Ispira
passionate about retail

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Artificial Intelligence and Machine Learning tools
# for Retail and Direct-To-Consumer

Why Machine Learning in Retail and DTC

The industry and the operational context

- Business decisions are taken in complex scenarios that require control of increasing number of parameters
- The influence of each factor to performance and results is often difficult to measure and to convert into decisions for better respond to customer expectations
- Changes on trends and behaviour demand frequent reviews of product strategy, financial targets and tactical actions absorbing precious time of the internal team
- Priority is shifting from business intelligence into predictions to support future decisions in Retail Planning, Assortment Planning, Product Development, CRM, Marketing
- The amount of available data coming from different sources is offering unparalleled opportunities to develop innovative tools

The benefits of Artificial Intelligence and Machine Learning

- AI and AI address in the most effective way the demand for support in predictions, planning, decisions
- AI and ML sophisticated algorithms learn from experience, data, measurable inputs to produce models that are used for better driving businesses
- As a human brain, AI and ML tools can be re-trained and made more performing by adding, data, features, functionalities
- AI and ML solutions will quickly become an ongoing support for the internal team for strategic and tactical decisions involving product, customer, distribution channels
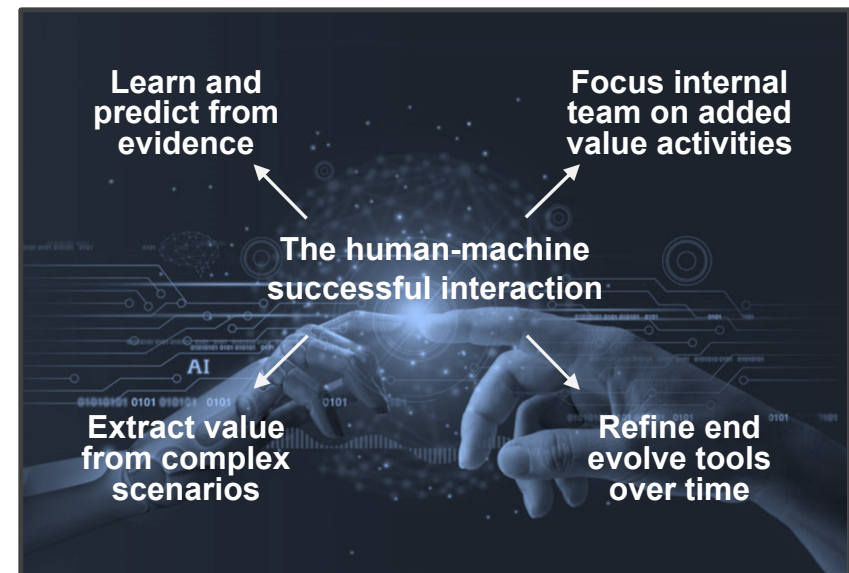
Unique combination of business & data science

