



# AI algorithms and use cases in the domain of Compliance

*Challenges and how we overcome them at Fortia*

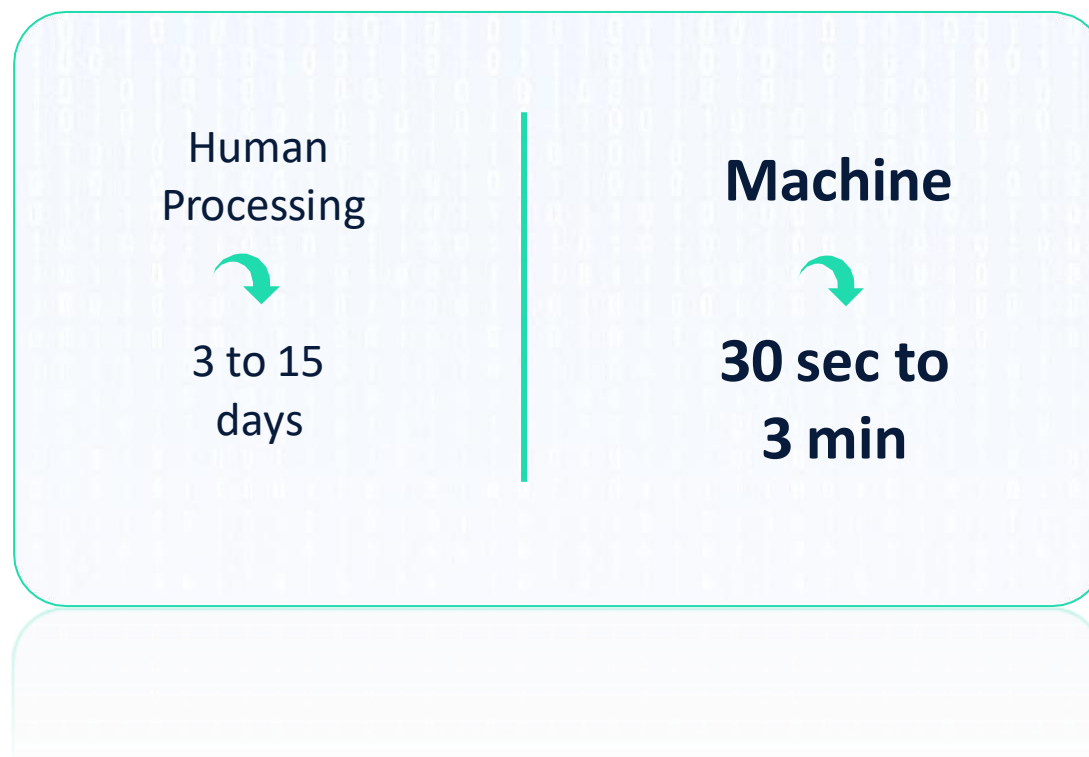
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# Information extraction from complex documents

## Objective:

- ✓ get structured information from investment fund prospectuses and KIIDs



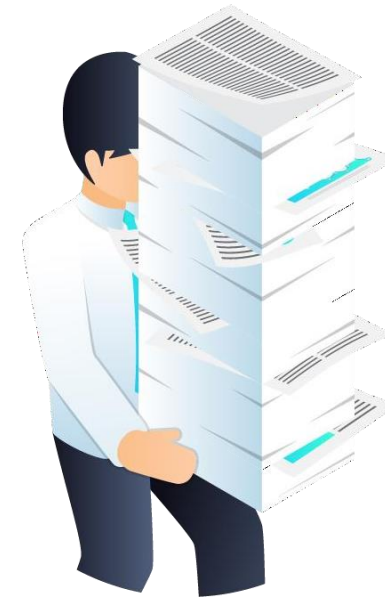
# The document

## Prospectus:

- ✓ commercial & legal
- ✓ PDF
- ✓ text, images, tables
- ✓ highly regulated: EU (ESMA) and national (AMF, CSSF, BaFin, ...)
- ✓ ~30 pages for simple products, > 100 for more complex

## Other documents:

- ✓ KIID / DICI
- ✓ Statut / Règlement
- ✓ And more: reports, updates, ...





