Study on options for development of online tools and services supporting retail investors in investment decisions

Final report

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Capital Market Union aimed at invigorating the participation of retail investors in the financing of the economy together with other policy objectives. However, EU citizens still face difficulties when planning to invest in financial products (e.g. investment fund, life insurance or private pension product), that meet their life needs and expectations. Despite all efforts and documentation, gathering independent and comparable information on product features is still perceived as a challenge for most investors.

From the entire universe of potential aids to investing, the one most efficient would be to focus on the ways to provide a practical solution to increase transparency and comparability of retail financial products, that could be accelerated with the creation of an investor products hub (i.e. a database), containing complete, correct and independent information about all managed financial products available across EU capital markets. To be most efficient, that investor product hub should rely on existing information and recycle it where and if possible. At a high-level, the database would be operated by a single public body and accessible for free by retail investors as well as financial professionals and academics, the latter for research purposes.

This report proposes a description of existing product disclosure platforms, it further describes high level technical and functional requirements for the creation of the hub, including a high level implementation roadmap as well as regulatory amendments that should be envisaged to facilitate the development of the tool. If feasible, the scope and depth of coverage of this retail investor products hub represent challenges both in terms of creation and maintenance. Nevertheless, it has the potential to materially increase retail investors' level of information on financial products available to them whilst limiting legal and regulatory hurdles.

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Le projet Capital Market Union, à côté d'autres objectifs, visait à stimuler la participation des investisseurs de détail dans l'économie européenne. Toutefois, les citoyens européens rencontre toujours des difficultés lorsqu'il s'agit d'investir dans des produits financiers qui correspondent à leurs attentes (p.ex. fonds, assurances vie, plans de pensions privés. L'accès à de l'information indépendante et comparable portant sur les caractéristiques des produits est ainsi toujours perçu comme un défi pour la plupart de ces investisseurs.

Parmi toutes les options envisagées, la plus efficace serait de se diriger vers la mise en œuvre d'une solution technique qui augmenterait la transparence et la comparabilité des produits financiers pour les investisseurs de détails. D'où la proposition de créer une centrale des produits financiers pour investisseurs de détails (une base de données), qui contiendrait des informations complètes, correctes et indépendantes provenant de tous les produits gérés disponibles en Europe sur les marchés des capitaux. Dans un souci d'efficacité cette centrale pourrait être alimentée par des documents ou information déjà existantes. Cette base de données centralisées serait gérée par une entité publique unique et accessible gratuitement par les investisseurs de détails ainsi que les professionnels et académiques, dans ce cas plutôt à des fins de recherches.

Le rapport propose au lecteur une description des solutions existantes en matière d'aide, d'information et de transparence existantes et décrit comment cette centrale des produits financiers de détails serait construite. Le rapport propose également une description de son fonctionnement et d'une approche pour son déploiement. Si la création et la gestion d'une telle centrale de produits présente des défis élevés, tant

dans sa phase de construction qu'au niveau de la maintenance au jour le jour, cette solution aurait le mérite de permettre une amélioration du niveau d'information sur les produits financiers tout en mitigeant les conséquences légales et réglementaires.

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Executive summary

One of the major objectives of the Capital Markets Union is to invigorate the participation of retail investors in the EU economy through participation in the financial sector. In this context, in recent years, significant EU wide regulatory initiatives have been undertaken to improve transparency of costs, performance and risk figures of retail investment products. However, while retail investors do have access to a vast range of products through various distribution channels, they still face major challenges comparing effectively the main features of these products.

In addition to the continuous efforts of the ESA's to improve product transparency and comparability, this report aims at considering the potential added value of digital online solutions to improve the way that current information is provided to retail investors and hence, improve their ability to compare financial products. It is expected that thanks to better and more accessible information potential investors might consider alternatives to their saving accounts.

This study identified a number of existing online tools to support retail investors in their product features research and comparison process. However, none of such solutions is fully satisfactory: either their scope only covers a part of the financial universe, or they lack transparency or independence, or they are payable services.

In that context, the study assessed how public entities could encourage the development of new online tools and solutions to provide retail investors with access to a full and reliable financial product database and essential comparison functionalities. In that journey, the study highlighted potential regulatory changes to allow and improve retail investors' information on investment products across EU capital markets.

The matter is topical as the ESA's have launched initiatives aiming at gathering homogeneous sets of regulatory information for various retail investment products. However, the main challenge for the ESA's still resides in the collection and disclosure of performance, cost and risk related data.

In essence, the main argument of this study is that any new tool should leverage the documents and data currently produced by the financial industry in the current regulatory framework to propose a new solution or an enabler to existing ones. In other words, the cornerstone of this study relies on a unified PRIIPS KID accompanied by a single technical set of data files, the EMT/EPT (European MIFID Template/European Product Template) that should become the central disclosure reporting source for retail investment products.

For the technical aspects, existing online tools and services were mapped, analysed and compared. The creation of an **investor products hub (basically a database of retail investment products) has been considered the first step to build a solution to help retail investors to have a sounder comparison of the different investment products available across EU capital markets**.

Conceptually, the database and users interface would be operated by a single public body, principally fed by local authorities (based on product manufacturers' submissions) and/or product manufacturers directly. Users of the investor products hub will be able to search the database content to compare products available for their

investment purposes. Financial professionals (as well as academicians) should also be able to access the database content in order to feed their online solution via a unique and regulated database, provided that they meet the pre-required due diligence framework.

Besides the technological definition, development and implementation of the solution, targeted regulatory amendments should be envisaged: manufacturers would need to disclose more harmonised investment products information and feed the relevant products' NCA (national competent authority), that would in turn feed the EU database. These elements are already largely addressed by existing regulations (e.g. PRIIPs, MiFID II and IDD) and under their current reviews. However to facilitate the organisation and maintenance of the investor products hub, targeted changes are foreseen: a) ensure that product ISIN or alternative reference number is available and disclosed, b) include the LEI of financial intermediaries and c) ensure that the current industry standards for PRIIPs and MIFID data exchanges (the so-called "EMT" and "EPT" files) are communicated to the relevant NCA to ensure information remains up to date. The XML language should be the target format for communication, even if today not all an intermediaries are ready. Lastly, in order to improve comparability of retail investment products principal features, norms should be applied on the usage of data contained in the database.

The creation of such a project might foster innovation in the financial information sources and contribute to the general improvement of online tools and services available to retail investors via a central access point.

The implementation of such an ambitious solution is feasible even though it represents a challenging endeavour both to create and to maintain.

Section I – Setting the scene

1 Introduction

1.1 Objective of the study

One of the goals of the Capital Market Union initiative is to put European savings to better use, improving the efficiency through which savers and borrowers are matched, and increasing the performance of the EU economy. A second and even broader goal is to ensure that EU citizens share the long term objective of preparing their future, through investing for after work life and or rainy days. Retail investor engagement is a critical challenge for the development of a stronger capital market in the EU. This requires greater confidence among retail investors, and transparency to help investors to make the right investment decisions.

This study aligns to the goals of the CMU by assessing opportunities and risks associated with digital solutions in order to identify the option that can potentially assist the EU citizens to have a more appropriate comparison of information across investment products.

The next chapter describes the methodology pursued during the elaboration of this study.

1.2 Methodology

This study is organised around three main phases. In a first phase, the current situation is presented, it is based on an extensive literature review, complemented by desk research, stakeholders' interviews and experts' insights[3]. In this way, online tools and services that could support retail investors when making investment decisions were identified as well as presented through four use cases. Successively, subject matter specialists have been involved to identify promising options to be further investigated.

In the subsequent phase of the study, specialist insight and desk research allowed to get an overview of the options retained. A second specialist's panel enabled to identify the most effective options and combinations of options among the envisaged solutions which were more likely to support retail investors.

A last phase of desk research and expert interviews was instrumental to define the technical and regulatory resources needed for the definition, development and implementation of the identified solution.

[3] Annex A provides a list of contributors to this study (i.e. the specialist panel, interviewees and participants to the workshops and panels)

Section II – Current state of play

2 Description of the current state of play

2.1 Introduction

In this chapter, existing online solutions supporting retail investors will be described. For each identified tool, the following information will be provided: level of usage, examples of existing solutions, target clients. Additional information on the described tools can be found in Annex C. Subsequently, four use cases of existing databases will be provided. These solutions have been analysed and will be described more in detail as they could serve as a model to develop a publicly backed solution supporting retail investors.

According to our empirical findings for this study, there are several elements to consider regarding the definition and behaviour of retail investors.

There are several definitions of retail investors in the literature[4] as well as in EU regulations. The core of the study focuses on natural persons who are able to invest, they have reached a minimum level of financial literacy and their means of investments allow them to invest without being detrimental to their standard of living.

Literature has evidenced several bias for these retail investors that unfortunately have rendered them averse to investing and when investing potentially prone to behaviours that might be detrimental (self-confidence, herd behaviour, disposition effect or even tendency to speculate) to their objectives. These investors could leverage the tool for instance to better compare product information and potentially enabling a more informed discussion with their preferred financial intermediary (e.g. bank, insurance, independent adviser, robo-adviser). Other steps should also be taken in addition to the development of a database and comparison tool, such as for example increasing financial literacy among the population of retail investors of the different ages.

[4] Jackson, Andrew, The Aggregate Behaviour of Individual Investors (July 29, 2003).
Chakraborty, Suman and Digal, Sabat, A Study of Saving and Investment Behaviour of Individual Households – An Empirical Evidence from Orissa (2011). Personal Finance & Investments (PF&I) 2011 Conference.

2.2 Existing online tools aiming to support retail investors in information gathering

Retail investors face a number of challenges when searching for main features of investment products. Not being financially knowledgeable, the financial decisions they take might lack an informed foundation. Hence, they are not always able to choose investment products suitable for their needs and objectives. In some cases, they are even unable to be self-sufficient and achieve financial stability. Hence, the first challenge for investors might be achieving general financial literacy - a theme, as important as it could be, out of the scope of the present study.

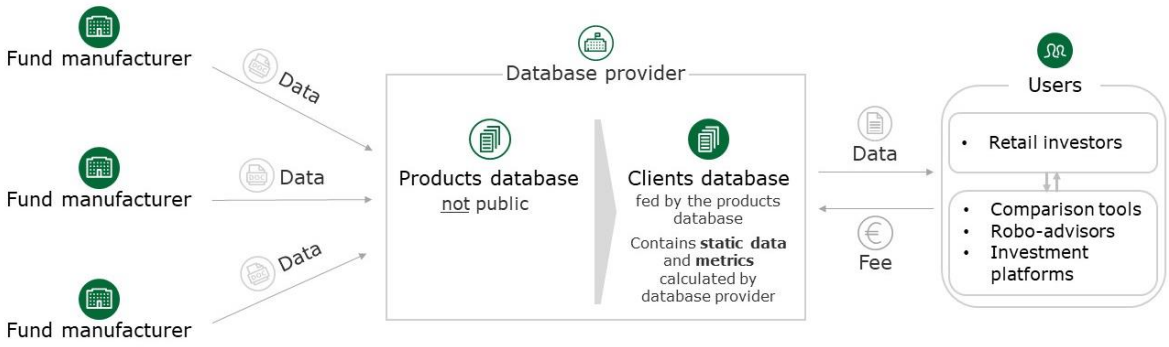
The paragraphs below describe existing and emerging solutions which have been deemed as particularly relevant in terms of support provided to retail investors in investment decisions. The research has been made through desk research and access to information publicly available in 2019, it is however not meant to be exhaustive at the date of release.

2.2.1 Current solutions

2.2.1.1 Investor products database

a) Services provided and products covered

Figure 1: Simplified Operating Model for Databases of investment products



As displayed in the illustrative chart above, fund manufacturers currently broadly provide investment products' data to the database provider, using pre-defined standards for data exchange, enabling the automated transfer and validation of fund data. Manufacturers globally provide their fund data for free as these databases represent an important channel to distribute the funds to target clients, what might create conflicts of interests. Moreover, the most renowned databases have unique methodologies to rank and categorise investment products. These methodologies are now well-known in the industry. Thus, investment products not categorised accordingly, would not appear on digital tools that allow the user to filter available investment products based on these categories, created and assigned by the database provider.

Manufacturers are required by law to disclose the pre-contractual information. This includes a description of the product strategies, the manager's background, the fee structure, the risk rating and performance and features. Conceptually, current pre-contractual documents presents the essential characteristics of the investment product in question, in a format which should enable investors to easily understand the information provided. Currently, product manufacturers provide distributors with EMT (European MiFID Template) and EPT (European PRIIPs Templates), the exercise has been the fruit of a concerted industry effort to share information on products in a streamlined way. These are excel-based templates to be filled in for products falling under MIFID and PRIIPs respectively. EMT and EPT contain the underlying data about a fund that allows the entity that is selling the fund to produce the required informational documents.

Once these templates are completed, disseminating the information can be complex, due to the individual format requirements of each fund distributor, the number of fund distributors, changes to the templates, as well as fund market requirements. In fact, EMT and EPT provide standards about content, structure and format of data only, while output format and transmission methods can vary (Kneip, 2017) these are currently under review under the umbrella of the Findatex project. Below examples are provided.

- Outputs formats can be XLS, CSV, txt, XML, Openfunds, FundsXML. There can be one output per ISIN or multiple ISIN in the same output;
- Dissemination frequency can be: recurring (i.e. Daily, weekly, monthly) or ad-hoc, based on material changes;
- Dissemination methods include email, external sFTP, custom API, defined by the destination to receive data (i.e. SIX, WM Daten).

In addition to the pre-contractual documents mentioned above, the database provider can request specific, additional information, concerning for instance the holdings and the historical prices of the investment product(s) in question.

Once the database provider has received the needed information, data is stored in a products database and undergoes a quality check. With the information received, the database provider can compute additional metrics, e.g. ratings of funds are calculated on the basis of the provided data through a confidential algorithm. The databases to which the end customers have access against a fee contains the raw (but quality checked) information provided by the manufacturers and potentially a series of computed data provided by the database provider himself.

According to our research, current databases attain a very high degree of coverage for UCITS funds. In contrast, data on PRIIPS products is currently less available through databases as the PRIIPS regulation (and the related mandatory disclosure rules) have only recently come into effect and the data collection process is still developing.

a) Existing solutions

The table below shows a (non-exhaustive) list of existing public solutions available in the EU capital markets; some of them offer comparison features as well as diverse, additional tools based on the underlying database. The coverage of existing solutions can also vary considerably. This list is illustrative and non-comprehensive. As

mentioned above, this list has been prepared through desk research and access to information publicly available in 2019, it is however not meant to be exhaustive at the date of release.

