ANALYTICS FOR RETAIL & CONSUMER GOODS

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Academic Background
Degree in Economics, Universitat Pompeu Fabra
MSc in Economics, European University Institute

Professional Experience
Commercial Director, Tziranda (2003)
Business Development Director, AIS Aplicaciones de Inteligencia Artificial (2003-2007)
Consulting Director, Neo Metrics (2007-2012)
Senior Manager, Accenture (2012-2013)
Managing Director, Kernel Analytics (2013-)
OBJECTIVES

The goal of the course is to equip students with the ability to identify, assess and develop analytics opportunities in Retail and Consumer Goods so that they can successfully apply their knowledge later on in real business situations.

1. Identify analytics opportunities
2. Evaluate technical feasibility and assess the expected value creation
3. Identify relevant sources of data and the required volumes needed
4. Define the integration of analytics with business
5. Define the methodology and the techniques need to analyze the data
6. Be aware of how to mix business objectives and data analysis
7. Define the deployment of analytics in production
8. Measure results and build mechanisms of continuous incremental improvement
9. Identify new business opportunities based on analytics
10. Understand technological alternatives and implications

METHODOLOGY

The course is structured as a mix of lectures, applied cases, team projects in which students take home data to analyze, as small analytical projects.

MOTIVATION

Retail and consumer goods have been transformed greatly in past years due to overall business automation and digitalization, the creation of online sales channel and the launch of loyalty cards to track consumers. Now companies are awash with data and face the challenge on how to use it effectively to transform operations in all areas of their business. Firstly to make them incrementally more efficient, and later to change them forever with the use of data and analytics.

FOCUS

The course will focus on reviewing the multiple applications of analytics and big data to decision making in Retail and Consumer Goods. For each area of application it will be reviewed the data needed, the techniques applied, the results obtained, how to link the results to better strategic and tactical decision making, how to measure the value add and some technological implications. Each session will focus on one vertical application (marketing, sales, and logistics, among others) and will review several real cases in detail. These cases will involve students actively in solving the cases step by step, from ex ante value identification to ex post business implications.
PROGRAM

SESSION 1 (FACE TO FACE)

Overview on analytics applied to Retail and Consumer Goods. Characteristics and differences

This session will provide an overview for the whole course on how analytics improves tactical and strategic decision-making and ultimately allows for business to transform themselves. Different areas of business will be reviewed with the top applications presented, including marketing, sales, logistics, fraud detection, among others. The main characteristics of retail analytics with respect to other industries will be presented and how that impacts the application of analytics to business.

SESSION 2 (FACE TO FACE)

Marketing: business analysis and customer segmentation

Customers come in all sizes. They care for different products or services, value differently the attributes of the brand and have different budgets and sensitivity to prices. This session will cover how to approach customer analysis bottom-up: how to identify the business drivers, how to integrate them into a customer segmentation and how to link them to business and operations in a profitable way. Special focus will be placed on how to tackle multichannel interaction, both online and offline. It will also be discussed how to merge bottom-up analysis with top-down requests from business executives.

SESSION 3 (FACE TO FACE)

Marketing: customer predictive modelling

This session will review how to apply individual predictive modelling to understanding consumer behavior and how to apply it to targeted campaigns. It includes propensity models and conversion models, for both online and offline interaction. It will cover coupon recommendation or repetitive purchases models, in particular how to use loyalty programs to engage customers with the brand.

SESSION 4 (FACE TO FACE)

Marketing: recommender systems and personalization

Relevance drives sales and technology allows massive personalization. This session will cover collaborative filtering models to handle customized recommendation from a business perspective. It will review the main technological and analytical challenges and the impact on business metrics. Furthermore, it will explore how customized recommendation opens up new business opportunities beyond simple personalization.