# The document (examples)

**KEY INVESTOR INFORMATION**

This document provides you with key investor information about this Sub-Fund. It is not marketing material. The information is required by law to help you understand the nature and the risks of investing in this Sub-Fund. You are advised to read it so you can make an informed decision about whether to invest.

**MFM Global Fixed-Income Fund (the "Sub-Fund") a sub-fund of MFM Funds (Lux), (the "Fund")**

**Class I CHF (the "Class") (LU1864376592)**

The Fund has appointed FundPartner Solutions (Europe) S.A. as management company.

**OBJECTIVES AND INVESTMENT POLICY**

The Sub-Fund aims to mainly offer an exposure to any type of debt securities (including money market instruments).

The Sub-Fund will mainly invest:

- directly in the securities above-mentioned; and/or
- in undertakings for collective investment (UCIs), including other sub-funds of the Fund, having as their main objective to invest in or have an exposure to the above-mentioned securities; and/or
- in any transferable securities linked or offering an exposure to the performance of the above-mentioned securities (such as structured products).

On an ancillary basis, the Sub-Fund may invest in any other type of eligible asset, such as equities, UCIs other than those above-mentioned.

The choice of investments will neither be limited by geographical area and/or economic sector nor in terms of currencies in which investments will be denominated. However, depending on financial market conditions, a particular focus can be placed on a single country (or some countries), a single currency and/or single economic sector.

The Sub-Fund may invest a substantial part of its net assets in emerging markets to take advantage of investment opportunities. However, in normal market conditions, such investments should not exceed 20% of its net assets.

The Sub-Fund may invest up to 50% of its net assets in non-investment grade debt securities (or issuers).

**RISK AND REWARD PROFILE**

**Lower risk** Potentially lower reward **Higher risk** Potentially higher reward

1 2 3 4 5 6 7

**Risk Disclaimer**

This current risk profile may not be a reliable indication of the future profile of the Sub-Fund.

The risk category shown is not guaranteed and may shift over time.

The lowest category does not mean risk free.

The Sub-Fund does not apply any capital guarantee or asset protection measures.

**Why is this Fund in this category?**

The portfolio of this Sub-Fund consists mainly of debt securities of any type issued worldwide. Hence, the risk/reward profile of this Sub-Fund should correspond to the Medium risk category of the SRII scale.

**Are there any other particular Risks?**

Risks that could affect fund performance and are not necessarily fully reflected in the risk and reward rating include:

- Liquidity risks:** The Sub-Fund may invest part of its assets in less liquid securities. These are securities that cannot easily be sold or exchanged for cash without a substantial loss in value in certain market conditions. These securities also cannot be sold quickly because of a lack of ready and willing investors or speculators to purchase the asset.
- Counterparty risks:** The Sub-Fund can conclude various transactions with contractual partners. If a contractual partner becomes insolvent, it can no longer or can only partly settle unpaid debts owed to the Sub-Fund.
- Credit risks:** The Sub-Fund invests a significant portion of its assets in debt securities. The issuers of these debt securities may become insolvent, which will mean that the securities will lose all or some of their value.
- Risks from the use of derivatives:** The Sub-Fund may use financial derivatives instruments which may result in the Sub-Fund being leveraged and may result in material fluctuations in the value of the Sub-Fund. Leverage on certain types of transactions including derivatives may impair the Sub-Fund's liquidity, cause it to liquidate positions at unfavourable times or otherwise cause the sub-fund not to achieve its intended objective.
- Leverage occurs** when the economic exposure created by the use of derivatives is greater than the amount invested resulting in the Sub-Fund being exposed to a greater loss than the initial investment.
- Operational risks:** The Sub-Fund may fall victim to fraud or criminal acts. It may suffer losses as a result of misunderstandings or mistakes by employees of the management company or by external third parties or may be damaged by external events, such as natural disasters.

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**CHARGES**

**One-off charges that may be taken before or after you invest**

Entry charge	2.50%
Exit charge	none

This is the maximum that might be taken out of your money before it is invested and before the proceeds of your investment are paid out.

**Charges taken from the fund over a year**

Ongoing charge	1.62%
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**Charges taken from the fund under certain specific conditions**

Performance fee	none
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The charges you may pay are used to pay the cost of running the Sub-Fund, including the costs of marketing and distributing it. These charges reduce the potential growth of your investment. The actual entry and exit charges can be found out from adviser or distributor.