Table 1: Mapping of existing investment products databases

Country	Identified solutions
Austria	Fondsprofessionnel; Fynup (selecting investment products using AI)
Belgium	Guide Epargne Comparaison de Plans d'Investissement, TestAchats comparateur de fonds; Fonds d'Investissement; Spaargids.be
Croatia	Hrportfolio
Cyprus	Universal Life Funds Comparison, Amundi funds, allowing to compare funds against a benchmark
Czechia	Penize.cz
Denmark	Nordnet dk, Shareholders dk
Estonia	Pensionikeskus Fund Fees Comparison, Swedbank.ee
Finland	Sijoittaja.fi (accessible only after registration)
France	BforBank, OPCVM360 Comparateur de Fonds (also available in Belgium, Spain, Germany and Ireland), Fund KIS Comparaison de Fonds (also available in UK and Ireland), Capitaine Epargne comparateur de placements, Quantalys comparaison de fonds (also available in other countries)
Germany	Finanzen.net Fonds Discount Chart Comparison, Finanz Partner Fondsvergleich, Onista Fonds-Vergleich, Fondsweb Vergleich, Finanztreff.de Fondsvergleich, Finanzen100 Fonds-Suche, Comdirect tools
Hungary	Bamosz
Internationally available solutions	Fidelity International, Vanguard, Morningstar, Thomson Reuters, FactSet
Ireland	FunLite
Italy	Pensioni&Lavoro – Il Comparatore dei Fondi, Fondionline.it
Lithuania	Private solutions (e.g. Swedbank); Fondu centras
Luxembourg	Schroders Fund Prices and Performance, and solutions offered by asset management companies and banks
Malta	Investor products hub provided by Bank of Valletta
Norway	Finansportalen.no
Poland	Analizy.pl
Portugal	Banco Carregosa Comparador Fundos de Investimento, BBVA Asset Management Comparador de Fundos de Investimento (also available in Spain, Luxembourg and Switzerland)
Portugal	Investor products hub Portuguese Insurance and Pension Funds Supervisory Authority
Romania	Conso.ro
Slovakia	Private solutions (e.g. Axa), IAD investments, SME Druhy Pilier
Slovenia	Private solutions (e.g. Generali), Vzajemci
Spain	Rankia, Comparador de Fondos de Inversion; QueFondos, OcuInversiones, Comparativa de Bancos, Finect, and solutions offered by banks (e.g. BBVA)
Sweden	Fondkollen, Pensions Myndigheten, Moneymaster.se
Switzerland	Swiss Fun Data Fonds-vergleich
UK	FE Trustnet Fund comparison
USA	Finra Fund Analyzer

2.2.1.2 Robo advisors

a) Level of usage

Assets under management in the robo-advisors segment in Europe amount to 29.925m EUR in 2019 and they are expected to show an annual growth rate (CAGR 2019-2023) of 42.0% reaching an estimated total amount of 109.697m EUR by 2023 (Statista, 2019). Within Europe, the UK has the largest robo-advisor market, followed by Germany (Deutsche Bank, 2019).

b) Existing solutions

Today, approximatively 100 robo-advisors are active in Europe (Techfluence, 2017) and the number of players is constantly increasing. The table below shows an illustrative and non-comprehensive list of players across EU capital markets.

Table 2: Mapping of existing robo advisors

Geographical markets	Name
Austria	Finabro
Belgium	Easyvest
France	Fundshop, Yomoni, Advize, WeSave, Nalo, FinAvenue, Birdee Money Experts (also active in Belgium and Luxembourg) , Fundvisory, Fundshop, Prime Radiant
Germany	Money Farm (also active in Italy and UK), Quirion (active also in Switzerland), Growney, Easyfolio, Ginmon, Whitebox, Savedo, Visualvest, Niiio, Fincite, Diversifikator
Italy	Selfiewealth
Luxembourg	Highwave Capital, Speedinvest, Internaxx Smart Portfolios, Keyprivate
Spain	Indexacapital, Feelcapital, Finizens
Switzerland	TrueWealth, Meetinvest, Simplewealth, InvestGlass
European market	ETFmatic
Nordic Countries	Robosave
Sweden	Lifeplan, Lysa, Tieless
UK	Nutmeg, MoneyFarm (also active in Italy and Germany), Wealthhorizon, Scalable Capital (also active in Austria and Germany), Wealthify, Money on Toast, Fiveraday, Moola, Fundment, Swanest, Evestor
For the US	Betterment, Wealthfront, Ellevest, SoFi Invest, Charles Schwab Intelligent Portfolios

c) Target clients

Robo-advisors exist in various modes: B2C (Business to Consumer), B2B2C (as a service from banks to their clients) or as B2B (as a support for human professional advisors). While the direct-to-consumer model involves targeting retail investors through an online platform that is inherent to the robo-advisor, the business-to-business model entails the white-labelling of a robo-advisory platform to traditional financial institutions such as banks and asset management companies. Ultimately, both models target retail investors, although existing financial institutions may market the white-labelled solution to their wealthier clientele too (B2B2C). In general, robo-advisors offer investments from as low as 1000EUR – 5000EUR and therefore target investors with lower investable amounts and less complex financial situations (Robo Advisors Europe, n.d.).

The population of Millennials, born between 1981 and 1996, is expected to become the largest client group in the investment management industry. In fact, robo-advisors offer an alternative to the human advisors by specifically targeting Millennials, covering often specific product lines (ETFs), offering socially mindful choices and using digital technologies.

2.2.1.3 Investment platforms

a) Level of usage

Concerning the market size of existing platforms in Europe, publicly available consolidated data on the trading volumes are not available. As such, it is not possible to discern the level of development of investment platforms based on the investment flows. However, it is possible to state that the number of EU member states hosting investment platforms is increasing while the level of development varies significantly across Member States. Only a few of the Member States have a large number of investment platforms such as the United Kingdom, Germany and France whereas investing through online platforms remains more difficult in other Member States. An estimated total of 50 million securities transactions are executed by German retail investors each year and 136,000 transactions are concluded each day. Moreover, 61% of German retail investors use online investment platforms to trade with securities and 2.2 million individuals are trading stocks and securities on the internet. The significance of investment platforms in the UK has grown rapidly in recent years. In 2013, retail and institutional platforms combined had 280 billion EUR of assets under administration (AUA); by the end of 2017, this had doubled to 560 billion EUR (FCA, 2019).

b) Existing solutions

Examples of investment platforms include: Charles Stanley, The Share Centre (covering exclusively shares), Hargreaves Lansdown, Fidelity Investments, Barclays Stockbrokers, TD Ameritrade, Halifax Share Dealing, E*Trade, Ally Invest, and Bestinvest (these examples do not refer exclusively to the European market).

Despite the plurality of available solutions, today there are only a few big names in the investment platforms universe, often global players with an outreach in the EU, some are former "traditional" brokers that have developed retail services, many of them were created around the internet stock bubble at the end of the '90th.

Once retail investors decide to purchase an investment product, the fees charged per trade by these platforms are generally low (from approximatively 3 to 7 EUR per trade) (Boricha, 2019). A further study (European Commission, 2018) confirms that brokerage fees for investment platforms are generally low (often under 5 EUR, sometimes as low as 1 EUR, especially for investments of under 2.000 EUR).

Investment platforms can also be usually accessed from mobile devices. These solutions additionally offer the possibility to trade for a low price. Mobile investment platforms target younger audience by providing user friendly interfaces, and even cheaper services (low account minima, e.g. 5, 5 EUR, and, as mentioned above, low price per transaction) (Boricha, 2019).

These solutions offer a wide array of services: not only do they facilitate the investment process, but they also provide education about basic financial concepts, guide investors in their decision-making process and enable users to compare existing investment products.

c) Target clients

There are two main types of investment platform. Direct to Consumer (D2C) platforms are used by retail investors without the help of a financial adviser, while adviser platforms are chosen by advisers but are paid for by retail investors (Financial Conduct Authority, 2019).

In Europe, these platforms have a broad client range and target both younger investors around the age of 30 as well as more mature investors in their fifties and beyond. In addition, our research suggests these customers often invest for the longer term. In the UK, their investment size varies widely but is influenced by the diffusion of ISAs. ISAs are "Individual Savings Accounts", which are a tax efficient way to invest money up to a certain amount. When assessing a 50-year old investor with no previous investments, the average size of the portfolio is equal to around 5100 EUR (4,600 GBP) containing an average of 2.7 funds through, essentially, ISAs. In other Member States with a significant presence of supermarket of investment products and banks' online platforms, such as Germany and France, an average investment size could not be identified.

A few supermarket of investment products also focus on the B2B market and offer liquidity as well as their technology to institutional customers. Especially in the UK, 93% of Independent Financial Advisors (IFA), utilize online investment platforms to trade and invest. In terms of the technology, B2B online investment platforms offer both front end and back office technology either by white-labelling it or by licensing software.

2.2.1.4 Investment product calculators

a) Level of usage

While numerous solutions are available online, our research did not result in the identification of data on the level of usage of this option.

b) Existing solutions

Numerous options for investment product calculators exist. For example, Vanguard offers a calculator which allows retail investors to estimate the yield or income of funds. Instead, "Just ETF" is an ETF cost calculator that allows retail investors to compare the results of investing in ETFs with those of investing in mutual funds. Buyupside.com is a platform offering several types of calculators (Stock Return Calculator, Investment Fee calculator, Retirement calculator). In the US, the "SEC Mutual Fund Cost Calculator" allows retail investors to estimate the cost of owning mutual funds. Bankrate.com is a US solution offering a life insurance calculator, allowing retail investors to understand what level of life insurance coverage would suit them. Other calculators include: mint.com, N26 and Revolut (both part of a banking package), Xero, Feeagent, zoho books and Freshbooks.

Usually, investment product calculators are incorporated into investor products hubs or financial guidance websites (e.g. The Money & Pensions Service, Wikifin.be) and allow retail investors to calculate the costs associated with investment funds.

Often, a disclaimer clarifies that the calculations displayed do not represent an advice to invest in any particular investment product, nor are they an indication of reliable future results.

c) Target clients

Online calculators are generally quite intuitive. The most user-friendly solutions provide explanations to retail investors concerning the criteria they are required to input and the products that can be accessed. Hence, investment product calculators are particularly suitable for retail investors with a low level of financial literacy, who need an easy way to understand the impact of fees on their investment products.

2.2.1.5 Platforms to increase financial literacy of retail investors

a) Definition and description

Today, crucial financial concepts are not understood by the vast majority of retail investors, i.e. making a difference between bonds and shares is not a given. In fact, investors' financial literacy is generally low and information available is complex and not easy to understand. This solution allows retail investors to participate in an interactive platform, designed to improve their financial capabilities and understanding of financial information. This solution aims to make retail investors more financially knowledgeable, support their decision making process and make them more confident, ultimately encouraging them to invest.

b) Existing solutions

Existing platforms educating retail investors about financial concepts encompass:

- The Money & pensions service helps investors to make informed investment decisions through the understanding of financial jargon about financial products, debt, borrowing, pension and retirement products;
- "Stock Market Investing 101" type of solutions offer an online investing course for beginners that combines classroom theory with real-world, real-time stock market simulation;

- Investopedia.com in one of the largest and free access repository of information about a large variety of financial issues, including products and services, but also investment strategies;
- There are purely private solutions (e.g. Udemy) providing an eLearning platform mainly focused on mutual funds. They offer courses meant for retails and retail investors who have limited knowledge of how mutual funds and markets work.
- And the Wikipedia and Wikifin.be that provide insight and information about financial products and services and in the case of Wikifin.be the FSMA (Belgian financial market authority) operated service aims at educating investors on a variety of basic financial questions.

c) Target clients

Platforms aim to increase financial literacy target retail investors who have limited financial knowledge and need to understand basic financial concepts.

2.2.1.6 Independent personal finance management tool

a) Definition and description

Thanks to PSD2, personal finance management tools can accumulate the data from a retail investor's bank account, analyse these data and suggest the most suitable investment product based on the retail investor's profile.

These tools can be provided as an add-on to banking solutions already existing and used by retail investors. Independence and avoidance of conflict of interest are key in order to ensure that service providers do not actively sale inappropriate products towards retail investors.

b) Existing solutions

Solutions already exist on the market, such as:

- The software Quicken helps to manage expenses, create a budget, pay bills, plan for retirement, monitor investments, property management, business management;
- Future Advisor (solution developed in the US) asks users about their current investments, taxes, time horizon, and goals. Then, the software links directly to the user's existing accounts, so that the recommendations match up exactly with the user's holdings. The tools aims to provide retail investors with a comprehensive, detailed plan to stay on track for all of their goals.

c) Target clients

Personal finance management tools target retail investors with limited financial literacy who need support in managing their finances.

2.2.1.7 Social trading platforms

a) Definition and description

Social trading is a form of investing that allows retail investors to observe the trading behaviour of peers and expert traders and to follow their investment strategies using copy trading or mirror trading. It is usually difficult for retail investors to create a portfolio which has the potential to offer good return, not to mention risk adjusted return. In fact, creating a portfolio requires technical financial knowledge, and retail investors might lack the financial literacy needed. However, social trading requires little or no knowledge about financial markets, and has been described as a low-cost, sophisticated alternative to traditional wealth managers by the World Economic Forum (World Economic Forum, 2015).

b) Existing solutions

A majority of the market is shared by the three market leaders: German Ayondo, Austrian Wikifolio and British eToro. eToro has more than 6 million users worldwide and at least 25,000 in Germany alone; it allows investors to share or list platform their investment strategies so that other users can imitate them. Other examples include: ZuluTrade, Naga Trader (former SwipeStox), Tradeo, Darwinex, Ayondo, FX Junction.

Trading platforms are available throughout Europe and operate in an average of 185 countries. In 2015, the total traded assets in this sector reached 190 million EUR, which is 68% more than the year before (Jun & Hornuf, 2016).

A majority of the market is shared by the three market leaders originating from Germany, Austria and the UK. The latter market has more than 6 million users worldwide and at least 25,000 in Germany; it allows investors to share or list platform their investment strategies so that other users can imitate them.

c) Target clients

Social trading platforms target less financially knowledgeable retail investors who need an easy way to make investment decisions and purchase investment products.

2.2.2 Use cases

The use cases of existing databases have been selected by DG FISMA and are presented with the perspective of displaying four currently available solutions targeting the issue of client information, or of building a database of financial products. The first is an ECB database developed essentially for supervisory purposes by ECB and NCBs (National Central Banks). The second case is a portal developed in Norway that proposes to inform potential investors and helps them select adequate products, funds, mortgages and provides financial guidance material. The fact that it is heavily used in Norway was one of the reasons to discuss its functioning. Then, thirdly, Morningstar, massively used by both retail and professional investors as a source or relay of information, its focus is essentially on funds (and ETFs). Lastly, fourthly Factset, that offer a series of options for products information.

2.2.2.1 ECB database

ECB

The ECB database, created for prudential supervisory purposes, is one of the largest databases in the world.

Coverage

All products with an ISIN are included in the database. In total, the database covers approximatively 45 million instruments, among which 7 million instruments are active daily.

Operational aspects

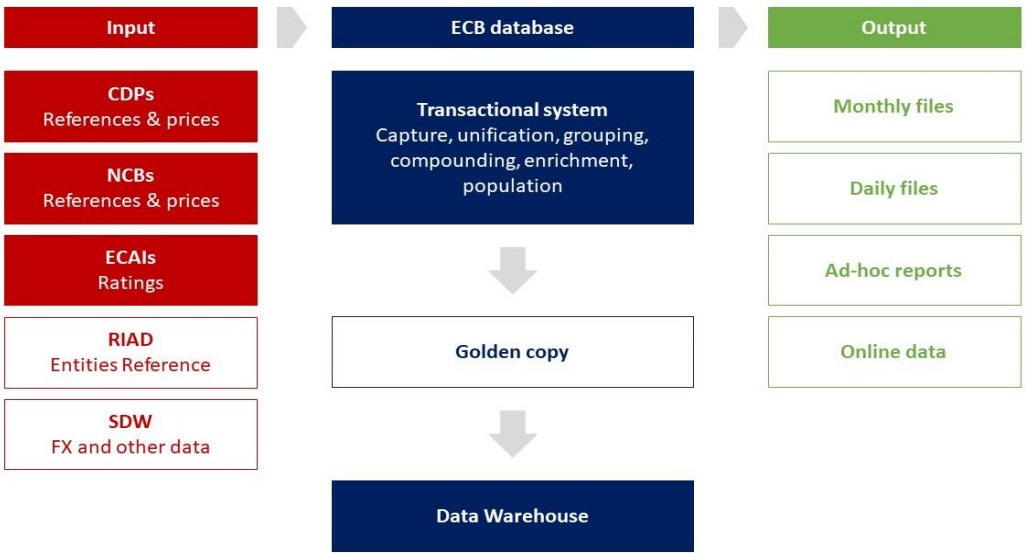
The database is run by a team of 8 members located at the ECB. In addition, there are 1 or 2 people in each national bank fully dedicated to the mission. The second main component of the operating cost is related to data, collection, analysis and management. Lastly, IT costs are the third relevant component of the total costs. It should be noted that IT support is provided by external entities.