- Ispira's AI and ML offering delivers a quantum leap in terms of **prediction support** and **continuous improvement** as tools are retrained and improved over time
- Our AI and ML project activate a **change management model** organized **in 6 stages** that involve top management, omnichannel executives users, IT
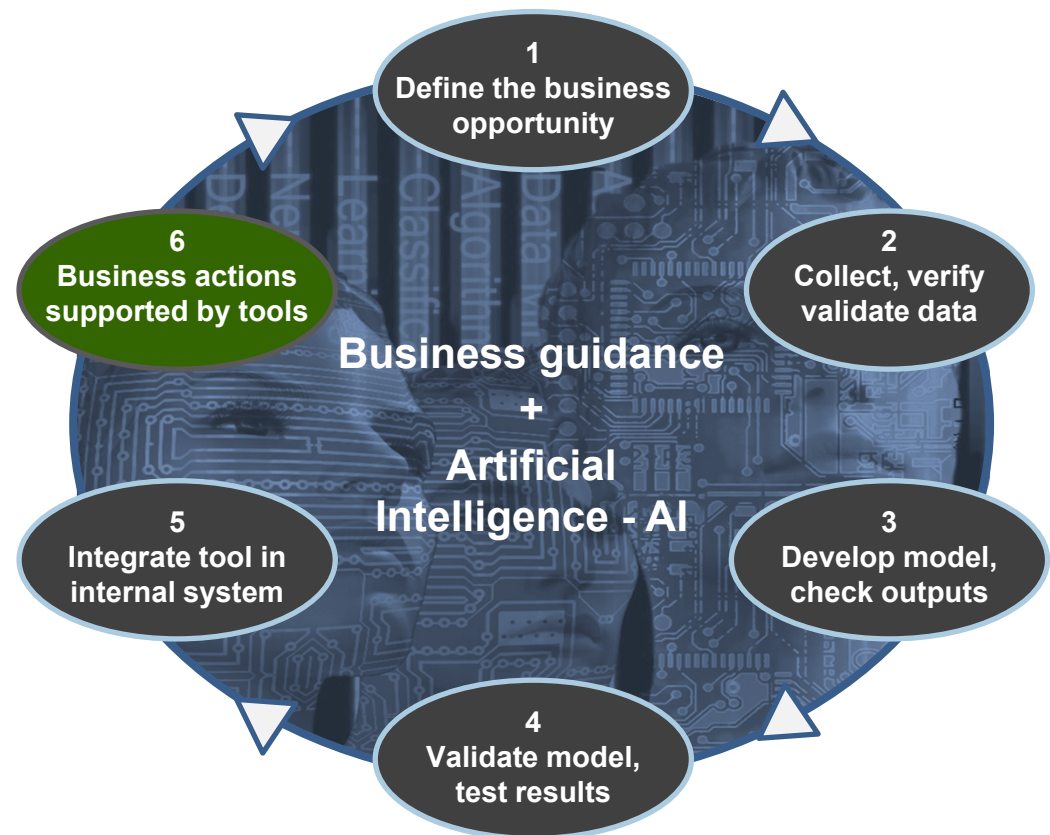
Data unleash unparalleled insights to:
- drive business decisions
- interpret customer behaviour
- identify drivers impacting results
- prioritize actions in complex contexts
- reduce operational inefficiencies

Our approach integrates:
- in depth knowledge of retail industry
- guidance for strategic evolution
- proven change management track record
- dominance of artificial intelligence methods
- implementation of tailored solutions

Ongoing improvement:
- tools evolved over time
- more data added to predictive models
- additional features introduced
- more tools introduced

**Business guidance
+
Artificial
Intelligence - AI**

1
Define the business opportunity

2
Collect, verify validate data

3
Develop model, check outputs

4
Validate model, test results

5
Integrate tool in internal system

6
Business actions supported by tools

Unique blend of skills

- Our team combines unparalleled mastery of retail and DTC industries, business consulting, change management, best-of-breed algorithms, coding skills

Outstanding track record in retail, customer behaviour, branding

- ➤ + 20 years board-level experience with international retailers in:
  - fashion
  - clothing, apparel, footwear, sportswear
  - homeware, accessories, furnishing
  - beauty, pharma, coffee, services
- ➤ in depth involvement in business evolution and transformation
- ➤ exposure to change management and retail best practices
- ➤ specific expertise in converting business goals into functionalities and specification

Cutting edge knowledge of Artificial Intelligence tools and solutions

- ➤ 2 experienced data scientists holding Ph.D. degree in Machine Learning, Optimization and Operation Research
- ➤ in depth knowledge and use of best practice algorithms, several publications in international journals
- ➤ development of machine and deep learning tools including:
  - traffic prediction in mobile industry
  - predictive maintenance and consumption
  - indoor positioning
  - image classification
  - segmentation and anomaly detection

ML typical areas of impact for retail and DTC

- We integrate in-depth knowledge of retail business, final customer habits, best practice processes with cutting edge data science and algorithms to deliver financial impact

Benefits of out tools:
- ✓ enhance assortment performance
- ✓ increase customer engagement and conversion
- ✓ improve effectiveness of internal processes
- ✓ reduce inefficiency

Collection development

| **3. New Product Sales potential** | • Predict product performance identifying most similar historical products
• Fine tune product details to meet influencing and impacting drivers |

Merchandise Financial Plan

| **1. Time-series forecast** | • Receive realistic forecast based on seasonality, trends, cycles components
• Reduce effort of finance, retail, merchandisers, planners |

Tailored CRM initiatives

| **4. Product recommendation** | • Identify products closest for taste, style and price to individual customers
• Activate a relevant communication with registered customers |

Merchandising

| **2. Product sales drivers** | • Measure impact of qualitative and quantitative parameters on product performance
• Identify drivers that determine assortment rate of sale |