The percentage of ongoing charges is based on an annualized estimation of the fees that will be charged during the first accounting period. This figure may vary from year to year. It excludes:

- Performance fees (if applicable)
- Portfolio transaction costs, except in the case of an entry/exit charge paid by the Sub-Fund when buying or selling units in another collective investment undertaking.

For more information about charges, please refer to the Fund's prospectus, section which details the expenses, which is available at the Fund's registered office and on [www.fundsquare.net](http://www.fundsquare.net).

**PAST PERFORMANCE**

The Class has not yet been launched.

%

As the Class has not a complete calendar year yet, no performance figures are available.

2014	2015	2016	2017	2018
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**PRACTICAL INFORMATION**

**Registered Office**  
15, avenue J.F. Kennedy L-1855 Luxembourg

**Management Company**  
FundPartner Solutions (Europe) S.A., 15, avenue J.F. Kennedy L-1855 Luxembourg

**Depository**  
Fictet & Cie (Europe) S.A. 15A avenue J.F. Kennedy, L - 1855 Luxembourg

**Further Information**

More detailed information on this Sub-Fund, such as the prospectus, the key investor information, the statutes as well as the latest annual and semi-annual report, can be obtained free of charge, in English, from the central administrator, the distributor, the Management Company or online at [www.fundsquare.net](http://www.fundsquare.net).

Details of the remuneration policy established by the management company, including a description of how remuneration and benefits are calculated, are available on the website [www.group.fictetfpi.com](http://www.group.fictetfpi.com). A paper copy of the summarized remuneration policy is available free of charge to the shareholders of the Sub-Fund upon request.

**Price Publication**

The net asset value per share is available on [www.fundsquare.net](http://www.fundsquare.net), at the registered office of the Fund and from the Management Company.

**Tax Legislation**

The Fund is subject to the tax laws and regulations of Luxembourg. Depending on your own country of residence, this might have an impact on your investments. For further details please consult a tax adviser.

**Liability Statement**

The Management Company may be held liable solely on the basis of any statement contained in this document that is misleading, inaccurate or inconsistent with the relevant parts of the prospectus for the Fund.

**Switching Between Sub-Funds**

Shareholders may apply for any share of any Sub-Fund to be converted into shares of another Sub-Fund, provided that the conditions for accessing the target Class, type or sub-type, are fulfilled with respect to this Sub-Fund, on the basis of their respective net asset value calculated on the valuation day following receipt of the conversion request. The redemption and subscription costs connected with the conversion may be charged to the shareholder as indicated in the prospectus. For more details about how to switch between Sub-Funds, please refer to the prospectus, section which details the Switch between Sub-Funds.

**Specific Sub-Fund Information**

This key investor information document describes the Class of one Sub-Fund of the Fund. Other Classes are available for this Sub-Fund. For more information about other Classes or Sub-Funds, please refer to the prospectus and periodic reports that are prepared for the entire Fund. The assets and liabilities of each Sub-Fund are segregated by law, which means that performance of the assets in other Sub-Funds does not influence the performance of your investment.

The Fund and its management company are authorized in Luxembourg and supervised by the "Commission de Surveillance du Secteur Financier" (CSSF). This Key Investor Information Document is correct as of 06/02/2019.

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**PROSPECTUS**  
UBAM Variable Capital Investment Company Luxembourg

APRIL 2016

**UBP**  
UNION BANCAIRE PRIVÉE



# The knowledge domain

## Complex financial products :

Fund → Multiple compartments → Multiple Share Classes

>20 Persons & Organizations + roles

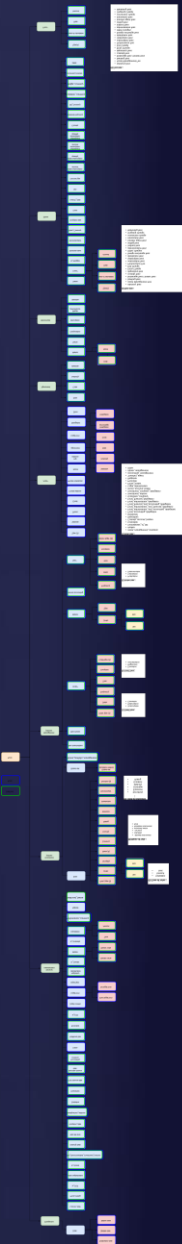
>100 essential characteristics and other entities