Technical aspects

The ECB database relies on approximatively 30 data providers, among which there are National Central Banks as well as commercial providers. Each provider shares information using the same template. More specifically, data is collected using .csv files. If new providers want to join the system, they have to respect the requirements and standards in place.

Data is collected during the day, while by night the system analyses data and calculates metrics. In order to ensure data quality, new data sets are compared to previous ones, in order to detect important differences between the two groups of data, which might indicate that wrong values have been provided.

Figure 2: Business model ECB database



Source: ECB

Legal aspects

Since the database has been created for supervisory purposes and due to agreements with data providers, the data set is not accessible by the public. It is only accessible and used by the ECB.

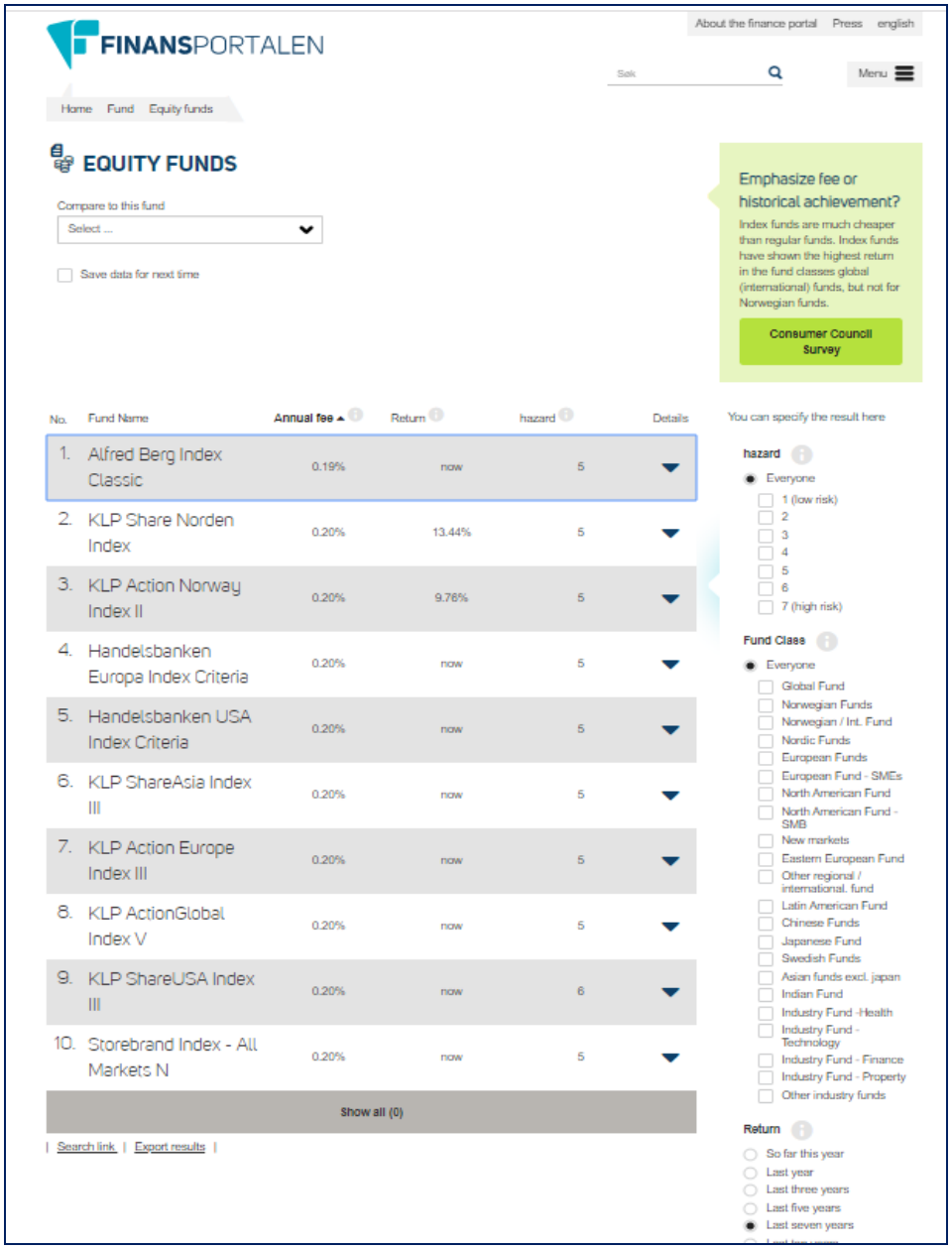
Conclusion

By its breadth it is the closest solution to an all-encompassing product database, which might be a confirmation about the feasibility of the idea of centralisation of information, but is in the tenth year at least in the making.

2.2.2.2 Finansportalen.no

The Norwegian comparison tool Finansportalen.no confirms that comparison tools are a relevant instrument for (potential) investors to gather information about investment products. Finansportalen is a publicly backed comparison tool established in 2008. An evaluation study realized in 2018 (Menon Economics, 2018) shows that Finansportalen is the most commonly-known market portal under the Norwegian Consumer Council's administration. The box below provides and overview on the Norwegian comparison tool, more information about the tool can be found in Annex D.

Figure 3: Finansportalen user's interface



Source: Finansportalen website

Coverage

Finansportalen covers the following products: pension, banking products (including mortgages), insurance products, funds (equity funds, index funds).

User interface for equity funds

- By default, funds are ranked according to the return in the last 7 years, but users can re-arrange them based on alternative criteria (i.e. annual fee, risk).
- For each fund, the following data are shown: name, yearly fee, return, risk, category from Morningstar and additional details (such as documents in PDF, investment required, volatility, last date in which the fund reported, active shares).
- The potential investor might use sorting factors, to narrow the search results, for example, the risk category, and the number of years to hold the investments. The platform displays the annual return base, annual fee and risk category.
- No link is provided to the website of the fund's provider. As a consequence, users have to contact fund managers directly to be provided with the products identified through Finansportalen.

Technical aspects

- Finansportalen uses open-end softwares;
- Data collection is realised with different systems depending on the sources;
- Finansportalen manages the collected data using Wordpress;
- Retrieving data from Finansportalen is allowed by feeds.

Legal aspects

- The Marketing Act makes it mandatory for banking services providers to disclose information in the format established by Finansportalen;
- The Norwegian Insurance Act makes it mandatory for insurance companies to feed Finansportalen's calculators disclosing information in the format established by Finansportalen;
- Regulation to make data provision mandatory for funds has been facilitated as part of the Act of Security Funds.
- Other data providers are spontaneously providing information to Finansportalen;
- Providers of online tools showing data retrieved from Finansportalen cannot manipulate the information and must show a link to Finansportalen;
- Users' data personal is not stored on the website.

2.2.2.3 Morningstar

Morningstar provides investment products information and research services to professional as well as retail investors. The offering in terms of tools is diverse, and covers numerous different matters and products (e.g. Morningstar offers tax rebalancing tools, tools supporting users with reporting processes, tools realising market analysis focused on different product categories and / or sectors). In addition to research services, Morningstar offers learning material as well as money management solutions. Given its coverage in terms of investment product information, its broad services offering and its popularity, Morningstar is particularly influential and renewed in the industry. Below are some additional information about the company.

Coverage

Morningstar covers the following products: mutual funds, ETFs, stocks and bonds.

User interface for fund comparison module

Users have to first select the product category they are interested in (among those mentioned in the coverage list above). Once a product category has been chosen, users visualise the modules offered by the website for the selected product type. For instance, for mutual funds, the following fields are available:

- "Fund Quick-rank", allowing users to rank mutual funds by Morningstar own Category to browse and compare similar funds;
- "Premium Fund Screener", allowing users to search and filter mutual funds by Morningstar Category, analyst-grade ratings, or performance;
- "Basic Fund Screener", allowing users to search and filters mutual funds by Morningstar Category, ratings, or performance;
- "Fund compare", allowing users to compare pre-selected funds according to criteria such as returns, ratings and expense ratio; and
- "Similar funds" helping users to identify similar funds based on portfolio and performance.

Among the modules mentioned above, the "Basic Fund Screener" was selected to be further investigated, being the one providing services similar to those of the project described in this study. When using the "Basic Fund Screener", users have to first apply several filters in order to search the underlying funds' database (examples of filters include: fund type, cost and purchase, ratings and risk, returns – see screenshot below, showing the user's interface). Once the filters have been applied, the funds fulfilling the requirements specified by the users appear. For each fund, the following characteristics are displayed: name, Morningstar Category, Morningstar Rating, Return, Expense Ratio and Total Assets. By default, funds appear in alphabetical order. However, users can rank them based on another criteria.

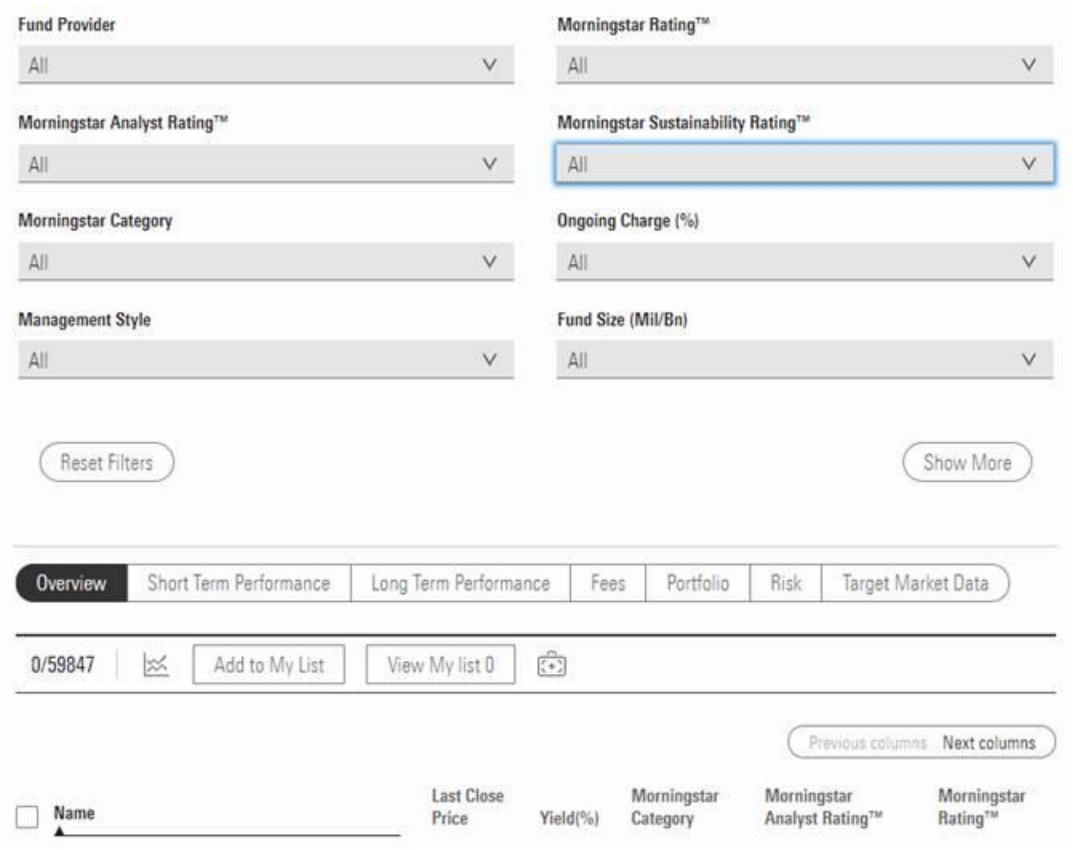
Technical aspects

While Morningstar offers technologically advanced solutions to users, there is no publicly available information regarding how the company collects, checks and elaborates data from a technical perspective.

Legal aspects

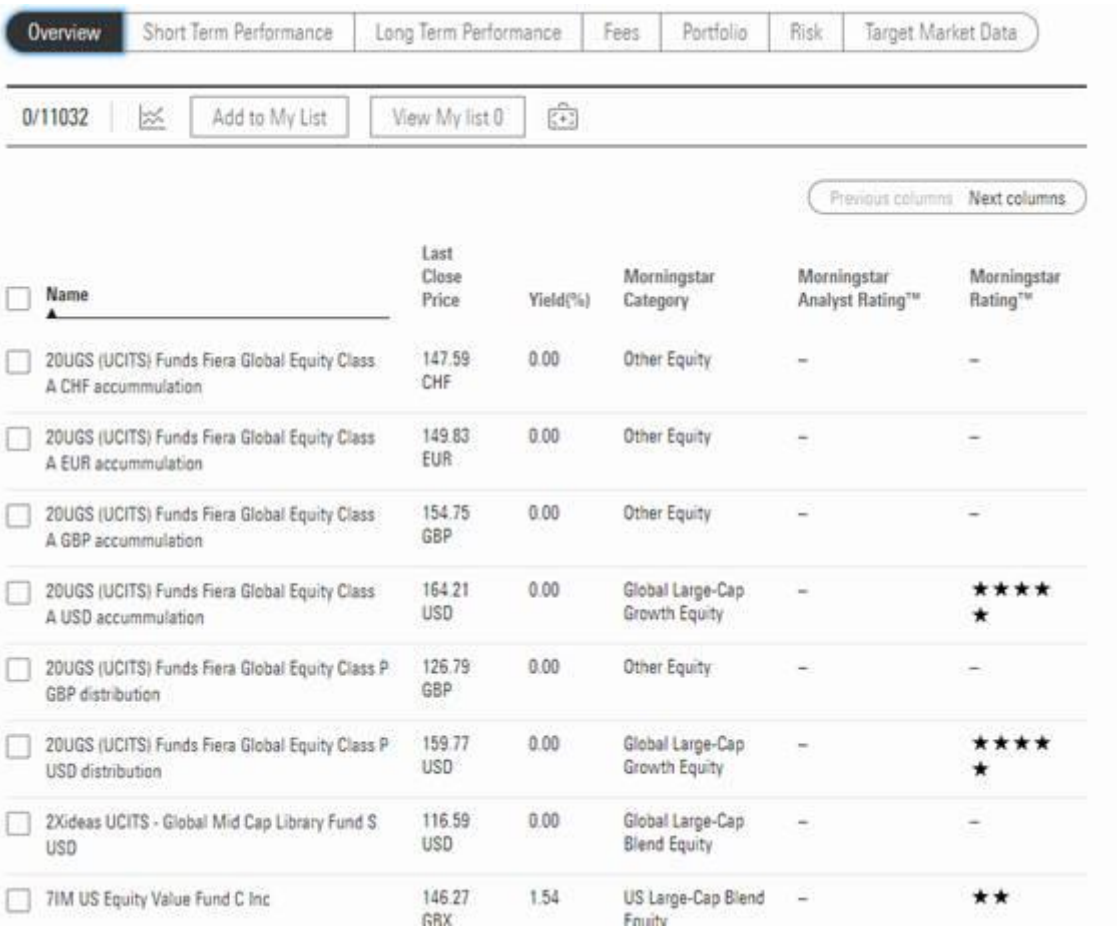
- According to the legal documents available on Morningstar's website, the firm has two business lines which include execution of orders: the Managed Portfolio Service ("MPS") which is a range of portfolios available on platforms; and the Institutional business which are bespoke discretionary management clients. Users of these services choose the platform to access the portfolios, and Morningstar transmits trading instructions to those platforms for execution. To perform these services Morningstar is required to have a licence as Investment Firm under MIFID II. In accordance with the MiFID II Level 2 Delegated Regulation (2017/565), as the firm does not execute orders itself but instead passes these order to other entities for execution, Morningstar is required to publish details on an annual basis about the top five investment firms in terms of trading volumes used for trading each relevant asset class along with information on the quality of those executions.
- By providing data to Morningstar, investment products gain visibility on the market. Hence, manufacturers share investment product information with the company without requiring the payment of a fee.