Group homogeneous stores

| **5. Store clusters** | • Identify stores with common catchment area, quantitative and qualitative characteristics
• Manage stores within clusters consistently, predict new stores |

1. Time-series forecast

- Pre-Season planning and In-Season re-forecast are time consuming activities which absorb valuable effort of the internal team. Machine-learning tools allow massive simplification to the internal process delivering:
    - realistic forecast based on seasonality, trends, cycles components
    - effort reduction of finance, retail, merchandisers, planners

Sales

Sales Forecast

Weeks To Date | **Weeks To Go**
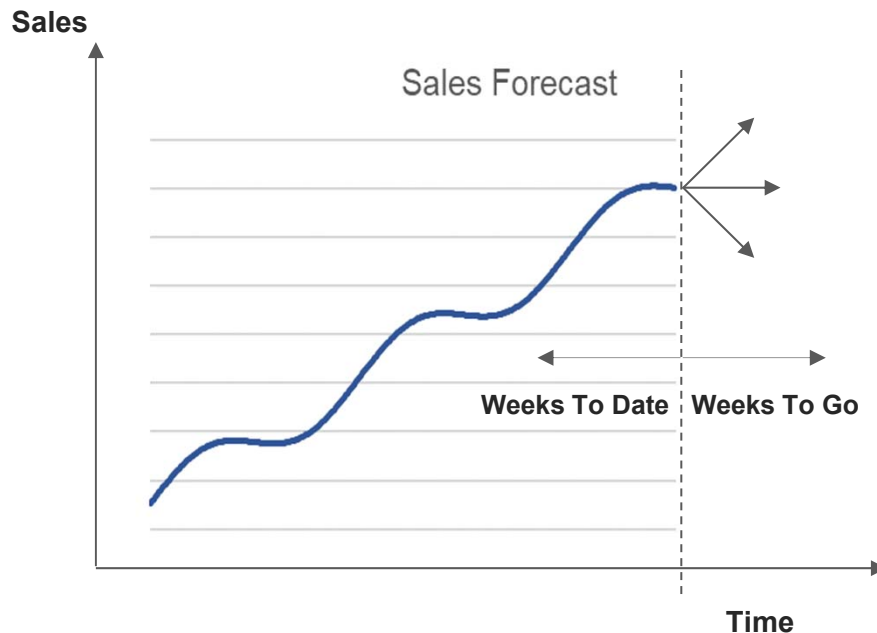
Time

Approach and characteristics

Bottom-up approach:
- carried out at detailed level:
    - product (sub)category
    - week
    - season
    - country

Prediction determined from:
- seasonal component
- trend component
- cyclical component
- noise

Time horizons:
- short term: in season sales re-forecast
- long term: pre-season sales planning

Available model characteristics
- ➢ decreasing weight moving away from present
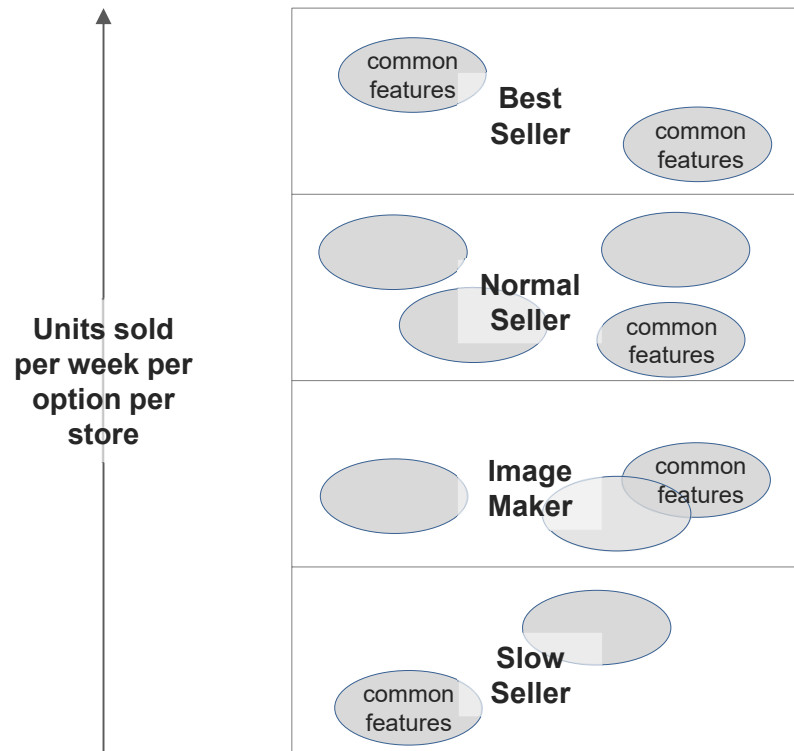- ➢ adjust prediction to total aggregate