+ their relations to the correct product/entity

Mapping to open standards (openfunds, FiBo, ...) & client data models

+ Real-world events

+ Mathematical formulas expressed in natural language



# AI algorithm : PDF to text

## PDF :

- ✓ Text & images
- ✓ Encoding problems
- ✓ **Visually organized** →

Need to de-compile & re-organize information



PROSPECTUS  
SELECTION



DOCUMENT  
PARSING



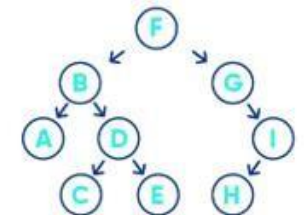
LAYOUT  
ANALYSIS



PROSPECTUS

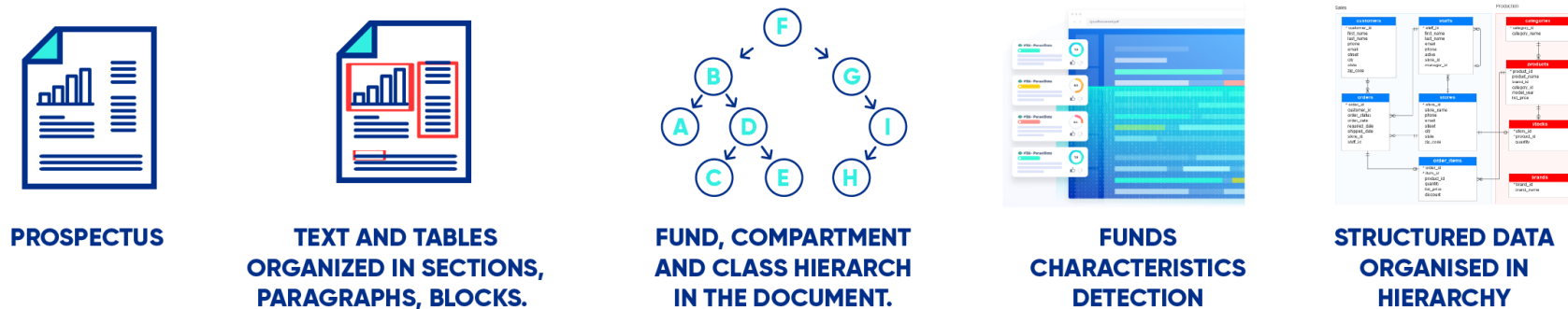


TEXT AND TABLES  
ORGANIZED IN SECTIONS,  
PARAGRAPHS, BLOCKS.



FUND, COMPARTMENT  
AND CLASS HIERARCH  
IN THE DOCUMENT.

# AI Process Automation



# Document Comparison

## Methodology

1

### STEP

Find the differences between the two documents.

2

### STEP

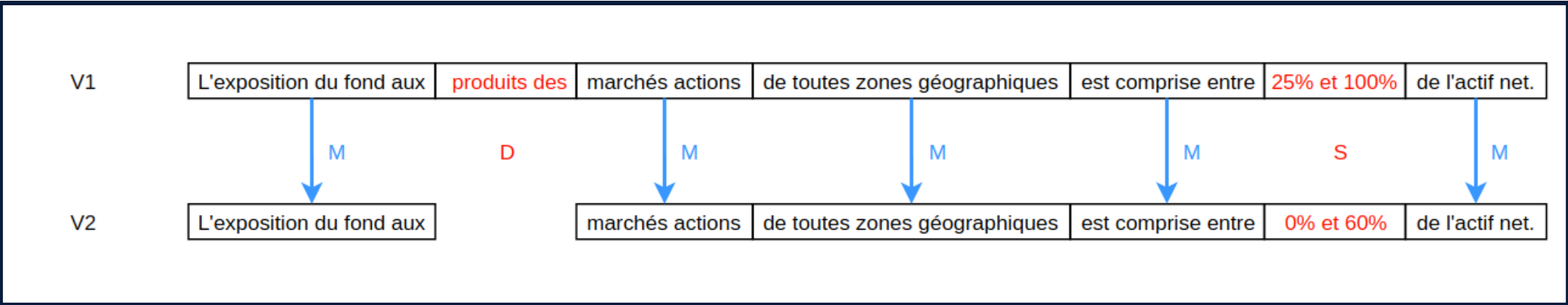
Classify the differences into a set of predefined classes automatically using a trained Machine learning model.