Figure 4: Morningstar user's interface – Examples of search criteria (Basic Fund Screener)



Source: Morningstar website

Figure 5: Morningstar user's interface – Examples of results (Basic Fund Screener)



Name	Last Close Price	Yield(%)	Morningstar Category	Morningstar Analyst Rating™	Morningstar Rating™
20UGS (UCITS) Funds Fiera Global Equity Class A CHF accummulation	147.59 CHF	0.00	Other Equity	–	–
20UGS (UCITS) Funds Fiera Global Equity Class A EUR accummulation	149.83 EUR	0.00	Other Equity	–	–
20UGS (UCITS) Funds Fiera Global Equity Class A GBP accummulation	154.75 GBP	0.00	Other Equity	–	–
20UGS (UCITS) Funds Fiera Global Equity Class A USD accummulation	164.21 USD	0.00	Global Large-Cap Growth Equity	–	★★★★★
20UGS (UCITS) Funds Fiera Global Equity Class P GBP distribution	126.79 GBP	0.00	Other Equity	–	–
20UGS (UCITS) Funds Fiera Global Equity Class P USD distribution	159.77 USD	0.00	Global Large-Cap Growth Equity	–	★★★★★
2Xideas UCITS - Global Mid Cap Library Fund S USD	116.59 USD	0.00	Global Large-Cap Blend Equity	–	–
7IM US Equity Value Fund C Inc	146.27 GBX	1.54	US Large-Cap Blend Equity	–	★★

Source: Morningstar website

2.2.2.4 Factset

FactSet Research Systems is a financial data and software company which provides integrated data and software solutions to investment professionals across the world. FactSet was founded in 1978 and is headquartered in Connecticut, with additional offices in the United States and around the world.

FactSet provides data and analytical applications to global buy and sell-side professionals, including portfolio managers, market research and performance analysts, risk managers, sell-side equity researchers, investment bankers, and fixed income professionals. The company does not offer products for individual investors.

FactSet's competitors include Bloomberg L.P., Thomson Reuters, and S&P Global.

Figure 6: FactSet user's workplace

Source: FactSet website

FactSet's Workstation includes real-time news and quotes, company and portfolio analysis, multi-company comparisons, industry analysis, company screening, portfolio optimization and simulation, predictive risk measurements, alpha testing and tools to value and analyze fixed income securities and portfolios.

Coverage

FactSet covers all types of financial products. It is designed to help investors to identify investment opportunities and analyze the effects of asset allocation decisions.

User interface to identify investment opportunities

Users first access a workspace made up of several tabs and subtabs which is completely customizable. The search function allows the user to search for and navigate to securities, indices, people, and FactSet components/reports.

The workplace offers a learning component providing a central location to access FactSet's interactive eLearning demonstrations and tools, including the Financial Analysis Knowledge Base. The Knowledge Base is a self-paced online training program and learning resource that concentrates on improving financial analysis.

Among the main features of FactSet, users can find a Market Watch display. This tool monitors market data for securities, such as companies, indices, treasuries, currencies, futures, and commodities. The monitor allows for a complete summary of a security's trades, including bids and asks, along with fundamental data, such as EPS, P/E, and Price to Book Value. Together with this option, there is also the possibility to access detailed pricing data, real-time financial news and summary of a company's business and financial data. The possibility to access prospectuses is also available for users.

The amount of information accessible is particularly important and dedicated to professional investors.

Technical aspects

- FactSet integrates hundreds of commercial content sets with a firm's proprietary data, including holdings, rankings, estimates and research;
- FactSet is designed to be seamlessly deployed on any fixed or mobile platform;
- All workspaces, portfolio holdings, returns, models, screens, and formulas defined and used on FactSet are stored in secure data centres;
- Retrieving data from FactSet is allowed and possible under different formats.

Legal aspects

According to the legal document present on FactSet website, no user data is synchronized and made vulnerable on user PCs when using FactSet software, as the FactSet software is merely a display of market and company data integrated into Microsoft Office.

At the exception of REGULATION (EU) 2018/1725 on the protection of personal data for public entities and particular Tax provisions, FactSet is not sharing more insight regarding its applicable legal environment

2.3 Conclusion

While these solutions, both the described tools as well as the presented use cases, increase information available for retail investors and support them in their decision making process, the information presented to retail investors remains fragmented often websites are focusing on one class of products, they might appear as non-neutral for investors, and come from a plurality of online solutions.

Additionally, some online solutions might have an opaque business model and / or partial coverage in terms of investment products. Hence, retail investors lack a centralised, reliable source of information, covering all investment products available across EU capital markets.

When all features and constraints are considered and considering that investor advise and order execution are subject to IDD or MIFID, the approach that would maximise the benefits for all stakeholders at the minimum legal cost and within a reasonable investment framework is the option of development of a European-wide investor products hub.

Considering the current and still on-going involvement of ESA's in improving regulation imposing more disclosure of investment product features (e.g. risk, performance, cost), such a hub could be developed without major regulatory changes. However, we have identified the regulatory changes required to enable the investor to have a more transparent comparison of the product's performance, cost and risk. These changes are described in section 7 of this document.

Section III – Description of the envisaged solution

3 Description of the envisaged solution

3.1 Value added offered by a digital investor products hub

Based on the work described in previous chapters and feedback from a variety of specialists, the lack of complete, comparable and centralised information on investment products is considered to be the major challenge for retail investors. Additionally, access to product data for institutions is often costly, which limits the innovation capacity on the market. Lastly, while numerous online options are available to support retail investors, the outcome for the retail investors when using current digital solutions is often sub-optimal. Overall, these factors do not facilitate the ability of the retail investors to make well-informed investment decisions.

Given the aforementioned issues, the main objective of an initiative aiming to improve online resources currently available should be to aim for the availability of complete and comparable information across product categories. Furthermore, to foster innovation on the market and provide retail investors with better online solutions, the access to investment products' information should be granted for free to third parties that accept to comply with a set of pre-defined standards. In addition to promoting innovation, such a strategy has the potential to increase the transparency of the business models of available online options.

To achieve these objectives, the creation of an investor products hub could be a good starting point.

The solution should ideally be accessible for free respecting pre-defined rules and should contain complete and accurate information about all investment products available across EU capital markets. To ensure broad coverage in terms of investment products data while complying with national markets' specificities and rules, the database of investment products could be centralised and fed by the industry through national competent authorities.

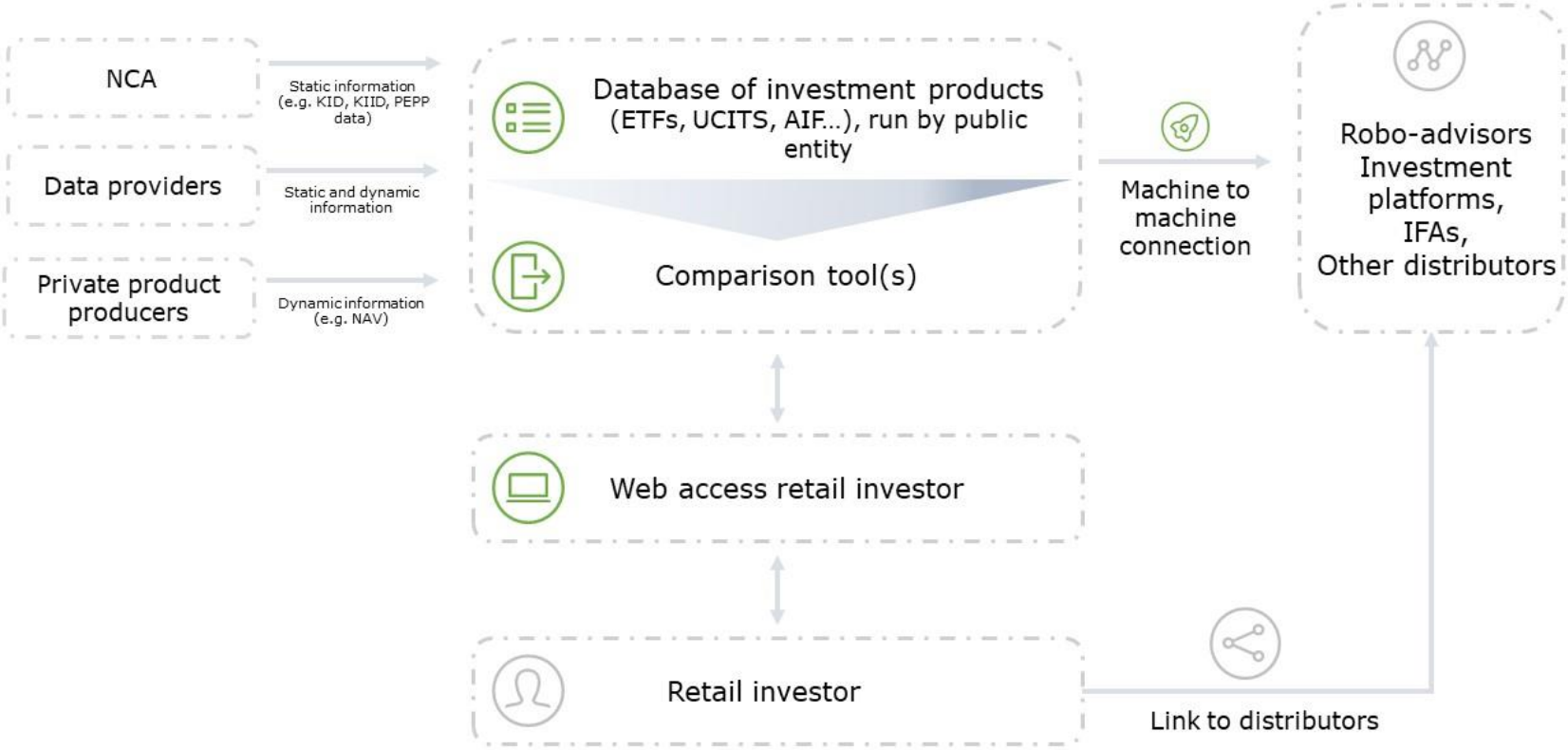
The investor products hub would need to have local access points and interfaces, reflecting national specificities in terms of product types and features, language, etc. The successful implementation of this tool is also dependent on regulatory changes aiming to harmonise information disclosure requirements across product categories, in order to allow for increased availability of information as well as comparability of investment products across different categories. As the tool aims to help potential investors, the proposed options should seek to focus on managed investment products, hence investments in equities or bonds should not be considered in scope of the tool.

3.2 Possible functionalities of the products hub

The figure below displays the potential and high level functional architecture of the solution and the subsequent text describes the main possible features of the project.

The diagram focuses on the access by potential retail investors to the investor products hub. As described, access can be direct and independent of other steps.

Figure 7: Illustrative chart of the investor products hub high level functional view



The solution displayed in the figure above is composed of two core functions plus one additional feature:

- Core function 1: database of investment products;
- Core function 2: search and listing feature; and
- Additional feature: list of distributors and link to other stakeholders.

Data extracted from the solution could support additional and non-core functions which could be provided by regulated (when required) third parties. Examples of additional, non-core features include calculators, investor's profile feature, and financial check-ups.

For retail investors, the solution would concretely take the form of a website where the potential investor will be able to perform a product search based on pre-defined criteria which will serve as sorting factors. The output for retail investors would be lists of products that meet search criteria. The investment product lists might, in a second step, be used by the investor, for example, to seek advice from an authorised investment management professional or to directly execute the investment on its own. Considering the very large amount of available retail investment products, the heterogeneous data availability of performance, risk and cost features, and despite the filtering of search criteria, the resulting products' list might still be long, probably too long to be used. In a further step of the investor hub project, Artificial Intelligence could certainly enable making the products search more sophisticated. As a result, we believe that offering the investor products hub only to potential retail investors might limit the benefits of the project. For this reason, we also propose as a core functionality of the hub the possibility to interface the data with third party online solutions.

The prerequisite for establishing such an investor products hub would be the interfacing of various and already existing **databases of investment products** which as an aggregate would provide a relevant set of data for all products aimed at retail investors. Professional retail investors and advisors, being more knowledgeable, should be able to directly access data according to their needs. Hence, when accessing the solution's webpage, professional investors would, ideally and subject to compliance requirements, be able to access the database in machine reading (meaning accessible by distant computers without human interface) to feed their own system.

Beyond the provision of data for an investor products hub, this additional core functionality could for example, provide research data to other public or private financial institutions as well as other entities (e.g. universities). Data access, free of charge, would be conditional to certain requirements on completeness and transparency of data usage.

Retail investors accessing the website would benefit from a **filtering function** backed by the aforementioned database. In particular, once users would click on the comparison feature of the solution envisaged, a search bar would appear. At this point, retail investors would be able to insert in a search bar the ISIN or alternative reference number (an identification mechanism at product or contract level might be envisaged for products that do not have an ISIN) or name of the desired investment product(s), or other criteria like risk level, target holding date, minimum yield or rate of return, or maximum TER or a combination of these factors (by ticking boxes for

example) and compile a list of selected products, that would subsequently be compared to be purchased. This solution will be discussed in the "Regulatory changes" section of this report. At any moment, retail investors would be able to modify this list, adding or removing products.

In case retail investors do not know the ISIN code or exact name of the product they wish to identify or purchase, on the initial page, they would be able to click on a "Browse investment products" function, and select investment products directly from the entire database.

In order to support retail investors in the selection of investment products from the database, a number of filters could be applied before displaying the full list of investment products e.g. type of investment product, domicile of the investment product, minimum additional expenses, exit fees etc.

Once retail investors have applied the desired filters, a list of investment products would consequently appear. Retail investors would be able to further filter and rank these products, to access detailed information for individual products and to compare products (across categories).

Once users have selected the investment products, they should be able to benefit from the investor products hub add-on function **"list of distributors",** providing indications concerning which distributors can provide the selected products. Potentially, this function might be one of the most complex to implement and maintain as products can be available or distributed via many different and evolving channels. On top of this technical aspect, lies the fact that the proposed website should not appear as promoting one or the other distributors. That might be considered as marketing under MIFID regulation, article 24 MIFID II or IDD 17 (proposing a choice that might not be fully neutral). Hence, a list of distributors is preferable, rather than a link to their website.

When using the investor products hub, potential retail investors could benefit from a number of additional features e.g. calculators, portfolio simulation tools, financial guidance material and functions which can be accessed prior or in parallel to the selection of products to be compared or purchased, but are out of scope of this study.

3.3 Potential scenarios for the implementation of the tool

This section will describe four scenarios considered for the implementation of this option, namely:

- a business as usual scenario, in which public entities do not take action following the conclusion of this study;
- an industry driven scenario, in which the development of the entire option is left to market forces;
- a public driven scenario, in which the solution is implemented exclusively by public authorities; and
- a joint private-public scenario, in which public entities develop the database of investment products while market forces are free to develop additional services relying on the database of investment products.

After these scenarios are described, they will be evaluated in order to identify the preferred scenario for the implementation of the project.

3.3.1 Business as usual scenario

In the business as usual scenario, public and private entities will not take action following the conclusion of this study. From a regulatory perspective, current considerations on amending the UCITS KIID in order to align it with the PRIIPs KID will continue. PRIIPs will be applied to UCITS as of the 1st of January, 2022. Hence, assuming that nothing will change in the regulatory framework, starting from that date, a retail investor investing in a UCITS product will be given both a UCITS KIID and a PRIIPs KID, unless UCITS regulation is amended. Having two documents seems however unlikely. In this scenario, public entities would not promote any additional regulatory change.