Typical algorithms:
- ARIMA, Recurrent Neural Networks – LSTM, hybrid methods

- Model available in 3-4 months

2. Product Sales Drivers

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- Product performance is determined by a high number of option-specific parameters that are complex to be evaluated simultaneously. Objective is to support product and merchandising team in identifying:
  - features influencing performance
  - groups of products with similar performance and characteristics

Units sold per week per option per store

common features **Best Seller** common features
Normal Seller common features
Image Maker common features
Slow Seller common features

Approach and characteristics

- Identify and include in the model qualitative and quantitative product features:
  - style, end use, color, material, finishing
  - price, number of units sold, number of stores, number of weeks

- Products are classified according to performance levels to facilitate end-of-season reviews and to influence next season collection development

Additional feature
  ➢ estimate of lost sales consequence of out-of-stock

Two types of models
  ➢ stage 1 evolution: 'table format' input - traditional
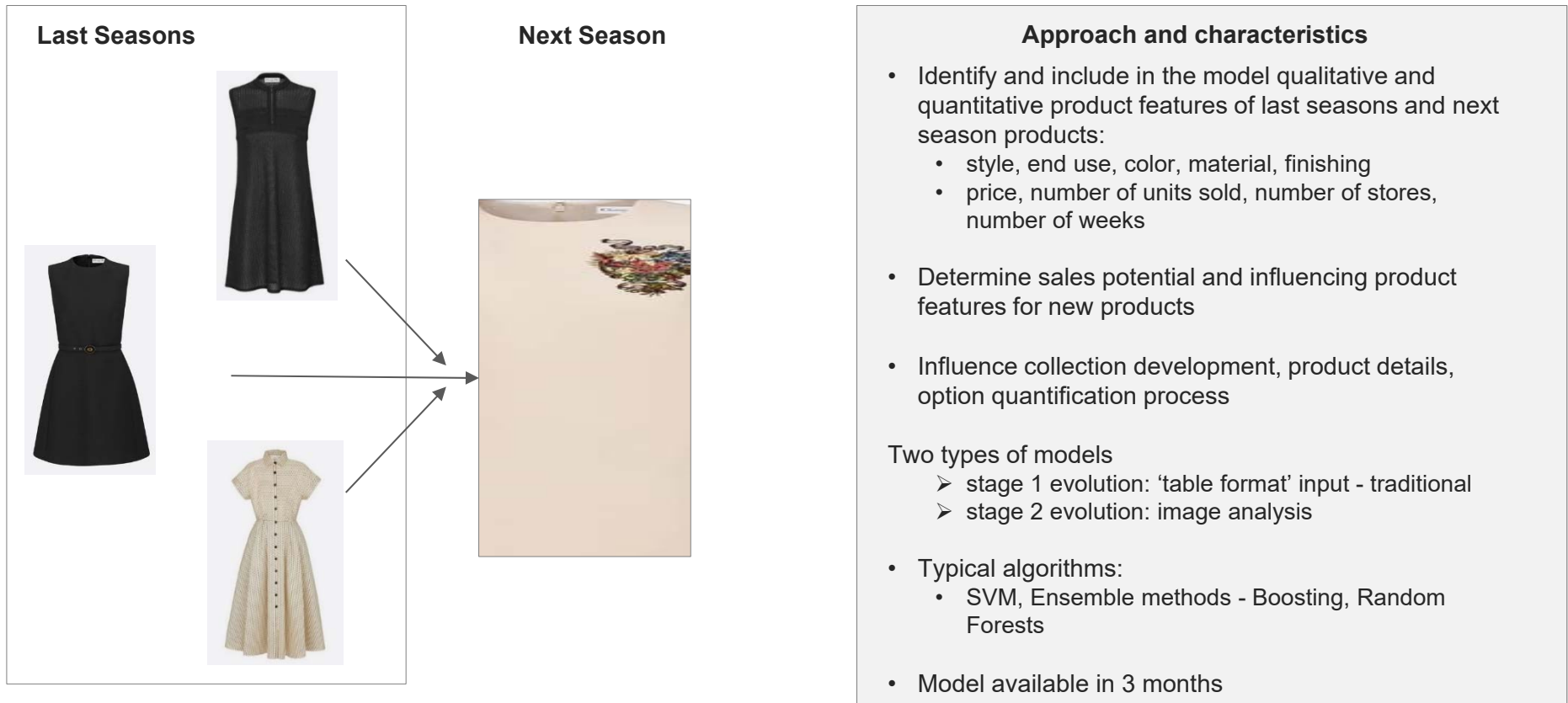 ➢ stage 2 evolution: image analysis

