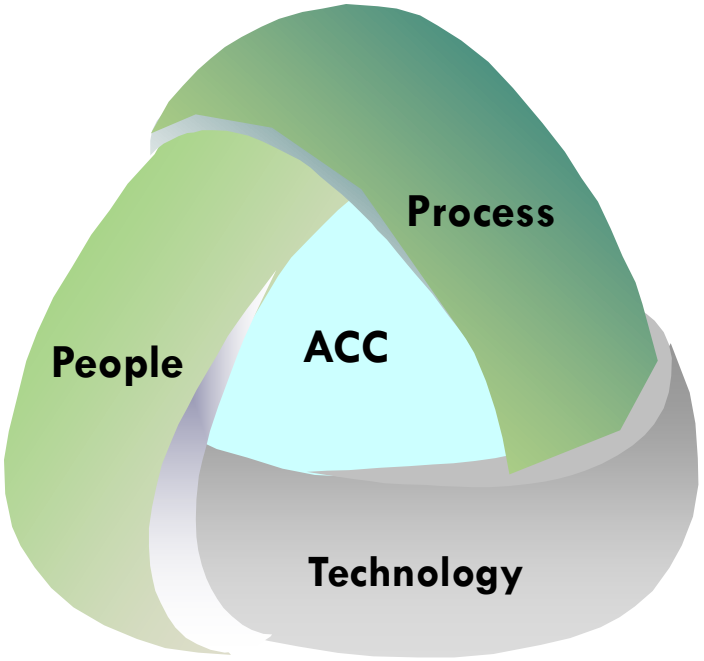
ANALYTICS COMPETENCY CENTRE



Business Processes
- Rules
- Approvals
- Version Control
- Company best practice
- Workflow
- Ownership

Competency
- Knowledge
- Skills
- Behaviours

- **Capability**
  - Quantity
  - Staffing mix
  - Productivity and Performance
- **Knowledge Retention and Management**

Software applications
Connectivity
Backup and recovery
Security
User Access

Hardware
- systems
- storage

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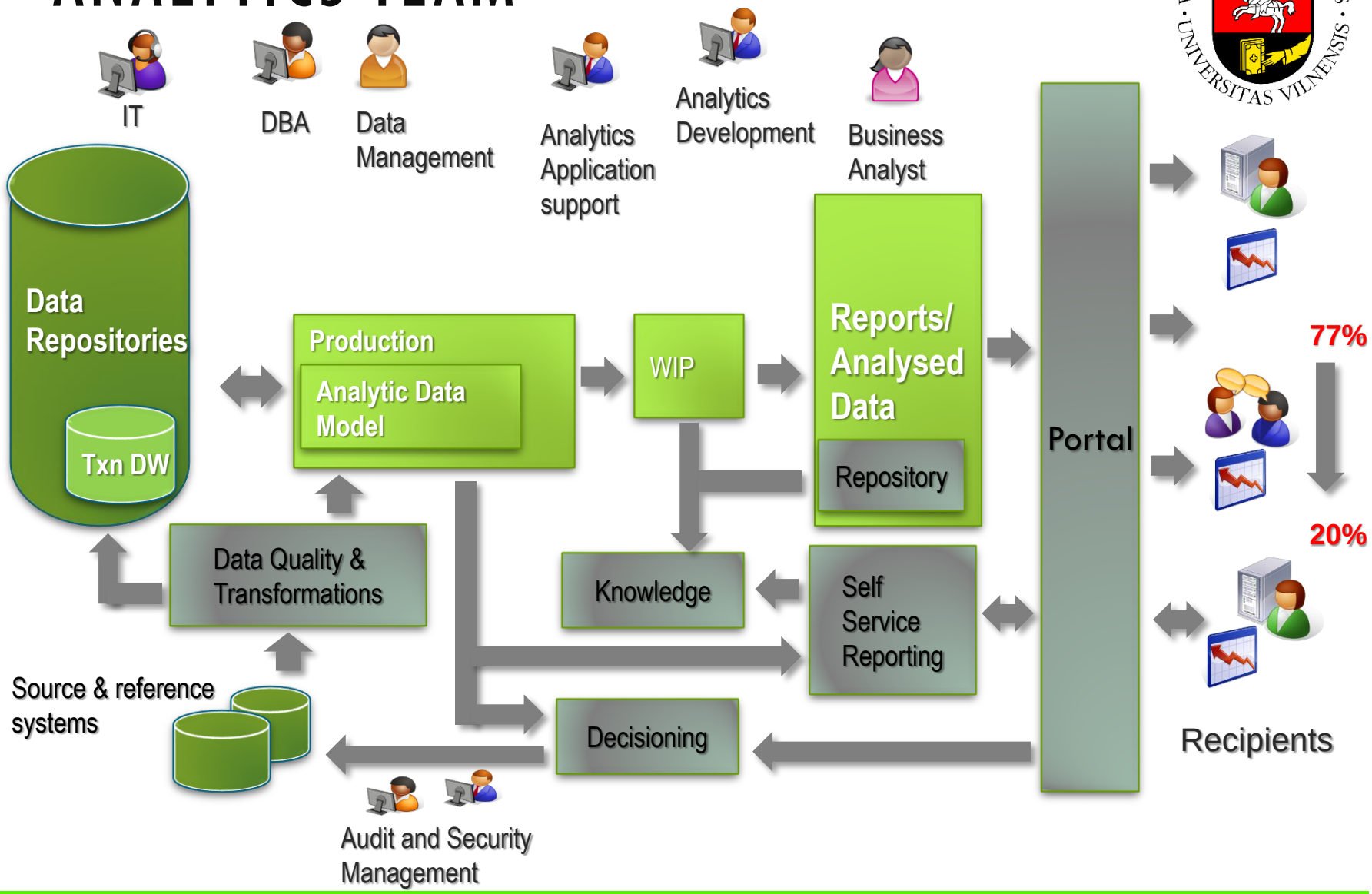
ANALYTICS TEAM