Regarding the implementation of the envisioned option, in the business as usual scenario public actors would not develop the envisioned tool. However, regulatory changes aligning PRIIPs and UCITS information disclosure requirements might encourage existing online tools to increase their products' coverage.

Table 3: Business as usual scenario

Action	Responsible actor
Considerations on amending the UCITS KIID in order to align it with the PRIIPs KID	Public entities
Considerations on aligning mandatory information disclosure requirements for pension products to the PRIIPs in order to achieve cross category comparability	No action taken
Development of database and distributors identification	No action taken
Development of additional features backed by the database of investment products	No action taken

Impact on information availability

In this scenario, access to product data might be improved and comparability of information would be enhanced, due to the fact that UCITS and PRIIPs products would most likely have aligned mandatory information disclosure requirements. However, information provision for the retail investor might remain complicated if information disclosure will not align with PRIIPs. In this case, cross-category comparison will not be facilitated.

Impact on existing online tools

In this case, public entities would not develop online options supporting retail investors. As consequence, retail investors across EU capital markets would have to rely on online tools currently available. On the one hand, these tools might increase their coverage in terms of investment products as a consequence of aligned mandatory information disclosure requirements for PRIIPs and UCITS products. On the other hand, the outcome for the retail investors when using commercial digital tools

will depend on the specific business model of such tools and access to product data for institutions would probably remain costly. Moreover, online tools currently available do not guarantee the same standards in terms of service to all retail investors across EU capital markets.

Degree of control exerted on the market by public entities and rate of innovation on the market

In the business as usual scenario, the degree of control on the market from public authorities is not expected to undergo major changes. Information availability and comparability for PRIIPs and UCITS products would instead be enhanced. However, access to information for institutions would probably remain costly. Hence, the innovation capacity on the market would remain limited.

Estimated investment needs

In this scenario, financial resources provided by public entities would be minimal compared to alternative scenarios. In fact, while the process to align PRIIPS and UCITS KIID would require an investment, no additional costs would be incurred since no further regulatory change would be promoted and no online tool would be implemented.

Assessment

In conclusion, despite the aligned information disclosure requirements for PRIIPs and UCITS, other factors (business model of existing online tools and comparability across all products' categories) would not necessarily improve. As a consequence, in this scenario, retail investors will most likely remain at the same level of information.

3.3.2 Industry driven scenario

In the industry driven scenario, considerations on amending the UCITS KIID in order to align it with the PRIIPs KID will continue (as it was the case in the business as usual scenario). In addition, in the industry driven scenario, public authorities would also ensure the alignment of mandatory information disclosure requirements for PPPs, thus ensuring aligned mandatory information disclosure requirements across all products categories (not only UCITS and PRIIPs and PPPs).

Regarding the implementation of the envisioned tool, in the industry driven scenario public authorities would not develop any component of the proposed investor products hub. The intervention of public actors would remain limited to aligning information disclosure across product categories.

However, it is expected that the coverage in terms of products of existing online tools would grow due to the increased availability of information for products which are currently difficult to find online and due to the possibility of realising cross-category comparison.

Table 4: Industry driven scenario

Action	Responsible actor
Considerations on amending the UCITS KIID in order to align it with the PRIIPs KID	Public entities
Considerations on aligning mandatory information disclosure requirements for pension products to the PRIIPs in order to achieve cross category comparability	Public entities
Development of database and distributors identification	Private entities would be encouraged to develop new online tools or to improve the coverage of existing ones, due to the alignment of mandatory information disclosure requirements across product categories. However, there is no guarantee that this will happen. In particular, there is no guarantee that a centralised database of investment products would be created.
Development of investor products hub(s) backed by the database of investment products	Private entities would be encouraged to develop new online tools or to improve the coverage of existing ones, due to the alignment of mandatory information disclosure requirements across product categories. However, there is no guarantee that this will happen.

Impact on information availability

As mentioned above, in the private driven scenario, the information available for retail investors would increase and cross-category comparison would be enabled. Manufacturers of PRIIPs, UCITS and PPPs would in fact be required to disclose product information using a single format. However, since public entities would not develop online tools, accessing information might remain challenging for retail investors.

Impact on existing online tools

In the private driven scenario, existing online tools would be encouraged to broaden their coverage in terms of investment products information. However, there is no guarantee that a single database covering all products available in EU capital markets would be created. By design, information available is likely to remain fragmented across the industry actors, the "producers" of data, and difficult to access for retail investors if no API or common tool is created. Moreover, institutions would most likely have to pay to access information.

Degree of control exerted on the market by public entities and rate of innovation on the market

Overall, while a regulatory change to align mandatory information disclosure requirements would certainly increase the availability and comparability of information, there is no control over how this information would be used on the market. Therefore, retail investors using existing online tools will remain exposed to risks deriving from potentially non-transparent business models and limited coverage

in terms of investment products information. As mentioned above, access to information for institutions is likely to remain costly, which would limit the innovation potential on the market.

Estimated investment needs

Compared to the business as usual scenario, this scenario would require additional investments to ensure that information disclosure requirements are aligned across all product categories considered. However, since public actors would not develop online tools, the needed investment and or legal adaptation would remain limited, if not non-exiting.

Assessment

While the industry driven scenario is advantageous for public entities from a cost perspective, it presents limited additional benefits in terms of guidance for retail investors compared to the business as usual scenario. In fact, the resources invested by public authorities to change the regulatory landscape might not influence market conditions.

3.3.3 Public driven scenario

In this scenario, public authorities would make the regulatory amendments described in the private driven scenario aiming to increase availability of investment product information and to allow cross-category comparison by aligning mandatory information disclosure requirements for PRIIPs, UCITS and PPPs. In addition, **public entities would also set up and maintain the database of investment products and identification of distributors**, as described in the previous section. Retail investors as well as professionals and other entities would be allowed to access the database of investment products free of charge, respecting pre-defined conditions (e.g. it would be forbidden for third parties accessing the database to manipulate the data retrieved).

Table 5: Public driven scenario

Action	Responsible actor
Considerations on amending the UCITS KIID in order to align it with the PRIIPs KID	Public entities
Considerations on aligning mandatory information disclosure requirements for pension products to the PRIIPs in order to achieve cross category comparability	Public entities
Development of database and distributors identification	Public entities
Development of investor products hub(s) backed by the database of investment products	Public entities

Impact on information availability

This type of intervention from public authorities would ensure the access to complete and reliable information to retail investors across Member States. Additionally, APIs could be implemented for professionals to access the dataset for their own finality

(e.g. develop robo-advice or define specific portfolio). Overall, private and professional investors would be guaranteed access to complete, accurate and comparable information. In addition, as the investor products hub(s) would be developed by public entities, the tool(s) would have transparent business model and information could be accessed by private retail investors as well as professionals without any fee.

Impact on existing online tools

A downside of this scenario would be the direct competition between the public sector and private actors jeopardizing the current access to investments by potential retail investors. The database with identification of distributors and the investor products hub developed by public players would in fact be in direct competition with existing private solutions and might damage their business model.

Degree of control exerted on the market by public entities and rate of innovation on the market

Despite the fact that information contained in the database would be accessible to retail investors and professionals free of charge, the innovation potential on the market might remain limited due to the direct competition of private solutions with the public investor products hub: private actors would not be incentivised to develop online tools competing with the publicly developed investor products hub.

Estimated investment needs

Under this scenario public entities would incur unreasonably high costs for the development of an entirely new ecosystem. While the database of products backing the investor products hub should be developed and financed by a single entity (probably the EC), the establishment of the full hub will require substantial efforts, investments and political support at national level. Associated costs for local public authorities would be relevant, in particular for setting up and maintaining the CTs while providing all the necessary information and infrastructures to feed the central database. Moreover, there is a danger that Member States will proceed at different speeds in the implementation of this tool, which might imply additional costs.

Assessment

In conclusion, this scenario presents advantages compared with the business as usual scenario. Retail investors and institutions would be granted free access to more complete and reliable information. Moreover, the creation of a publicly backed investor products hub would ensure the same service standards to retail investors across all EU capital markets. However, given the resources required to successfully implement such a tool and the uncertainties associated to the implementation and legal changes to be considered (e.g. the need for a carve out of MIFID advice, so that the rules on MIFID II advice and suitability to do not apply to the EU tool), this scenario would be challenging.

3.3.4 Industry public cooperation scenario

This scenario, in addition to implementing the regulatory changes needed to increase availability and comparability of products' information across all products' categories considered (UCITS, PRIIPs, PPPs), public authorities would develop and maintain the database of investment products and list of to distributors which would be freely

accessible to third parties. Private entities would be in charge of developing new tools, relying on the publicly backed, freely accessible database.

Impact on information availability

In this situation, information disclosure requirements would be aligned across all products' categories, which would allow cross-category comparison. In addition, public entities would develop a database of investment products covering all EU capital markets and accessible for free by private retail investors as well as professionals, respecting a set of pre-defined standards (e.g. it would not be possible to manipulate the information retrieved from the database). Such an intervention would ensure the availability of complete, accurate and reliable information. The development of a database of investment products complemented by a list of distributors would ensure that information is accessible by retail investors and professionals across all EU capital markets.

Table 6: Industry public cooperation scenario

Action	Responsible actor
Considerations on amending the UCITS KIID in order to align it with the PRIIPs KID	Public entities
Considerations on aligning mandatory information disclosure requirements for pension products to the PRIIPs in order to achieve cross category comparability	Public entities
Development of database and distributors identification	Public entities
Development of investor products hub(s) backed by the database of investment products	Private entities would be encouraged to develop new online tools or to improve the coverage of existing ones, due to the alignment of mandatory information disclosure requirements across product categories. Moreover, the development of a public, centralised database of investment products accessible for free, represents a further, important incentive for private entities to develop new online tools or extend the coverage of existing ones.

Impact on existing online tools

Given the limited degree of control exerted by public institutions on private actors, there would be no guarantee that online tools would be developed in all Member States with the same level of quality or support functions. Moreover, while private actors would be incentivised to develop online tools serving retail investors, there would be no guarantee that these tools have transparent business models. A solution to mitigate this risk is to grant the access to the database to public and private actors who comply with a set of pre-defined standards concerning the usage of data. This would ensure increased transparency of the business models of the entities using the dataset. Hence, public entities would not be in direct competition with private players.

Degree of control exerted on the market by public entities and rate of innovation on the market

A further advantage of limiting public stake, is the permanently growing innovation of the market: making data freely available would provide an incentive to innovate. Moreover, in this scenario, public entities would not be in direct competition with private actors developing online tools. This would further foster innovation. At the same time, as mentioned above, by defining standards for the usage of data contained in the database, public entities would exert control on the market with the aim to ensure transparency.

Estimated investment needs

In this scenario, compared to the public driven scenario, public entities would need to bear comparatively lower costs. In fact, while the development of the database and list of distributors has high financial needs, public entities would not develop additional tools and hence not be exposed to additional, ongoing costs.

Assessment

This scenario seems to be the most advantageous for both public entities and retail investors. In fact, public entities would incur relatively lower costs implementing exclusively the database and the investor products hub (the web interface). At the same time, the information available on the market and the regulatory constraints on the usage of such information would guarantee, respectively, increased innovation and enhanced transparency on the market, hereby providing added value for retail investors.

In the next section, the proposed scenarios will be evaluated against the business as usual scenario, according to a set of criteria (impact on information provision, impact on online tools, innovation, and costs).

3.3.5 Assessment of the proposed scenarios and most optimal scenario for the implementation

The table below summarises and assesses pro's (+) and cons (-) of the different scenarios considered for the implementation of the tool.

Table 7*: Evaluation of the proposed scenarios for the implementation*

Scenario	Impact on information provision	Impact on existing tools	Innovation VS Degree of control	Investment
Business as usual	(- - -) Misalignment between PRIIPs KID and UCITS KIID; (- - -) Information disclosure requirements for PEPP might not align with PRIIPs KID; (- -) Lack of complete information on investment products (no comprehensive EU-wide database); (-) Access to product data is costly	(+ +) Multiple online tools supporting retail investors already exist; (- -) Existing solutions can have non-transparent remuneration models; (- -) Online tools might be available only in a restricted number of EU member states	(-) Low degree of control; (-) Low rate of innovation for the market	(-) Minimal investment by public entities
Industry driven	(+ + +) Information disclosure requirements more aligned across products categories; (- -) The creation of a database of investment products is not guaranteed; (-) If such a database was created, information might remain costly to access	(- -) Availability of tools might not be enhanced; (- -) Business models might remain non-transparent	(-) Low degree of control; (-) Low innovation rate for the market	(-) Minimal investment by public entities

Public driven	(+ + +) Information disclosure requirements are more aligned across product categories; (+ + +) Database of investment products is provided and accessible for free	(+ + +) Availability of online tools to retail investors in all EU capital markets is guaranteed; (+ + +) Tools would operate with more transparency (+ + +) Data would be accessible without charging fees; (-) Direct competition with private entities.	(+) High degree of control (-) Low degree of innovation for the market	(- - -) High costs (development of a new ecosystem, managing and integrating different classes of data)
Joint industry/ public cooperation	(+ + +) Information disclosure requirements are more aligned across product categories; (+ + +) Database of investment products is provided and accessible for free, respecting pre-defined standards and conditions	(- -) Availability of online tools to retail investors in all EU capital markets is not guaranteed; (+ + +) Tools using the centralised dataset would operate with a more transparent business model; (+) No direct competition with private actors	(+) Control is achieved by defining standards to access the database; (+) More innovation potential for the market	(- -) Limited cost (implementation of the database)

Summary of assessments

The fully industry driven scenario would be, from a public entity perspective, the less advantageous one. In fact, public actors would actively make an effort to change the regulatory framework in order to benefit retail investors. However, as there would be no control over the consequences this would have on the market, all the resources invested in changing the regulatory framework would not necessarily produce added value. There would be no guarantee that information coverage of existing online tools would increase nor that the business model of existing tools would become more transparent. The scope of the public intervention should thus be broader to ensure that improved investors' protection.

In the public-only driven scenario, the same standards in terms of service provided by online tools would be ensured to retail investors across all EU capital markets. However, the costs would be relevant, due to the entirely new ecosystem that should be created. Moreover, due to the wide coverage that the tool aims to achieve (i.e. all EU Member States) coordination as well as technical issues are likely to arise and compromise the successful implementation of this solution. Hence, public entities would realise important investments to create a wide ecosystem, covering all member states, but the efforts might not be successful due to the diversity of infrastructures of the country involved.

The joint-industry public cooperation appears as the most promising scenario. With comparatively lower costs and limited regulatory adaptations, it allows to foster innovation while maintaining control on the market by putting restrictions on the usage of the dataset. Moreover, allowing public entities to focus exclusively on the database would reduce risks related to the implementation of a too wide ecosystem. In this scenario, public entities would be responsible of developing and running the database of investment products. More specifically, public entities would launch a call for tender to select an external provider who will be responsible of managing the technical aspects of the development of the tool. In order to run the tool, public actors would need to select an entity tasked with ensuring the integrity and conformity of the data on a central level. Administration is however expected to be distributed among the local entities, who would be responsible of checking the validity of data and of feeding the database.

In this scenario, public authorities would also be responsible of initiating the process of regulatory amendments, necessary to successfully implement the database of investment products (regulatory changes will essentially aim to achieve mandatory provision of data on investment products and alignment of mandatory information disclosure requirements under KID/PRIIPS/IBIP). Lastly, public entities should make sure that promotion activities encourage the use of the database of investment products.

The database would be freely accessible by regulated and professional third parties, but under conditions, namely meeting due diligence requirement and appropriate governance and regulated solutions that would be enabled to feed new or existing online tools using the dataset contained in the database. It is expected, that third parties will access the tool with the aim to develop or feed different online solutions such as robo-advisors, comparison tools, IFA platforms, supermarkets. The database could also be accessed by other providers with the aim to develop functionalities such as financial check-ups, investor profile, portfolio simulation, calculations, complaints support, and other tools serving retail investors.