Typical algorithms:
  - SVM, Ensemble methods: Boosting, Random Forests

- Model available in 3 months
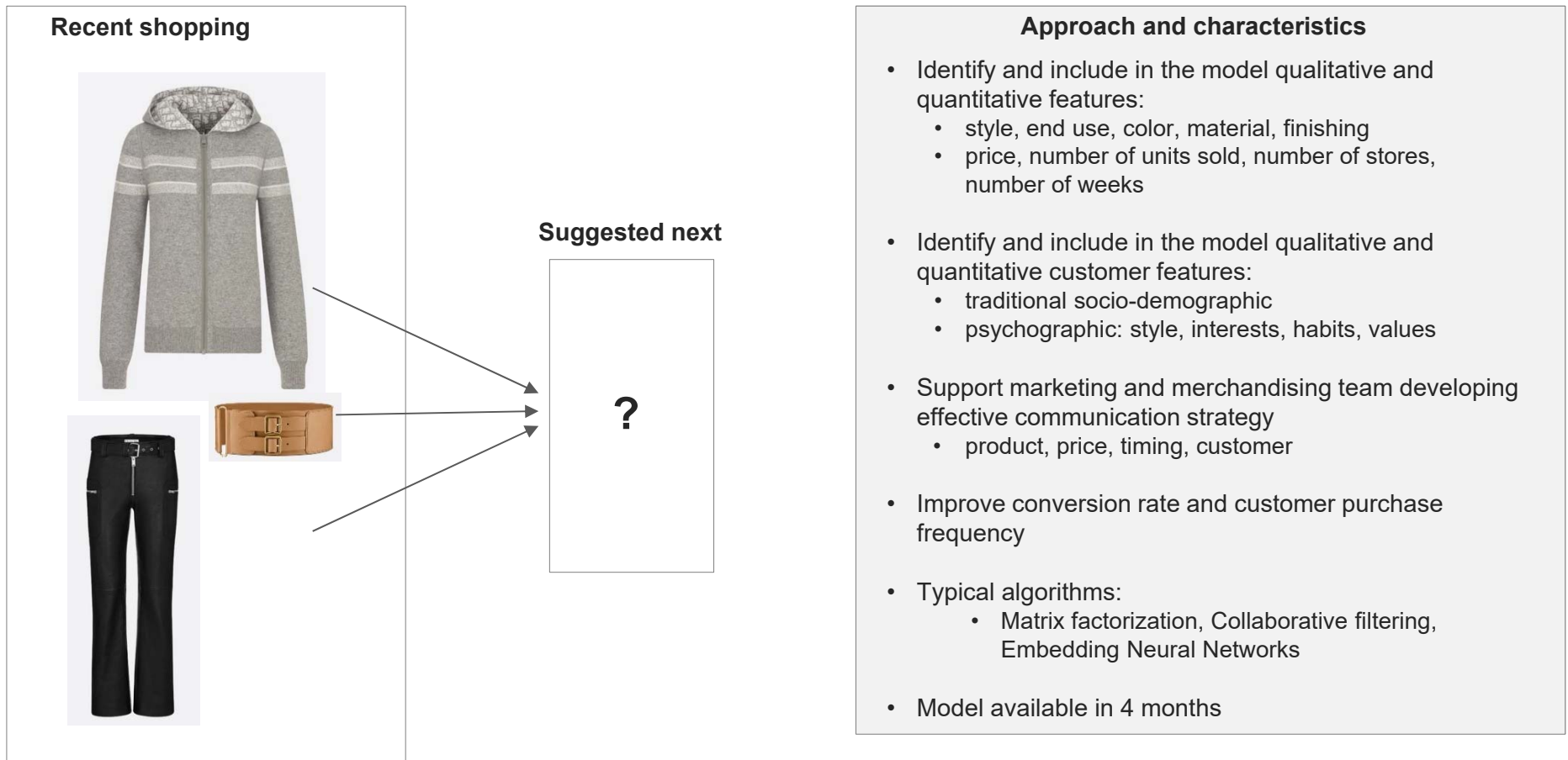
3. New Product Sales potential