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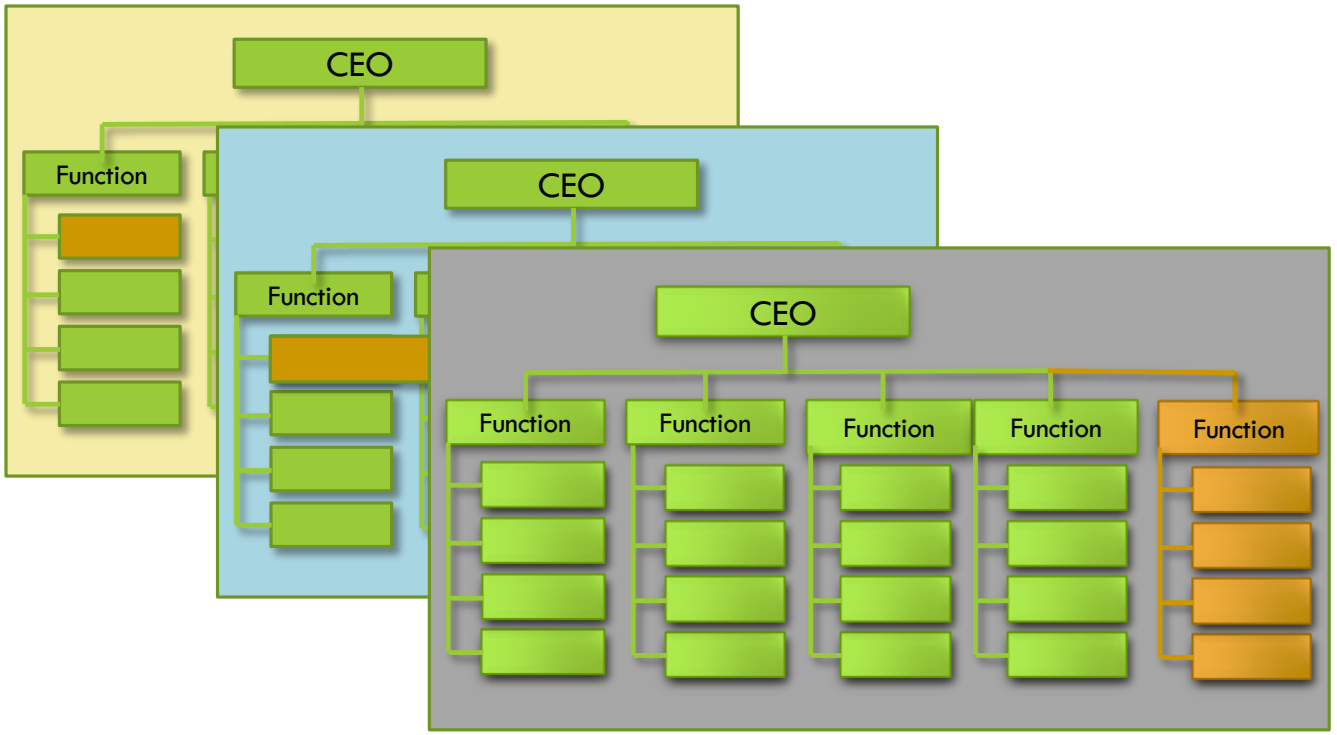
OPERATING MODEL