Additional information regarding the roles of various stakeholders in the joint industry-public cooperation can be found in the next section.

3.4 Stakeholders involved

Database of investment products

Setting up such a complex tool across all Member States requires substantial efforts in particular as the data will mainly be collected by local authorities at the national level, but need to be aligned with data collected in other Member States. As the authenticity and accuracy of the information is of primary concern the governance and stewardship of the data contents needs to be safeguarded and entrusted to competent actors.

- Investment products manufacturers being at the source of the information and already store the Key Information Documents as part of their obligations to the relevant regulations and directives;
- Local authorities who act as the endorsers and stewards of the validity of the data based on predefined rules for adding it to the data hub or ledger. They may leverage existing assets and enhance them to fulfil this role or delegate to their local industry or consortia;

- Service Providers such as Data Providers and Tool Providers which facilitate access to the ledger and provide value added services (e.g. search and retrieval services, alerts, etc.).

Infrastructure would be deployed at national level and run by the competent local authorities: industry players (i.e. investment product manufacturers) would need to provide investment product information to local authorities. Local authorities would in turn be in charge of sharing the received information with the public entity running the centralised database. It is preferable that the initial development of the technical infrastructure as well as the managing of the database is realised by a supra-national authority. In particular, the database could be run by entities who already have experiences in managing wide datasets (e.g. ESMA or ECB). However, re-using the dataset aggregated by these entities might be difficult, as these databases are developed within specific regulatory frameworks and based on specific contractual agreements with data providers. As a consequence, the database might need to be developed ex-novo. However, these actors, being already experienced in the development and management of a wide database, could provide valuable insights in the implementation phase. Concretely, although NCA might face additional work, they might be the one privileged channel to pass on information to the database at least for static information (linked to KID/PRIPS content).

Alternatively, research shows that existing database and public price-comparison websites, as well as online financial guidance websites, are currently either operated by a financial regulator or more commonly by a financial consumer agency set up by the government, but operating as an independent agency (as it is the case in Norway). When these websites are operated by a financial consumer agency, this agency typically works in coordination with financial sector regulators and other relevant government agencies. The benefits of a financial consumer agency operator include expertise in consumer protection issues, the ability to dedicate long-term resources and attention to the operation of the price-comparison site, and the ability to provide complementary financial consumer protection materials (World Bank Group, 2013).

While distributed administration is beneficial, the central entity operating the database should be tasked with ensuring the integrity and conformity of the data. The central actor should also make sure that the template used for the provision of data is standardised and shared by all the entities feeding the database. In order to agree on such a template, working groups with data providers, organised since the first phases of development of such a database will be useful.

As already mentioned, the database would be freely accessible for both service providers who wish to develop online tools based on the publicly backed database as well as private retail investors, who would benefit from the dataset either directly or via other online tools. In particular, individuals are provided with access to the data hub via the tools and services made available by the service providers, while professionals can access the database through exposed technical interfaces (APIs), provided they have the technical resources.

Product Distributors

In order to establish a list of distributors, different approaches have been considered, aiming to link the ISIN of each product (or alternative identification mechanism for products that do not have an ISIN) with the LEI of manufacturers and distributors. As it will be explained in the Regulatory Changes section, these approaches involve either

manufacturers or distributors. The collaboration of these stakeholders is key to ensure the successful implementation of this feature. Hence the list of distributors will allow investors to identify where to access a given product. This is outside of the database and investors products hub.

It could be considered that having distributors' lists should be a core function of the investor products hub, however it is advisable not to pursue that route. Even having distributor list should be subject to caution.

First, operationally speaking, that will represent a cumbersome task: agreements between products managers in a broad sense and distributors fluctuate on a daily basis, hence if the update process is not accurate and in real time, the site might propose erroneous solutions (distributor are removed or added between updated). This presents a legal risk on the information contained.

Secondly, distribution is often a consequence of an agreement between an issuer and a distributor: conditions might be attached that are not subject to public disclosure. That would require most likely the prior approval of the product manager, which cannot be taken for granted.

Thirdly, having explicitly listed distributors on an EU Commission website, or a public entity website, might be considered as advice or at least advertisement under MIFID or IDD rules. That might be even more critical if execution is foreseen from the investor products hub as envisaged in a first instance.

As a conclusion on this point, the access to distributors should be presented as a non-core functionality of the platform.

At a maximum, distributors should be able to opt-in for listing for the exchange of information rather than having a regulatory obligation to disclose their LEI for each contractual distribution relationship they have with product manufacturers.

The feasibility of this function, independently of its scope, will represent a challenging and complex task of daily maintenance.

In the next sections, the implementation of the EU wide database will be described. Subsequently, the regulatory changes which would be needed for the implementation of the database and to enhance the value provided by the database to investors will be described.

3.5 Conclusion: joint public/private creation of the investor hub

When all features and constraints are considered, between the no-action and the full public development, the approach that would maximise the benefits for all stakeholders at the minimum regulatory cost and with a reasonable investment is the option of development of an investor products hub by the EU Commission. That option could, in theory, be developed without major regulatory changes. However, the challenge to do so might be unreasonable for an outcome that will be difficult to maintain on a day-to-day basis. On top of it, if the solution to create such an investor products hub without regulatory changes is retained, that means initiating commercial discussions with data providers to access and make available data for reuse. This, in

the end, might be more costly and in any case more complex, with a risk of non-exhaustivity as of today not all products are covered.

Unless the EU Commission is willing to undertake the exercise of becoming a regulated financial entity providing investment services such as investment advice, price comparison, calculators or execution platform, the option that remains available is the creation of an investor products hub, which is composed essentially of two elements:

- A database of products with characteristics taken from the PRIIPS/EMT/EPT documents;
- An interface, web or other to offer retail investors an access to perform searches; ideally a direct access for professional should be developed so that they can exploit data to provide value added services.

The envisioned investor products hub would support retail investors in investment decisions by allowing them to improve information on products to meet their financial objectives. Furthermore, being publicly supported, the investor products hub should have a transparent business model. By being backed by a database of investment products, this tool would provide complete and reliable information about all investment products available in EU capital markets while promoting innovation on the market.

The implementation of such a solution, although a complex and challenging task, seems feasible from a technical and regulatory perspective. From a technical perspective, modern technology allows the creation of the ecosystem described in a secured (inasmuch publicly supervised) manner. From a regulatory perspective, the intervention of public authorities would ensure that the regulatory changes needed for the tool to be implemented and provide value to retail investors would be realised.

At present time, no such tool exist, which is likely due to the high challenges technical and maintenance the project represents. The implementation of the tool and its components will be discussed in the next chapters.

Section IV Implementation of the solution

4 Implementation of the solution

4.1 Introduction

As explained in the previous sections, a joint public/private investment hub was deemed as the most suitable online solutions to support retail investors in their investment product research.

In this section, technical aspects that should be considered by the public entities in charge of the implementation of the tool will be described. In particular, the focus will be on aspects concerning the data (i.e. data collection, filtering criteria, data quality and security). Subsequently, the high level architecture of the tool will be described. Lastly, a roadmap for the implementation will be provided. Details concerning the foreseen project costs as well as the impact of the tool on market and stakeholders will also be provided.

4.2 Scope of products

Retail investors have access to investment products regulated by various regimes. The maturity of the various regulatory regimes and the readiness in terms of data availability on their key investment features (e.g. cost, risk, performance) is not harmonised or comprehensive.

We have consulted the current on-going debate around performance and cost of retail investment products in order to define a realistic scope of products to be covered by the investor hub (ESMA, January 2019; EIOPA, December 2018; EBA January 2019).

Retail investment products currently analysed by ESMA

- UCITS – 76% of market share;
- AIF's – 15% of market share;
- SRP's – 9% of market share.

Data and product features findings

UCITS represent by far the largest retail investment segment in the EU. The major issue is the unavailability of comprehensive data across the different products listed above, mainly:

- Cost data elements (e.g. distribution cost);
- Transaction costs;
- Performance fees;
- Data granularity;
- Heterogeneous data across different Member States;
- No distinction between risk levels of the different products in scope.

In addition to these EU wide data heterogeneity, the different national regulatory requirements around UCITS add additional data gathering complexity (e.g. additional disclosure requirements, different treatment on cost figures such as transactions cost,

different methodologies for calculation of management and performance fees, different units of measures for data reporting or additional marketing rules).

Despite this remaining data issues, the pre-contractual disclosures on UCITS products are high compared to AIFs and SRPs. The regulatory pre-contractual disclosures on UCITS, after entry into scope of the PRIIPs regulation in 2022, UCITS will show harmonisation on how to measure and disclose transactions cost and performance fees.

Retail investment products currently analysed by EIOPA

- IBIPs
- PEPPs

Data and product features findings for IBIPs

Data currently available on past performance measures (e.g. values of guarantees, impact on smoothing mechanics, risk and volatility) is not comprehensive. As a result, direct comparison between unit-linked and profit participation products should be avoided.

Even if cost vary across jurisdiction, product premium type and risk factors, on-going cost impact is not material for these products as cost reduces performance in average by 2,5% for single premium products, 1,24% for profit participation products and by 2,6% for unit linked products.

Regarding data collection, first of all, the identification of the cost in the pre-contractual regulatory documentation cannot be made as per the required breakdown. In addition, distribution and administration cost can currently not be easily segregated and past performance fees for profit participation products is not available.

PPPs out of scope of the first version of the hub

Regarding PPP's, as the sample of products currently on the market is too small to conclude, these products will not be able to be in scope of the first version of the investor hub.

Retail investment products currently analysed by EBA

Structured Deposits (SDs) Article 4 (43) of MiFID II, according to which a SD are "deposit as defined in point (3) of Article 2(1) of Directive 2014/49/EU", hence payable at maturity on terms under which interest or a premium will be paid or is at risk, according to a formula involving factors such as:

(a) an index or combination of indices, excluding variable rate deposits whose return is directly linked to an interest rate index such as EURIBOR or LIBOR;

(b) a financial instrument or combination of financial instruments;

(c) a commodity or combination of commodities or other physical or non-physical non-fungible assets;

(d) a foreign exchange rate or combination of foreign exchange rates.

Data and product features findings for SDs

It will be challenging to gather comprehensive data on SDs as neither public nor private data can easily be obtained for these products. Missing data relates to information on past performance. Regulatory pre-contractual documents so far only impose reporting for a small subset of SDs in the market. CRR imposes reporting requirements on financial products but no breakdown is required by regulation for SDs specifically. In addition, SDs are subject to the European Deposit Guarantee Scheme. For these reasons, we will not be able to include the SDs in scope of the first version of the investor hub.

Considering the relative small size of the structured products currently sold to the retail market, the additional effort to collect non-available data is at this stage disproportionate. Future initiatives of EBA could aim at gathering more accurate and standardised data on market volumes (e.g. via surveys led by NCA's) in order to potentially re-assess PRIIPS requirements at a later stage.

Conclusion: The first version of the investor hub will have a limited product scope

After having consulted and assessed the current findings on EFAMA, EIOPA and EBA regulated retail investment products, we recommend for the first version of the investor hub to only consider UCITS, AIF' and Structured product in scope of PRIIPS regulation and to consider the inclusion of other retail investor products (e.g. IBIPs, PPPs, SDs) at a further stage of the implementation. The current disclosure requirements for UCITS, AIFs and structured products are regulated by PRIIPs which is currently under review. The review of PRIIPs is still under consultation and will hence not be able to be assessed in this report.

4.3 Focus on Data

As already described in the product section above, data collection is the major challenge from a product perspective. Covering all retail investment categories and products available on the market would certainly provide most added value to retail investors but considering the still on-going debate at ESAs level on the harmonisation of 1-Different ESA's timelines and 2-heterogeneous disclosure requirements for the different products regulated by the different ESA'S, we have decided to take a realistic approach and only include UCITS and AIF products in the first version of the investor hub. This decision is also underpinned by the EU Commission's request to ESAs, dated end of 2018, to issue recurrent reports on cost and past performance of the main retail investment, insurance and pension products and that the request foresees that these reports should leverage data provided by disclosures and reporting that are already required by the EU regulatory framework.

A further challenge around the gathering of the investor hub related data is technical. The creation, feed and maintenance of a database covering various product categories with different features, each with a considerable amount of data points to register, is a complex exercise as such. In addition, the creation and maintenance of the distributor lists will also be one of the most complex to realise (probably more on exit of distribution relationship than new ones).

The digital investor products hub would provide relevant, mostly static information (e.g. information retrieved from pre-contractual documents, hence PRIIPs KID or

UCITS KIID) on each product in scope. At its final implementation phase and considering retail investor products reach a level playing field in terms of product and data issues as described above and as currently handled by the respective ESA's, the hub will offer the possibility to compare products across all different retail investment products categories. However, considering the current heterogeneity, identified via the various ESA regulatory initiatives around product features and data availability, we believe the project of reaching a holistic database where all existing investment products can be searched, listed, ranked and filtered seems very ambitious.

While the first set of products in scope of the initial version still provide a considerable amount of data to investors, user-friendliness and simplicity of the interface will be key to allow a meaningful utilisation of the tool. To achieve this objective, the feature allowing to compare products from different categories would need to be carefully designed in order to allow users to draw meaningful results from the comparison. It would thus be important not to only highlight quantifiable indicators, e.g. cost or past performance, but also to provide nudges that highlight the differences between the products and their features (e.g. while the PPPs have higher fees than an ETF, the associated tax incentives are relevant to consider too). The paragraphs below describe the design of user interfaces, providing details on the functioning of the database as well as on how user friendliness will be guaranteed.

4.3.1 User interface - retail investors

Potential retail investors would be able to connect to the database via a web interface (or other evolutions like smartphone app), a welcome screen will great the investor, then before accessing the investor products hub will have to enter search and selection criteria. The proposed approach will be in two instances, first the potential investor will perform a filtering on MIFID II target markets criteria, then a search on according to thresholds or triggers. On top of this process, the potential investor would be able to key in various criteria for search and selection of instruments (see more in table 4 and 5, section 5.1.2), to summarise the potential investor will be able to look for:

First,

- Target market criteria.

Then,

- Product type (e.g. UCITS/AIF);
- Client segment (e.g. retail, institutional);
- Target Market;
- Country of residence of investor;
- Name of issuer;
- Name of products;
- Name of distributors;
- Expected return;
- Guarantee or not;
- Risk grade;
- Ongoing costs;

- Recommended holding period;
- Free text for the investor the investment objective pursued by the product.

That latter, free text search criterion, will allow to give a more qualitative perspective on the potential merit of a product to a given investor, without entering into the need to store potential investor data. However it could be debated if in order to avoid presenting a biased view to the investor, the search should prioritise the elements included in the target market.

By default, the investors should be able to sort products based on return, cost and risk indicators as for example found in PRIIPs KIDs. The investors should be able to select the performance indicators of their choice (time horizon, type of scenario) for such sorting. However that approach, which is currently used by some providers also introduce some bias, notably gearing investors to high performance only, to the detriment of product risk profile; or to cost only, to the detriment of performance.