SESSION 5

Marketing: marketing mix optimization

Investment in advertising, both online and offline, is one of the main budgets in Marketing, often with non-accurate measurements on its return due to its indirect overlapping cumulative impact. This session will cover how to measure impact on overall marketing efforts, both direct and indirect from a methodology point of view and how to link decisions based on it. In addition, it will be analyzed how targeted CRM efforts are combined with massive advertising efforts and thus how to split the budget between the two.
SESSION 6 (FACE TO FACE)

Marketing: In-store analytics
Offline stores are starting to gather more data due to new technologies such as image recognition and cell-phone detection and identification systems (i-beacons and similar). This session will cover these emerging technologies, the data outputs that they provide and what decisions can be made both in terms of store layout and operations and also in direct impact on customers.

SESSION 7 (FACE TO FACE)

Operations: demand forecasting and replenishment
This session will cover both pre-season and in-season demand forecasting and how to apply it to supply chain management. It will be analyzed how to create value based on better predictions, both reducing certain business KPIs and also changing operations based on better forecasts. It will also be analyzed how to transform forecasts into logistics decisions (replenishment) and what KPIs need to be considered and weighted.

SESSION 8 (FACE TO FACE)

Operations: pricing, trade marketing and mark-down optimization
This session will review how to price products based on sales, margins, competitive environment and own assortment (consumer goods). Trade marketing and how to use it profitably will also be discussed, both in planning and how to measure results in net incremental profitability. For markets in which there is obsolescence, either technological or fashion-related, mark-down optimization is key to maximize net margin generation over the season.

SESSION 9

Operations: assortment optimization
Decisions on assortment are key to the success of any retailer, or indirectly, a consumer goods company. Understanding how sales derive from diversity on each category is challenging and yet crucial. It is also one of the areas that has been more reluctant to be data driven in companies. Customers also value differently basic and more sophisticated products and can base their loyalty on low-selling, but highly differentiated products.

SESSION 10 (FACE TO FACE)

Operations: optimization applied to logistics
This session will review several cases on optimization applied to operations such as transport optimization, stock redistribution across stores, workforce optimization, either maximizing results, minimizing cost or a combination of both.

EVALUATION METHOD

Students will be evaluated on a combination of criteria where active involvement in discussions is important due to the nature of the course.

CLASS PARTICIPATION

Classes will continuously encourage participation in the discussion of how to apply analytics to business decisions. Active participation is expected as a key element in learning in the course.
CLASS PARTICIPATION

Classes will include both exercises that will be presented and solved in the classroom and cases that need to be prepared beforehand. Students are expected to develop the skill of how to apply analytical knowledge acquired in previous classes on practical cases in retail and consumer goods.

TEAM PROJECT (WORKGROUPS)
There will be a more exhaustive project with data in which students, collaborating in groups, are expected to define a methodology, apply it, develop a diagnosis and recommendations and present them in public.

EXAM
The exam will evaluate the concepts learned in the different lectures. It will not require programming or data analysis, but rather, concepts to identify and quantify value creation.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Score %</th>
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<tbody>
<tr>
<td>Final Exam</td>
<td>50%</td>
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<tr>
<td>Class Participation</td>
<td>25%</td>
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<tr>
<td>Group Presentation</td>
<td>25%</td>
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Students will be evaluated on a combination of criteria where active involvement in discussions is important due to the nature of the course.

FINAL EXAM
The exam will evaluate the concepts learned in the different lectures. It will not require programming or data analysis, but rather, concepts to identify and quantify value creation.

CLASS PARTICIPATION

Classes will continuously encourage participation in the discussion of how to apply analytics to business decisions. Active participation is expected as a key element in learning in the course. It may be proactive or reactive to the professor request.

Classes will include both exercises that will be presented and solved in the classroom and cases that need to be prepared beforehand. Students are expected to develop the skill of how to apply analytical knowledge acquired in previous classes on practical cases in retail and consumer goods.

GROUP PRESENTATION
There will be a more exhaustive project with data in which students, collaborating in groups, are expected to define a methodology, apply it, develop a diagnosis and recommendations and present them in public.