Leading analytics ➔ CMO + CIO + CPO + COO ➔ £ $ KWN ⬆

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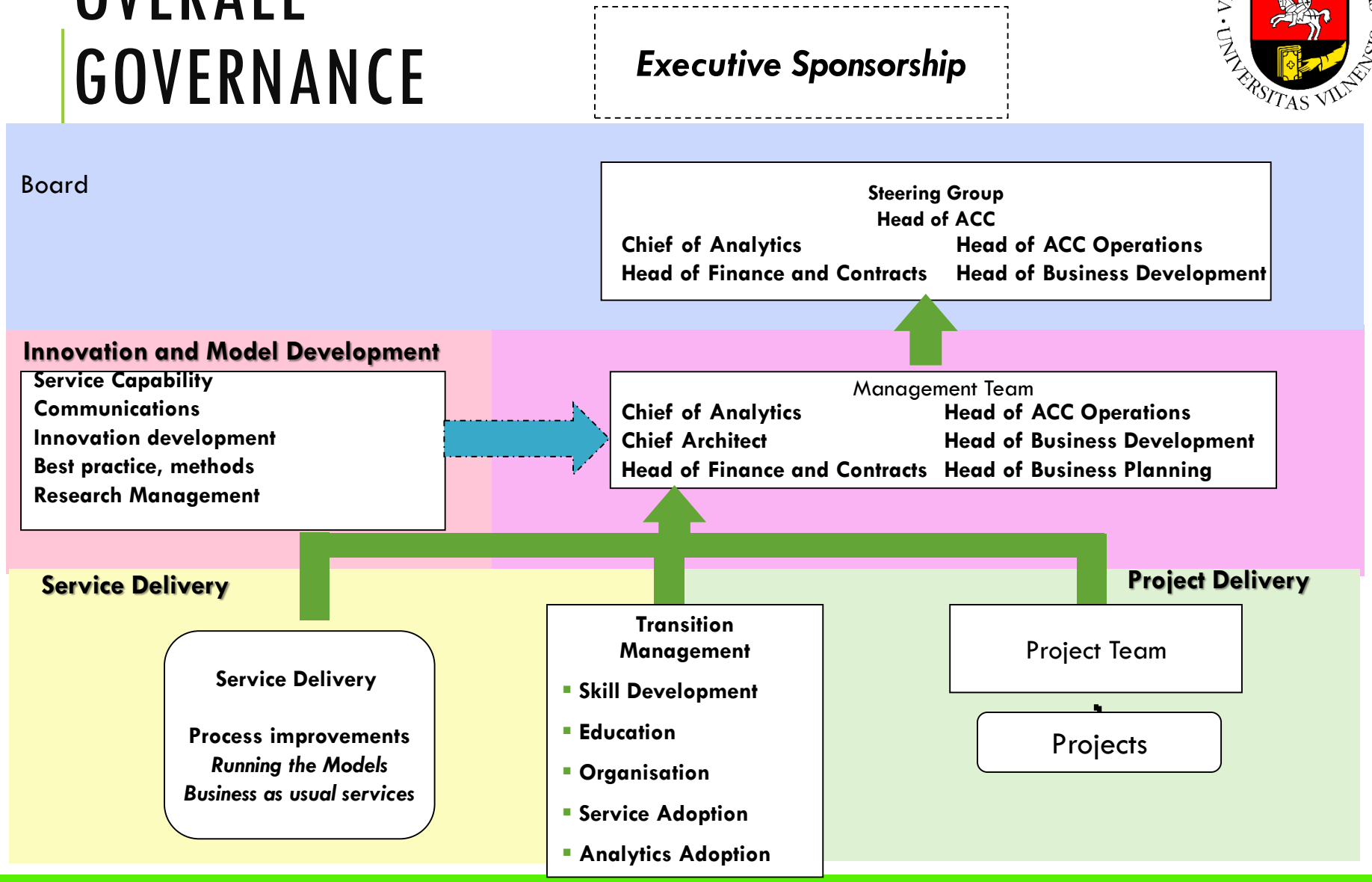
OVERALL GOVERNANCE