From the beginning or for a future developments of the retail investor products hub, risk adjusted performance metrics could be constructed. These would enable to sort investments products according to criteria allowing to mitigate the performance by the risk and cost to obtain it. Many different metrics exists, from different ratios like Sharpe, Alpha or Beta measures, that all qualify for different products or situations and have their merits tested in various circumstances. One of the drawback is that most of existing ratios are not yet used or available in the KIID, EMT or EPT documents, therefore the proposal below tries to remedy to that state of fact and is based on indicators are present in the EPT and they can be used to provide further information and greater comparability to retail investors. Two types of ratios that are not mutually exclusive can be retained, the first focuses on the fluctuations and the second on the potential loss, both require a minimum dose of financial litteracy:

1.Risk-performance ratio at one year :

The purpose pursued by this ratio is to evaluate how much risk, translated into fluctuation of performance, has been required to achieve the level of performance presented. With this tool, the retail investor will be able to compare two products with similar performance and be able to opt, or not, for the one that fluctuates less.

$$PRIIP\ Risk\ Earnings\ Ratio\ = MPS\ /\ VEV$$

where:

- MPS = annual average return of moderate performance scenario at one year, corresponding to field 02040_Portfolio_return_moderate_scenario_1_year in the EPT
- VEV = annualized VaR (value at risk) equivalent volatility, it corresponds to field 01020_Portfolio_VEV_Reference in the EPT.

To achieve the objective of comparing performance and fluctuations, the following technical process should be applied to convert the MRM (Market Risk Measures) and SRRI (Synthetic Risk Reward indicator) into the VaR Volatility (Value at risk). The table below converts MRM classes of the PRIIPS KID into the volatility equivalent measure (VEV)

Table 8: MRM, SRRI and VaR volatility

MRM class	SRRI	Equivalent VaR volatility (VEV)
1	0% - 0,5%	<0,5%
2	0.5% - 2%	0,5% - 5,0%
3	2% -5%	5,0% - 12%
4	5% - 10%	12% - 20%
5	10% - 15%	20% - 30%
6	15% - 25%	30% - 80%
7	>25%	>80%

The PRIIPS Risk Earning Ratio helps answer the question "Based on the past performance of the PRIIP, how much could I profit from taking an amount of risk, in a one year time horizon?"

The information contained above will have to be compared to the performance of the product concerned using the moderate performance scenario overt the last 12 months, dividing performance per the VEV indicator.

The Table below is an illustrations for PRIIPs with varying VEV and moderate performance scenarios.

Table 9: PRIIPS risk Earning Ratio

Moderate performance scenario return (in %, at 1Y)	VEV	PRIIPs Risk Earnings Ratio
-2%	5%	-0,40
-2%	10%	-0,20
-2%	15%	-0,13
-2%	20%	-0,10
0%	5%	0,00
0%	10%	0,00
0%	15%	0,00
0%	20%	0,00
2%	5%	0,40
2%	10%	0,20
2%	15%	0,13
2%	20%	0,10
4%	5%	0,80
4%	10%	0,40
4%	15%	0,27
4%	20%	0,20
6%	5%	1,20
6%	10%	0,60
6%	15%	0,40
6%	20%	0,30

Considering that the ratio is based on existing figures, hence past performance, an easy reading is that products with a negative ratio might be considered with care, products with a ratio between 0 and 1 are more relevant and above 1 are "best in class" as more unit of performance have been realised compared to the level of risk to achieve it. This regards the performance over the last 2 to 5 years as per PRIIPS requirements, accordingly a statement should be presented to recall that "there is no guarantee that future performance will be similar". The use of such a ratio is to help sort products with potentially similar returns according to a risk/reward indicator.

2. Loss ratio at RHP:

The risk and reward relationship can be explored further by asking the question "Based on the past performance of the PRIIP, how much money do you stand to gain over 1 year for each €1 you are risking to lose?"

This second ratio offers a slightly different angle of reading, it aims at comparing the risk of loss on a theoretical investment (EUR 10.000) by a retail investor by comparing the potential maximum loss to the moderate performance scenario, what might render more concrete the potential for loss. This would also help the retail investor evaluate the risk associated with two products, or more, presenting similar performance moderate scenarios.

The possible indicator to capture this relationship is proposed below:

$$PRIIP\ Historical\ Loss\ Ratio\ = MPS\_reward\ /\ Loss$$

where:

- MPS reward = moderate performance scenario in monetary amounts – initial investment, where moderate scenario is based on the field 02040_Portfolio_return_moderate_scenario_1_year in the EPT
- Loss = max{initial investment - Unfavourable Performance Scenario, 1}, where UPS is the unfavourable performance scenario expressed in monetary terms, based on the filed 02010 Portfolio return unfavourable scenario 1 Year in the EPT

The ratio will be negative if the mean average return, and hence return in moderate performance scenario is negative.

If the ratio is positive, this implies moderate performance scenario after 1Y is greater than the initial investment.

If the ratio is greater than 1 it indicates the potential reward in the moderate scenario exceeds the loss in the unfavourable performance scenario.

The loss is floored to €1 as to only consider positive and non-zero losses to ensure results are well defined and meaningful.

Furthermore, for readability purpose, we suggest capping PRIIPs Historical Loss Ratio (e.g. at 10) to filter out outliers, i.e. very large values in case of loss close to zero.

Illustration with the example of a products with varying unfavourable and moderate performance scenarios amounts can be found below:

Table 10: PRIIP Historical Loss Ratio

Initial investment in (in €)	Moderate performance scenario (at 1Y, in €)	Unfavourable performance scenario (at 1Y, in €)	Reward (at 1Y)	Loss (at 1Y)	PRIIPs Historical Loss Ratio
10.000	9.000	6.000	-1.000	4.000	-0,25
10.000	10.000	7.500	0	2.500	0,00
10.000	10.000	8.500	0	1.500	0,00
10.000	10.300	7.500	300	2.500	0,12
10.000	10.300	8.500	300	1.500	0,20
10.000	10.300	9.000	300	1.000	0,30
10.000	10.300	9.500	300	500	0,60
10.000	10.300	9.700	300	300	1,00
10.000	10.600	8.000	600	2.000	0,30
10.000	10.600	9.000	600	1.000	0,60
10.000	10.600	9.500	600	500	1,20
10.000	10.600	9.750	600	250	2,40
10.000	10.600	9.900	600	100	6,00

The two indicators above consider the average moderate scenario which is based on past performance, and risk measured by either the VEV or the unfavourable scenario. Similarly, another risk-reward indicator could consider the favourable scenario as well.

A quick reading of the ratio that could be used for sorting products is similar to the previous approach, product where the indicator is below 0 should be considered with care, product with an indicator between 0 and 1 might be relevant and ratio above one might be seen as "best in class".

As for the preceding ratio, the fact that indicators above are based on past performance should not take for granted that a similar behaviour/pattern will continue for future performance. Evidence and researches suggest to consider alternative estimators for the expected returns5, however data to compute them is not included in the EPT.

Both ratios could be used in the display to the user, one of them or the information could be limited to performance, names as presented at the beginning of this section.

Additional criteria might add to the quality of the search and offer a better focus, but the more is presented, the higher the complexity is and the more the potential investor should be financially savvy to understand what lies behind the search results. Hence, a search among the criteria above should, in an ideal world, lead to a sufficient degree of details and thus focus on true positive results.

In the interest of the potential retail investor not to be submerged by data and by a long list of products with very similar risk, performance and cost data, it will be key to pre-define appropriate filtering criteria, especially for performance, cost and risk data.

5 Elton, E. J. (1999). Presidential address: expected return, realized return, and asset pricing tests. *The Journal of Finance*, 54(4), 1199-1220.

In a second phase, a free text search augmented with Artificial Intelligence search patterns could also be envisaged, but in that case this might bring the project closer to a MIFID or IDD adviser, hence, presenting legal risks.

To be able to use AI technologies, there are different options to optimise the search, among which three of them might be given priority:

- Clustering: grouping according to similarities (products, performance, TER, scope);
- regression search: to identify products with a multiple set of numerical value, namely combine TER and performance to identify ideal compromises;
- retail investment product features should enable a clearer correlation between the investment strategy of the product and the retail investor investment objectives.

The use of technologies like neural networks or natural language processing to analyse the content of the database and specifically the descriptive parts is already existing. The adequacy of the scope of the products investment strategy and qualitative savings objectives of a given investor are although not yet easy to link, as most of the current investment strategies of retail products are rather describing capital market fixture such as geographic and economical investment sector, rather than investment objectives.

Going forward, Artificial Intelligence would enable the potential investor to describe its investment rationale in a free text and without being specific about risk preferences or other MIFID/IDD type of profile component; in addition some of the thresholds proposed could be used (i.e. TER, minimum performance or risk grade). The AI algorithm using natural language processing should be able to identify reasonable sets of products corresponding to the potential investor expectations and display these along the elements of the table proposed later in this document (name of product, cost and performance).

It is important to note that in order to be efficient, the AI technology should be trained and "guided" to reach accurate responses, something to factor in the development process and that the granularity of data identified should be high.

The website should not store any information and there should be a cleaning of information (including IP addresses) on a real-time and at least daily basis, which will ensure meeting the criteria for the Regulation (EU) 2018/1725 on the protection of personal data for public entities.

In a nutshell, the potential investor has several options:

- in case the potential investor is well informed and might be looking for a specific product or manufacturer, the name or identification code of the product can be entered directly in the search bar;
- or: the potential investor is looking for specific criteria and will tick the boxes or drop down menu available (return, time horizon, risks, cost) and the website will propose products corresponding to these criteria ranked as mention above.

The website should be simple in design and usability, what should be tested in the implementation phase to be in-line with the design of websites at the moment of launch. Then, even if the discussion has focused above on the concept of website, alternative solutions like smartphone, app, or voice assistant could be envisaged.

A last remark on the use of the website: while costs should be carefully considered when choosing investment products, the investor products hub should ensure that

retail investors do not focus exclusively on this measure, as high costs might also be linked to higher performance.

4.3.2 User interface - professional clients

The overarching purpose of the investor products hub is to facilitate the life of the potential retail investor. As mentioned above, regulated and professional advisors are offering various online solutions to retail investors around financial guidance, investor profiling, portfolio statements, robo-advisers, product calculators or execution venues (distributors).

These regulated and professional actors would also receive access to the investor hub or extract structured data files directly from the hub. In a second step, more advanced uses based on API technology might also be developed to enable professionals to use the data, including for their own purposes such as the development of robo-advice or define specific portfolios. Hence a core component of the investor products hub would consist in enabling professional and regulated investment stakeholders to access the database.

4.4 Additional function: the list of distributors

It very important to note that the investor products hub must in no case endorse nor discriminate any distributors which are professional and regulated third party actors and that, by accessing any of the distributors appearing, the potential investors must be explicitly warned that they will be leaving the remit of the core functions of the hub. Some of these ideas are presented in Annex C.

This functionality has been explicitly requested by DG FISMA and would consist in enabling users to access a function providing a list of distributors (e.g. investment platforms, robo-advisors, physical distributors such as banks) that could supply the different products appearing in the search.

We do not recommend to make this feature, and hence the maintenance of all distributors for each investment product available in the data base, mandatory as this would be very challenging to maintain. In fact, product distributors can fluctuate on a daily basis for each investment product making timely and accurate maintenance very difficult (e.g. new distributor added, existing distributor removed). Appointing a product distributor is in most cases a consequence of a contractual agreement between a manufacturer and a distributor to which specific terms and conditions not subject to public disclosure are attached. In addition, explicit linking to distributors from an EU Commission or any other public entity website, according to article 4 of MIFID and article 2 of IDD “definitions”, might be considered as investment advice or at least advertisement under these regulations rules, which is not the remit of a regulator, as not all distributors will be present. This regulatory concern is even more critical if execution of an investment could be in any case derived from a search list output of the investor products hub. As a conclusion on this point, the access to distributors should be presented in a neutral manner out of the core function so as not to potential liabilities. Distributors and manufacturers of retail investment products should be able to only accept to provide data concerning product distribution on a voluntary basis.

4.5 Other attention points

Since the investor products hub would take the form of a website, all the issues which might arise when creating a new web page should be carefully considered. An indicative list is provided below.

- "Browser compatibility" – compatibility would affect the way in which the investor products hub works in different browsers. Checking websites' compatibility focuses on making websites compatible across a range of browser platforms. In order to ensure that a given website is compatible across different browsers, testing is key. Hence, to ensure that the investor products hub is compatible with different platforms, it should be smoothly operated on different browsers, operating systems and monitor resolutions among others. Moreover, it would be advisable to avoid trying to make the website compatible with all existing browsers. It would be preferable to first focus on the most popular browsers.
- Usability – technical issues as well as limited possibility to use the website's features (bookmarking not possible, printing problems, disabled back buttons, emailing of link not possible etc.) could compromise the usability of the website.
- Security – ensuring security of such a tool would be crucial. The website and in particular the database would need to be adequately protected from cyberattacks, above all considering that it would contain users' sensitive data.
- The investor products hub should be accessible to vulnerable investors. When designing it, technical features should enable visually impaired or other disadvantaged segments to use the website, in line with the WCAG standards (web content accessibility guidelines). Integrating technologies such as digital assistants (e.g. Siri, Amazon Alexa) could make the content more accessible. If the investor products hub targets retail investors who have limited access to internet, it is important to ensure that material can be printed or sent in a paper format upon request (BEUC, 2012).
- The website, or user interface, should as well foresee some explanatory notes about the different parameters, among which explanations on how to read and use the performance ratios and the relevance of the other parameters.
- Lastly, users should be allowed to switch from an EU level interface to a local one. Hence, the investor products hub should provide an interface for each national market, reflecting local specificities (investment products' availability, taxation, regulation, language, etc…).

Section V: High level architecture of the Investor products hub and data management

5. High level architecture of the hub and data management

5.1 Introduction, scope of products and data characteristics

As described earlier in this document, different types of online tools around investment products are available on the market. Despite the fact that none of these solutions covers the entire landscape of retail investment products, this proliferation of online solutions may also cause data issues, for example data duplication or inconsistencies among different sources. In our envisaged solution, the investor hub, the database should be a centralised, single source of truth for key information on investment products across the EU member states. Consequently, there are a number of critical capabilities and requirements that need to be fulfilled:

- Accurate and complete data – a critical requirement is to have reliable data, as there can be legal ramifications for errors and omissions as well as technical complications for low quality data. This necessitates rigorous and disciplined governance of data additions and updates data cleansing and data quality are of utmost importance to preserve credibility and avoid legal risks;
- Transparency and auditability – the provenance and traceability of history data is important for supporting trust in the data as well as the correct functioning of the envisioned analytical tools;
- High accessibility and availability – as the data hub is to be accessible to private individuals as well as service providers across Europe, it needs to be available and accessible beyond regular business hours;
- Distributed data collection – the ability to distribute the process of data collection as the information is sourced from various local authorities and local industry participants, and there already exist processes and mechanisms in place at those levels.

Concerning the products to be included in the database, all products having information documents detailing their characteristics could be included in the database of investment products. However, since not all products are mature enough (in terms of availability of information to the public), we suggest to prioritise products to be included in the database in the order displayed below and exclude non-KID (PRIIPS or UCITS) products:

(1) Investment funds (e.g. UCITS /AIF); hence funds under EU 20091/65 and EU 2011/61 or ELTIF EU/2015/760, EU VCAV EU/2013/345 and EU SEF 2013/346,

(2) unit linked life insurance; products under Insurance distribution directive EU/2016/97,

(3) structured products or notes and certificates; products under the prospectus regulation EU/2017/1129,

(4) defined contribution pension products (PEPP as wells as private pension products offered in specific countries) EU 2019/1238.

For the purpose of this study, the categories of products can be grouped into two broad categories:

- the direct investments, these are instruments that the potential investor can buy or sell without intermediary structure, typically a fund can be bought by an investor directly from a provider, be it the fund manager, a bank or a MIFID firm; what will be offered is the product and only the product. From the categories above we have 1 and 3 types of product; and
- the indirect instruments, these are instruments that are accessible only after a contract has been signed in the form of a wrapper, typically this is the case of insurance of pension products. A contract, the insurance, offers the possibility to buy from a list of underlying eligible instruments (unit-linked).

