

Abstract

This course is key for business managers, strategic planners, marketing analysts, data analysts and architects, planning managers, process analysts, business analysts, business architects, enterprise and IT architects.

Big Data and Deep Learning

Discovering Hidden Opportunities

Day One

Theme: Strategic use of Big Data

Section 1: The Big Data Journey -Big Data Capability and Business Strategy

- What do we mean by big data
- Characteristics of big data:
 - Volume, timeliness and accuracy for business decision-making
- The motive: Why are we interested?
- Big Data capability – applying the CMM model to big data
- Defining your big data journey
- Using a big data roadmap to manage the journey
- The whole point - Where are you going with big data?

Exercise – Defining your big data journey

Section 2: Delivering Big Data to the Business

- Defining the observation space - what data can you see?
- The big data infrastructure
 - *Platforms, software tools, skills, support, policies*
- The technology environment
 - Discovery, prediction, streaming, virtualization, databases

Video – Typical Big Data Uses

Section 3: Correlation and Regression – Data that tracks together for prediction

- Big data and correlation
- What types of correlation are there?
- Pearson correlation
- Spearman correlation
- Kendall correlation
- Other types of correlation
- Regression is different!

Exercise –Correlations and regressions and The Abscombe Quartet

Exam –Day 1

Big Data and Deep Learning

Discovering Hidden Opportunities

Day 2

Theme: Working with what, not why

Section 4: Correlation Matrices – Buyer Preferences

- What is a correlation matrix? What is it used for?
- Ranking opportunities
- Building a correlation matrix
- Selecting the correct correlation algorithm
- Interpreting the results

Exercise – Preparing a correlation matrix

Section 5: Affinity Analysis – The Market Basket Tool for Product Pairing

The affinity idea, what do buying habits depend on?

How do you do an affinity analysis?

What does it tell you?

Interpreting the results

Analyzing buyer product behavior with affinity

Interactive Exercise – Interpreting an affinity matrix

Section 6: Cluster Analysis

- Setting up the problem – what data do you have?
- Is the data ‘big’? Is it important to be big?
- What data sets track together? - Regression and correlation
- Ranking opportunities - The value and use of correlation matrices
- How good is the estimate? Understanding confidence and variance
- Consumer behavior - Affinity and prediction

Exercise – A simple cluster analysis

Exam –Day 2

Big Data and Deep Learning

Discovering Hidden Opportunities

Day 3

Theme: Deep Learning Finding Hidden Gems

Section 7: Working with text – Sentiment Analysis

- What is sentiment analysis – about emotions
- Sentiment analytics - how does it work?
- External perspective of the organization
- Internal perspective of the organization
- Comparative analysis of perspectives
- Interpreting the results

Interactive exercise – Using sentiment analysis

Section 8: What is Deep Learning and what is it for?

- Start with the idea of machine learning
- The goal of deep learning
- Why deep learning now?
- Technology for deep learning
- Who can use this?

Video – What are neural nets and how do they work in big data?

Section 9: How does it work?

- How does it work – using neural nets
- Key applications of deep learning
 - Speech, vision, image processing
- Issues with deep learning
- Some business applications of deep learning
 - Credit scoring and risk prediction
 - Fraud detection
 - Cross selling and upselling
 - Customer retention
 - Analytics and social media

Q&A and Course Wrap

Exam –Day 3

Big Data and Deep Learning

Discovering Hidden Opportunities

Learning Objectives

Expected Learning Outcomes (what they will learn):

- Explain the difference between big data and data we manage today
- Understand the trend and use of big data
- Define the business value of big data to your organization
- Explaining the technology available for big data today
- Explain the difference between correlation and affinity and how each is used
- Interpret how sentiment analysis impacts business image
- Design methods that effectively utilize prediction with big data
- Understand the limits of big data
- Interpret social media data to understand market potential
- Identify when the 'data mine' is empty