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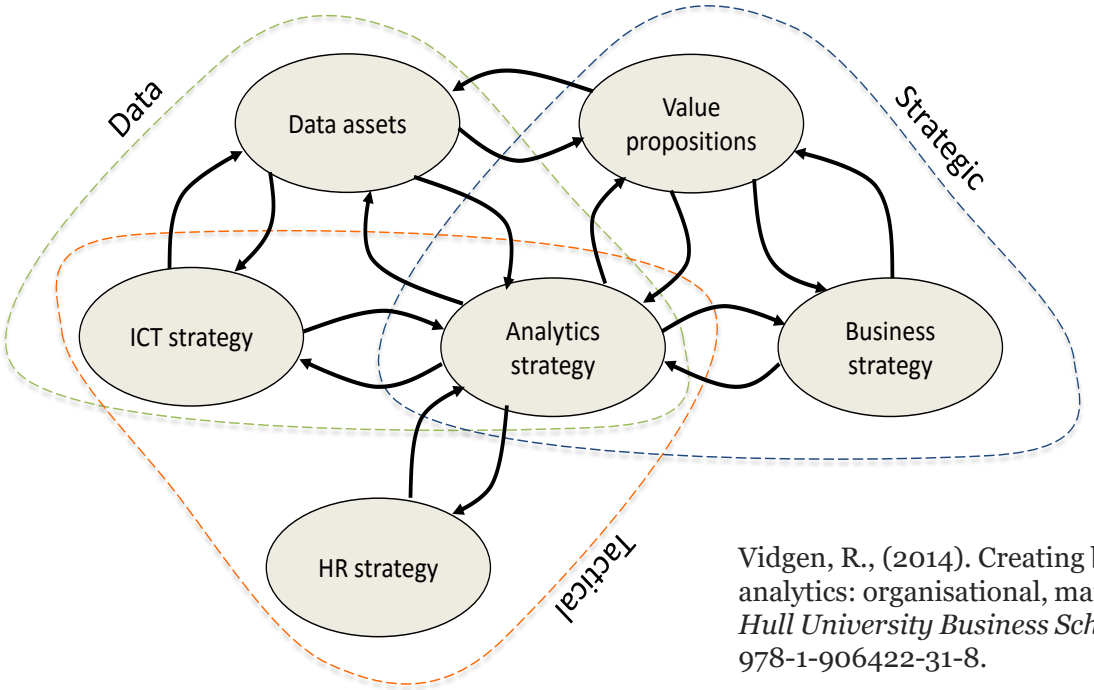
BUSINESS ANALYTICS ECO-SYSTEM



Vidgen, R., (2014). Creating business value from Big Data and business analytics: organisational, managerial and human resource implications. *Hull University Business School Research Memorandum*, no. 94, ISBN 978-1-906422-31-8.

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	Item	Description
1	Managing data quality	assuring data quality aspects, such as accuracy, data definitions, consistency, segmentation, timeliness, etc.
2	Using analytics for improved decision making	linking the analytics produced from big data with key decision making in the business
3	Creating a big data and analytics strategy	having a clear big data and analytics strategy that fits with the organisation's business strategy
4	Availability of data	the availability of appropriate data to support analytics (does the data exist?)
5	Building data skills in the organisation	the training and education required to upskill employees in general to utilise big data and analytics
6	Restrictions of existing IT platforms	existing IT platforms/architecture may make it difficult to migrate to and manage big data and analytics
7	Measuring customer value impact	can the real impact on the customer of managing big data be measured?
8	Analytics skills shortage	difficulty in acquiring the mathematical, statistical, visualisation skills for producing analytics
9	Establishing a business case	can 'tangible' benefits of big data be demonstrated (e.g., return on investment)?
10	Getting access to data sources	accessing appropriate data sources to produce and manage big data (can the data be accessed?)
11	Producing credible analytics	are the analytics produced from big data likely to be credible and trusted by the organisation?

Vidgen, R., and Shaw, S., (2015). A Delphi Study of the Organisational Challenges to Creating Value from Big Data Analytics. Hull University Business School Working Paper.