# Differences between documents

Each document is modeled as a sequence of words :



# Detect Abnormal values in Transactions

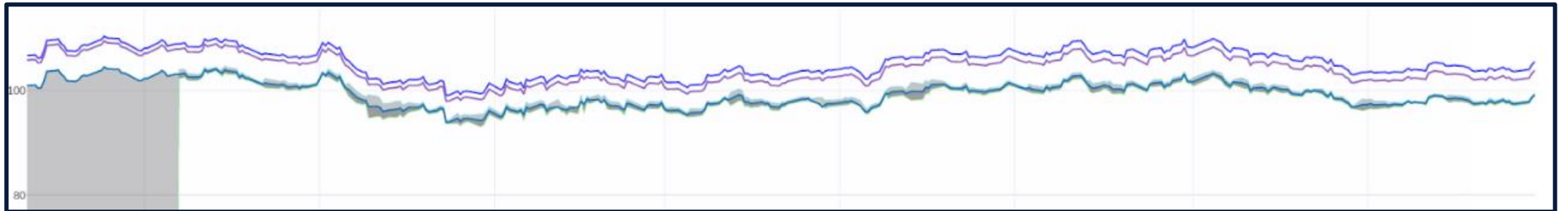
## Goal of project

- ▶ Detect abnormal values in transactions
- ▶ Reduce the amount of False Alerts
- ▶ Avoid missing Real alerts
- ▶ The estimation is done using machine learning algorithm



### THREE-STEP PROCEDURE:

- ▶ Find correlated transactions (called peers)
- ▶ Train a machine learning model to estimate today's value based on the peers history
- ▶ Build a confidence interval around the estimated value that will trigger red flags



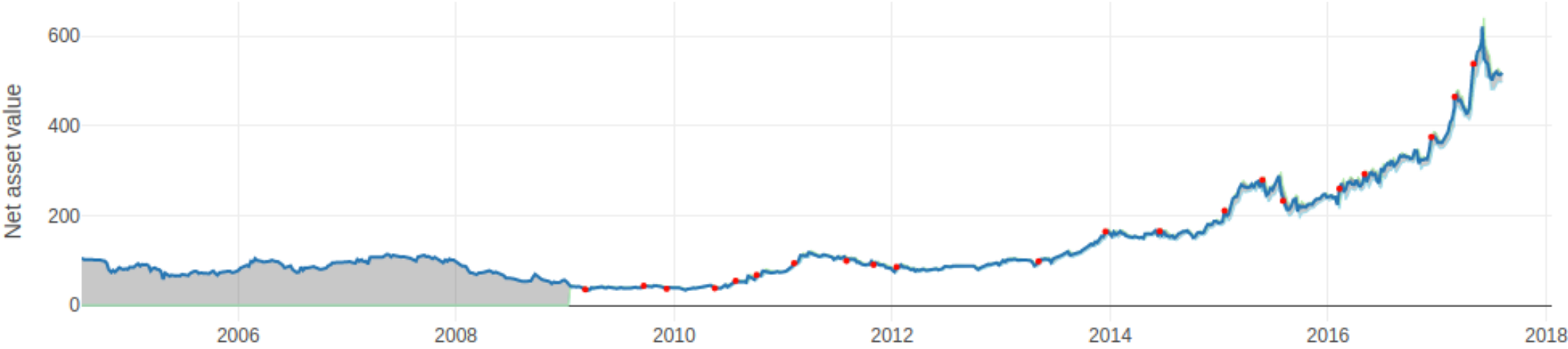
# The goal is to reduce false alarms

GENERATED ALERTS

PERCENTAGE METHOD (MOST USED METHOD)



MACHINE LEARNING METHOD



# Disclaimer

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