- Next Season/collection drop commercial potential depends on multiple factors some of which are related to volatile customer habits and fashion trends. However big lessons can be learnt from performance drivers of recent collections. Objective is to support product and merchandising team in identifying:
  - products of previous collections that are most similar to each item of new collection
  - performance drivers that will influence rate of sale of new products

Last Seasons

Next Season

Approach and characteristics

- Identify and include in the model qualitative and quantitative product features of last seasons and next season products:
  - style, end use, color, material, finishing
  - price, number of units sold, number of stores, number of weeks

- Determine sales potential and influencing product features for new products

- Influence collection development, product details, option quantification process

Two types of models
  - ➢ stage 1 evolution: 'table format' input - traditional
  - ➢ stage 2 evolution: image analysis

- Typical algorithms:
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- Model available in 3 months

4. CRM initiatives - recommended product

- Relevant communication is a critical factor in keeping positive relation to customers, product recommendation is one of the best initiative to keep interest and generate additional sales. Objective is to support marketing and product team to:
    - identify customer propensity
    - generate a calendar of high-impacting 1-2-1 communication

Recent shopping

Suggested next

?

Approach and characteristics

- Identify and include in the model qualitative and quantitative features:
    - style, end use, color, material, finishing
    - price, number of units sold, number of stores, number of weeks

- Identify and include in the model qualitative and quantitative customer features:
    - traditional socio-demographic
    - psychographic: style, interests, habits, values

- Support marketing and merchandising team developing effective communication strategy
    - product, price, timing, customer

- Improve conversion rate and customer purchase frequency

- Typical algorithms:
    - Matrix factorization, Collaborative filtering, Embedding Neural Networks

- Model available in 4 months

4. CRM initiatives - recommended product

- Further elaborate previous model to provide product recommendations for infrequent and new customers. It generates output by linking similar customer profiles

Recent shopping

Recent shopping

Similar profile

Suggested next

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Recent shopping

Approach and characteristics

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5. Store clusters

- Store network management is much simplified when they are grouped in homogeneous clusters. Objective is to provide retail and product team with a model capable to:
  - identify the correct number of clusters
  - detail the key features of each
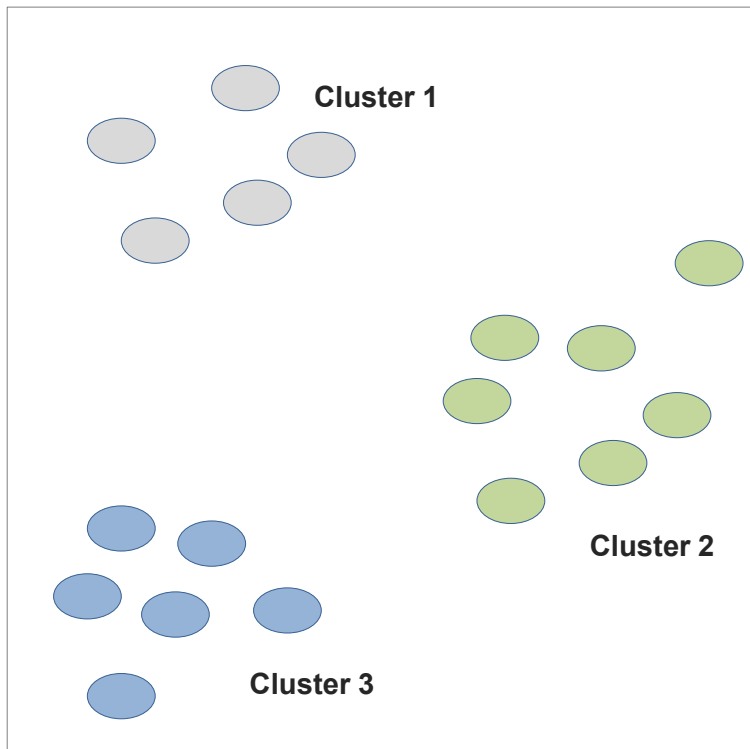
Cluster 1