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WHAT CAN YOU DO?

http://scripts.bcs.org/stiaplus/stia.htm

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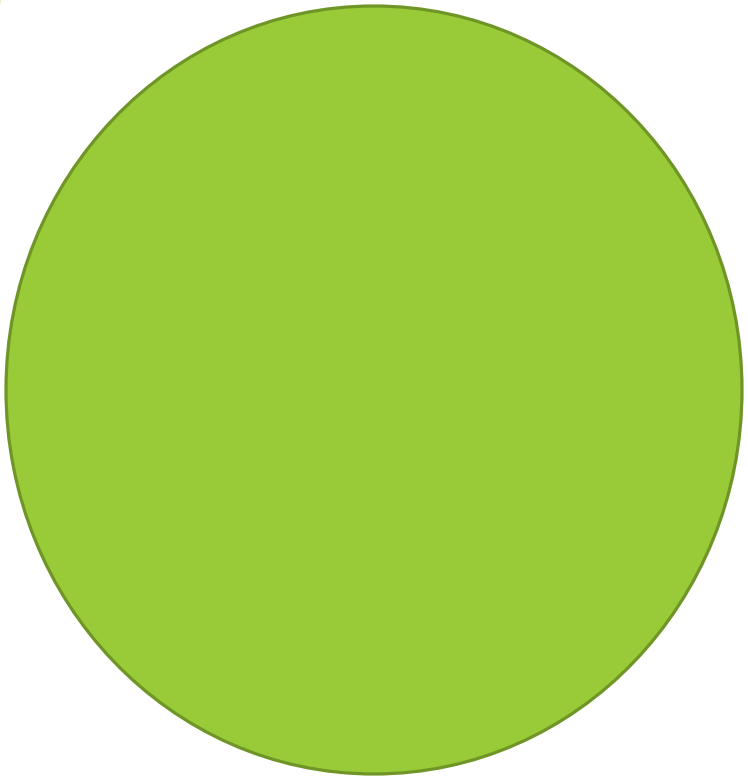
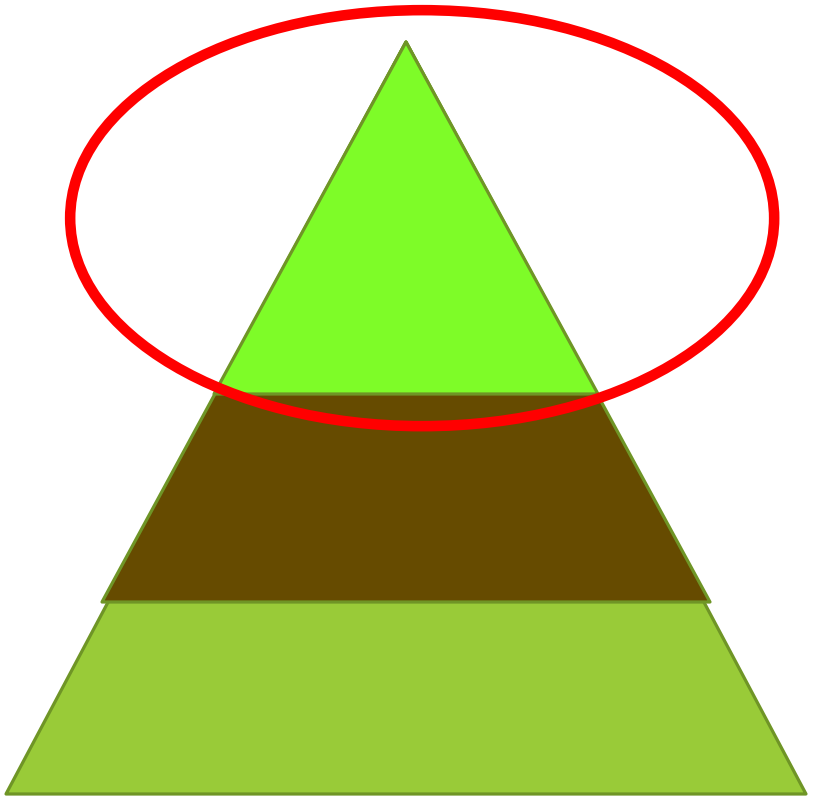
CAPACITY VERSUS CAPABILITY





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DEVELOPING TALENT

Schools programmes

Academic programmes

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IDENTIFYING TALENT

Challenges

- Unclear definition of a data scientist
- Lack of boundaries between junior/senior data scientist
- Lack of softer skills for the data scientist
- Professional Development of the Data Scientist

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QUESTIONS

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UCAS open data for University student admissions

https://data.gov.uk/dataset/universities_and_colleges_admissions_service_ucas_statistics%402013-08-24T02%3A33%3A36.174182

UCAS Administrative research information

http://www.adls.ac.uk/ucas/ucas-higher-education-data/?detail

UK educational data

http://education.data.gov.uk/

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