Cluster 2

Cluster 3

**Approach and characteristics**

- Identify and include in the model qualitative and quantitative store features:
  - size
  - location type
  - location primeness
  - population
  - GDP pro capita

- Identify and include in the model historical performance data, eg:
  - Sales by style, sales by end use, average price, average discount

- Provide internal teams with actional groups of stores to improve management and results

- Typical algorithms:
  - KMeans, Hierarchical clustering

- Model available in 3 months

Typical work stages and elapsed

- Our Artificial Intelligence tools are bespoke developed to convert business objectives, performance drivers, available data and features into an actionable solution
- We work fast, predictions are available after 2 months
- Most of our Artificial Intelligence models are available within 3 months, tools with standard graphic interface is available in less than 4 months
- Tool Integration is an optional stage depending on client's requisites and internal solutions

Typical project Gantt
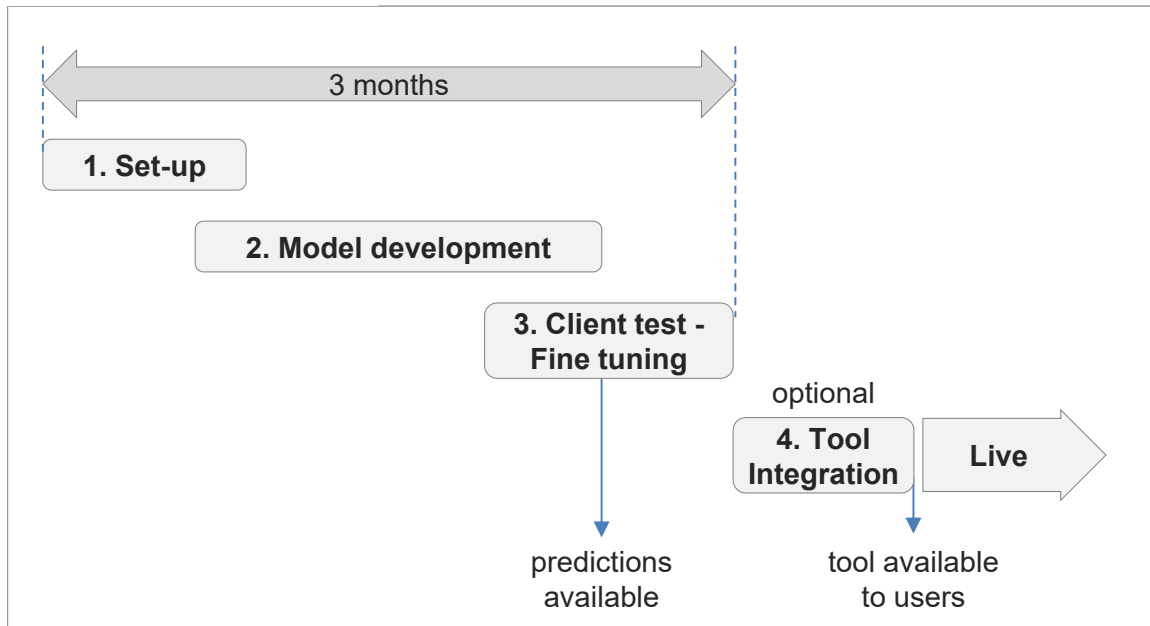
The Journey into Data Science
- ➢ Adopt the power of AI and ML algorithms and exploit the potential of data to improve:
  - collections
  - customer conversion
 - operational efficiency
  - financials

Ispira profile

about us

Ispira Ltd is a retail consulting practice providing vision, innovation and profitable delivery in omnichannel retailing, retail strategy, retail merchandising, retail experience, store marketing, retail intelligence

With offices in London and Rome, we operate in competitive environments supporting the development of successful business models

- We operate in 6 areas:

    1. Strategy and innovation

    2. Retail Best Practices

    3. Retail experience

    4. Omnichannel

    5. Market Intelligence

    6. Training

Ispira: Passionate About Retail

Strategy & Innovation

Retail Best Practices

Training

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Retail Experience

Retail Intelligence

Omni-channel
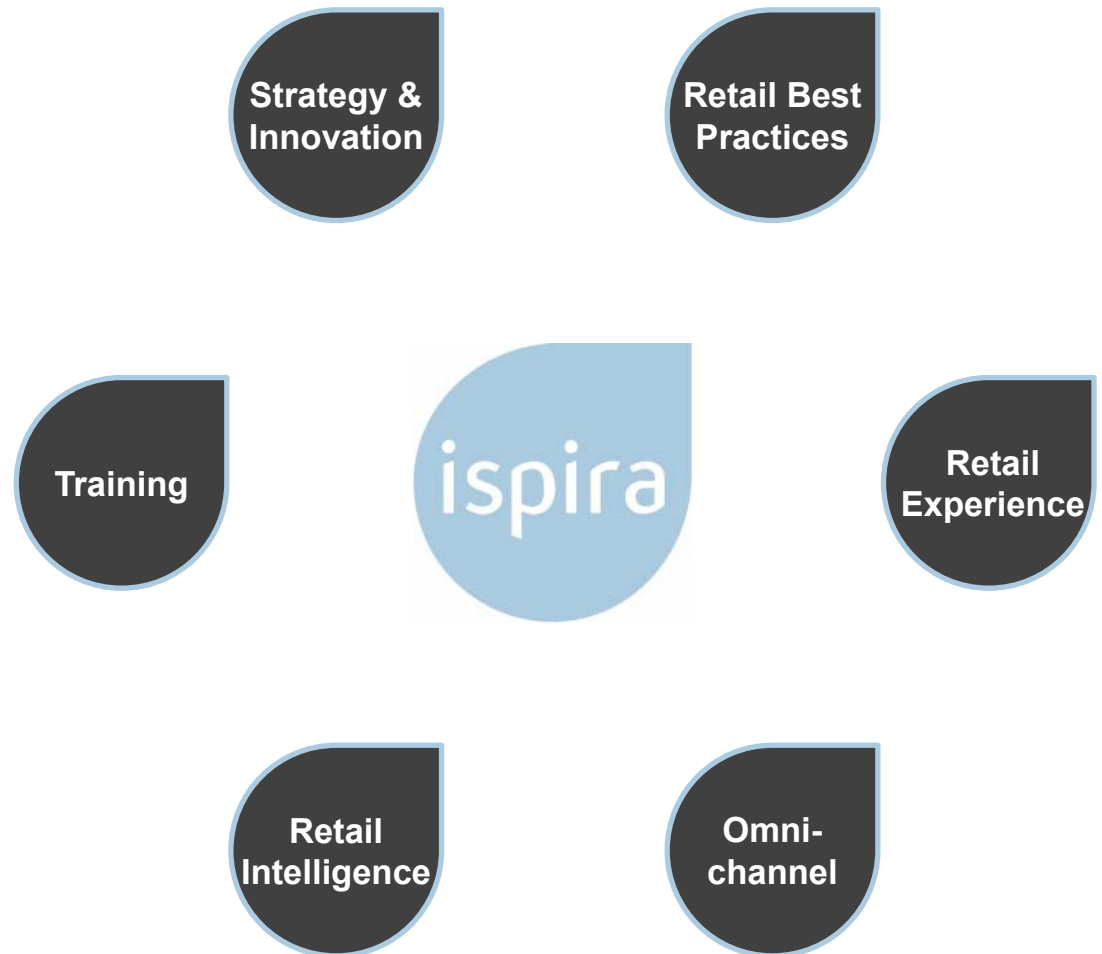
Team and experience

- We have a team of strategists, retail experts, data scientists and creatives who have worked with leading international retailers in highly competitive markets. Some of our clients include:

Brand				
Adidas	Cortefiel	Hugo Boss	Miroglio	Primark
Alessi	Cucinelli	Iceberg	Mondadori	Prenatal
Allsaints	Dim/Hanes Brands	IC Group	Motivi	Promod
Armani	Domus Academy	Imaginarium	M&S	Replay
Atlantia	Emerisque Brands	Intesa BCI	Nespresso	Safilo
Bata	Emporio Armani	KappAhl	Optissimo	Salsa
Benetton	Ferragamo	Koton	OVS	Sia
Bialetti	Ferrari	La Martina	Ozwald Boateng	Springfield
Boots	Fornarina	Luisa Spagnoli	Panorama	SunCapital Partners
Bottega Verde	Geox	Luxottica	Parah	Terranova
Camper	GoldenPoint	Malo	Peuterey	The North Sails
Carrefour	Gruppo Pam	Marella	Piazza Italia	VF Corporation
Coin	Harmont & Blaine	Marzotto	Porcelanosa	Zara

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