Short term, the categories of indirect products are the less suited for the project, notably due to their dual layer structure composed of a container and content. It is technically doable and will fit into the project, but will add a level of complexity that might require to plan a second phase of deployment. In the end, the latest regulation (PEPP) is currently not fully applied yet and the performance indicators might not be suited to the two layered approach of these products, unless they are based on a constant rate (i.e. not unit linked).

The scope of products will then concentrate on UCITS, AIFs and Structured products that are under the PRIIPS regulation (as applicable from 2022).

Other desirable capabilities of the investor products hub for consideration include:

- Distributed administration – the ability to have the administration distributed, an approach most likely more resilient than a central administration, but also to maintain the disciplined governance to enforce standards, protect the integrity of the system and protect against behaviours of moral hazard.
- Querying – the ability to aggregate and provide basic data querying is desirable as it enhances the quality of data reporting and reduces the complexity required of applications using the data repository

5.1.2 Data Characteristics

In reference to the section in this document covering product in scope of the hub, we have recommended that in a first step, the investor hub should only have UCITS and AIF retail investment products in scope. This finding is also in line with the different ESA initiatives launched around challenges in product features and data alignment and the recommendation of the EU Commission to use as much as possible data on performance, risk and cost features of products deriving from disclosures and reporting already required by Union or national law.

As a consequence, we have taken the assumption that the database should leverage as much as possible the data available in the pre-contractual documents subject to EMT files (as regulated by MiFID II) and EPT files (as regulated by PRIIPs, currently under revision).

As a further assumption, the revision of PRIIPs regulation targeted for January 2022 will also create a harmonised environment for pre-contractual documentation of UCITS by aligning UCITS disclosure requirements in the KIID document with PRIIPs KID requirements.

At present time, information contained in UCITS and PRIIPS KID (EMT/EPT) might be the most pragmatic to start the building of the database, especially considered the reduced scope of products in the first version. It is although highly recommended to follow the evolution of ESA's current initiatives on performance and cost disclosure for Structured Investment, Insurance and Pension products, before reinforced convergence between products can bring added value to investors. Given the nature of the products available for retail investors and their heterogeneous features in terms of cost, risk and performance, achieving a fully effective data base might torn out not to be feasible at all.

The table below shows the information that the database could contain as of the first version of the hub. Some information is already available now, other data will instead be available after the revision of PRIIPs. Ideally, the PRIIPs content should, after the finalisation of the ESA's consultation on product features and disclosure, contain all required data. It is also important to note that the non-mandatory LEI of distributors is currently not available in the PRIIPS/KID documents.

5.1.3 Availability requirement

For the database and web interface to function, information should be available electronically. Today most PRIIPS/UCITS KIDs are already available in electronic form through various sources (e.g. manufacturer website). The broadly used EMT (regulated by MiFID 2) & EPT (regulated by PRIIPS as currently reviewed) templates contain already today valuable product feature information in a convenient format for use in a database.

As a consequence of this approach, products that are not providing digital data files will not be included in the database.

As of now, the information available in the UCITS KID and EPT template is already accessible via private facilities and on issuers demand. In order to further facilitate data access by the database, it should be envisaged to submit or notify the EPT of the product and its updates to the NCA that will in turn relay the information to the EU investor products hub. Most of the data fields required do exist today and the ones currently not available are already largely used by financial intermediaries. Furthermore, there are examples of similar databases both in the context of MIFID and IDD reporting and this is the approach retained by the ECB in its own database.

In addition, this information exists electronically for most of the products and via the industry standards called EPT and EMT (please refer to Annex D for EPT and EMT template).

Table 11: Data elements

Data Element	Description of the data element	Expected type of value (numeric/alpha-numeric/descriptive text/other)	How to calculate the value	Type of data (Available/To be computed)	Main Source	Available in PRIIPs KID?
Descriptive information						
Type of product	Descriptive data field clarifying the nature and objective of the financial instrument	Descriptive text	N/A	Available	EMT	YES
ISIN or reference number	An International Securities Identification Number (ISIN) is a code that uniquely identifies a specific securities issue. Currently, an ISIN identifier is used to number most forms of securities, including but not limited to equity shares, units, depositary receipts; debt instruments (including bonds, stripped coupons and principal amounts), T-bills, rights, warrants; derivatives; commodities and currencies	12 characters, alpha-numeric, containing the following: two letter country code; a nine-character, alpha-numeric national security identifier; a single check digit	Offering Memorandum, Information Memorandum, Prospectus, Private Placement Memorandum, Loan Agreement, Credit Agreement, S-1 Statement or Registration Statement, IPO Document, Term Sheet, or other relevant offering document.	Available	EMT	YES
Alternative reference number	To be allocated to products that do not have an ISIN code, namely the numbering should follow a similar approach to the ISIN numbering, but should be attached to the KID PRIIPS document	12 characters, alpha-numeric, containing the following: two letter country code; a nine-character, alpha-numeric national security identifier; a single check digit	Offering Memorandum, Information Memorandum, Prospectus, Private Placement Memorandum, Loan Agreement, Credit Agreement, S-1 Statement or Registration Statement, IPO Document, Term Sheet, or other relevant offering document.	Not yet available	EMT (tbc)	TBC
Issuer name and LEI	The Legal Entity Identifier (LEI) is a 20-character, alpha-numeric code based on the ISO 17442 standard developed by the International Organization for Standardization (ISO). Any legal entity involved in financial transactions can apply for an LEI. The publicly available LEI data pool can be regarded as a global directory, which greatly enhances transparency in the global marketplace.	20 characters: characters 1-4: Prefix used to ensure the uniqueness among codes from LEI issuers (Local Operating Units or LOUs); characters 5-18: **issuer-specific** part of the code generated and assigned by LOUs; characters 19-20: Two check digits as described in the ISO 17442 standard	The ISO 17442 standard specifies the minimum reference data, which must be supplied for each LEI: ▪ The official name of the legal entity as recorded in the official registers. ▪ The registered address of that legal entity. ▪ The country of formation. ▪ The codes for the representation of names of countries and their subdivisions. ▪ The date of the first LEI assignment; the date of last update of the LEI information; and the date of expiry, if applicable	Available	Not present, but available at LEI numbering agent	NO
Distributor name and LEI	The Legal Entity Identifier (LEI) is a 20-character, alpha-numeric code based on the ISO 17442 standard developed by the International Organization for Standardization (ISO). Any legal entity involved in financial transactions can apply for an LEI. The publicly available LEI data pool can be regarded as a global directory, which greatly enhances transparency in the global marketplace.	20 characters: characters 1-4: Prefix used to ensure the uniqueness among codes; characters 5-18: **distributor-specific** part of the code generated and assigned by LOUs. As required by ISO 17442; characters 19-20: Two check digits as described in the ISO 17442 standard	The ISO 17442 standard specifies the minimum reference data, which must be supplied for each LEI: ▪ The official name of the legal entity as recorded in the official registers. ▪ The registered address of that legal entity. ▪ The country of formation. ▪ The codes for the representation of names of countries and their subdivisions. ▪ The date of the first LEI assignment; the date of last update of the LEI information; and the date of expiry, if applicable	Available	Not present, but available at LEI numbering agent Must be submitted by distributors after due diligence	NO

Data Element	Description of the data element	Expected type of value (numeric/alpha-numeric/descriptive text/other)	How to calculate the value	Type of data (Available/To be computed)	Main Source	Available in PRIIPs KID?
ESG factors	[placeholder: the regulatory ESG disclosures are still be drafted. However, it should be foreseen to store such data elements in the database]	Descriptive text	Based on the future taxonomy of ESG criteria	Not yet available	tbd	tbd
Description of underlying investment or strategy	Set of rules and procedures defining how the fund is managed (based on goals, risk tolerance, future needs for capital and so on)	Descriptive text	N/A	Available	EPT	YES
Description of guarantee	Guaranteed investment is a type of investment product that offers its client assurance to recover the amount they invested (or different pre-agreed amount) at the end of the life of the product. This could be associated to invest in funds, notes, certificates or structured product. The form of the guarantee might take different form, from zero coupon bonds to outright insurance. A credit risk might be associated to the guarantee, either on the manager of the products and/or the instrument that offers the guarantee (bond, bond issuer)	Descriptive text	N/A	Available (only required in the PRIIPs KID)	EPT	YES
Distribution of cash	Describes if this financial instrument distribute Income in the form of cash to the investor	Boolean (Y/N)	N/A (data point extracted from the EMT)	Available	EMT	YES
Target market						
Recommended Holding Period	Minimum recommending holding period: RHP in years or Very Short Term (<1Y)or Short term (>=1Y) or Medium term (>=3Y) or Long term (>5Y) or Hold To Maturity	List of string values (EMT) Numeric (EPT)	N/A (data point extracted from the EMT/EPT)	Available	EMT/EMT	YES
May_Be_Terminated_Early	Only for structured products	Boolean	N/A (data point extracted from the EMT)	Available	EMT	YES
Target Investor type	Retail or Professional or Eligible Counterparty	List of string values	N/A (data point extracted from the EMT)	Available	EMT	NO
Financial education	Knowledge level of the investor	List of string values	N/A (data point extracted from the EMT)	Available	EMT	NO
Ability to bear losses	Compatible with clients who can not bear capital loss	List of string values (Y/N/Neutral)	N/A (data point extracted from the EMT)	Available	EMT	NO
Risk Tolerance	PRIIPS Risk level	1 to 7	N/A (SRI extracted from the EPT)	Available	EMT	NO
Return Profile	Returned profile of the product sought by the investor (preservation, capital growth, income)	List of string values	N/A (data point extracted from the EMT)	Available	EMT	NO
ESG factors	ESG criteria	Tbd	tbd	Not yet available	EMT Tbd	tbd
Costs*						

Data Element	Description of the data element	Expected type of value (numeric/alpha-numeric/descriptive text/other)	How to calculate the value	Type of data (Available/To be computed)	Main Source	Available in PRIIPs KID?
Total impact of costs on return	Total cumulated costs over the period. The % value is annualized (i.e. the entry fee will be diluted over the year (i.e. reducing the yearly RiY year after year))	Numeric	N/A (data point extracted from the EPT)	Available	EPT	YES
Entry costs	The entry costs relate to commission or sales charge applied at the time of the initial purchase of an investment. The term most often applies to mutual fund investments, but may also apply to insurance policies or annuities. The front-end load is deducted from the initial deposit or purchase and, as a result, lowers the amount of money actually going into the investment product	Numeric	N/A (data point extracted from the EPT)	Available	EPT	YES
Exit fee	An exit fee is a fee charged to investors when exiting a fund. An investor may have to pay a redemption fee along with any back-end sales loads associated with their share class.	Numeric	N/A (data point extracted from the EPT)	Available	EPT	YES
Transaction cost	It represents the cost incurred for transactions in the product as a % of the NAV	Numeric	N/A (data point extracted from the EPT)	Available	EPT	YES
Other ongoing costs	Expenses incurred to administer the fund. The most relevant component of operating expenses is the fee paid to a fund's investment manager or advisor. Other costs include recordkeeping, custodial services, taxes, legal expenses, and accounting and auditing fees.	Numeric	N/A (data point extracted from the EPT)	Available	EPT	YES
Performance fee	A performance fee is a payment made to an investment manager for generating positive returns	Numeric	N/A (data point extracted from the EPT)	Available	EPT	YES
Carried interests	Carried interest is a share of any profits that the general partners of private equity and hedge funds receive as compensation regardless of whether they contribute any initial funds.	Numeric	N/A (data point extracted from the EPT)	Available	EPT	YES
Geography						
Available for sale - list of countries	List of countries where the investment product can be marketed to retail investors.	List of string values	N/A	Available (might need to be retrieved from other databases)	To be retrieved from asset managers or NCA	NO

Data Element	Description of the data element	Expected type of value (numeric/alpha-numeric/descriptive text/other)	How to calculate the value	Type of data (Available/To be computed)	Main Source	Available in PRIIPs KID?
Domicile	Data field stating where the fund is domiciled. The domicile can be chosen by the issuer based on regulatory or taxation considerations	List of string values	To be deducted from ISIN code.	Available	EPT/EMT	NO
Performance						
Performance indicators	Forward-looking performance indicators as per PRIIPS (based on up to 5 years historical data), considering 4 scenarios reflecting different market conditions, no benchmark disclosure, calculated based on Cornish-Fisher VaR expansion of 4th order	Numeric	N/A (data point extracted from the EPT)	Available	EPT	YES
Risk indicator	Risk indicators reflect the SRI (as defined in PRIIPs). The SRI indicator is computed differently based on the type of investment product	Numeric (1-7)	The PRIIPs product is assigned to one out of four categories. Based on the category, the market risk si calculated with a different methodology. The credit risk instead is assessed based on the creditworthiness of the underlying assets, weighted based on the percentage of the total assets they represent. Based on these two indicators, the SRI is assigned	Available	EPT	YES
Additional information						
Link to the KIID/KID	Clicking on this function the retail investor can access complete information on the product in question, visualising the respective informative document	Other	N/A	Available	EPT	YES

Table 12: Information to be displayed to potential investors in the investment products' database – searchable criteria

Data element	Information Must have / Nice to have	Display priority (if short version)	Description of information	DB function Search?
Descriptive information				
Type of product	Must have	X	Present the nature of the products (UCITS, AIFs PEPP…)	SEARCH
ISIN or reference number	Must have	X	Displays ISIN Number	SEARCH
Alternative reference number	Must have		Display alternative number to ISIN	SEARCH
Product name	Must have	X	Name of the financial instrument	SEARCH
Product currency	Must have	X	Denomination currency of the financial instrument	SEARCH
LEI issuer	Must have		Provides Product manager LEI	SEARCH
Issuer name	Nice to have	X	Gives product manager name	SEARCH
Description of underlying investment or strategy	Must have (if applicable)	X	Explains the strategy pursued, or investment objectives, i.e. invest in EU small capitalisation equities	SEARCH
Description of guarantee	Must have		Presents the guarantee the product might offer (reimbursement)	Filter & sort
Distribution of cash	Must have		Does this financial instrument have a performance fee feature?	SEARCH
LEI distributors per products	Nice to have		Provides lists of distributors LEI, consider multiple numbers	Filter & sort
Distributors list	Nice to have		Provides distributors' name per products, consider multiple names	Filter & sort
Target market				
Recommended Holding Period	Must have	X	This refers to the product's recommended holding period in years.	SEARCH
May_Be_Terminated_Early	(only for structured products)		Only for structured products	SEARCH
Target Investor type	Must have	X	List of target investor types (Retail, Professional)	SEARCH
Financial education	Must have		Basic, informed, advanced, expert	SEARCH
Ability to bear losses	Must have		To identify product that should not be sold to investors that cannot bear losses	SEARCH
Risk Tolerance	Must have	X	Level of risks (as per PRIIPs)	SEARCH
Return Profile	Must have	X	Objective: preservation, capital growth, income	SEARCH
ESG factors	[placeholder after regulatory taxonomy definition]	X	tbc	tbc
Costs				
Total impact of costs on return	Must have	X	Presents the total cost in % at different points in time	Filter & sort
Entry costs	Nice to have		Present the entry fee, could be a range	Filter & sort

Data element	Information Must have / Nice to have	Display priority (if short version)	Description of information	DB function Search?
Exit fee	Nice to have		Presents the exit fee, could be a range	Filter & sort
Transaction costs	Nice to have		total cost of transactions for the product expressed in % of Assets under management	Filter & sort
Other ongoing costs	Nice to have		Presents other recurrent costs , incl. the management fee of the product	Filter & sort
Performance fee	Nice to have		Presents the figures in % of performance fee that could be taken	Filter & sort
Carried interests	Nice to have		Presents the figures in % of carried interest that could be taken	Filter & sort
Geography				
Available for sale - list of countries	Must have	X	Defines in which Member States a product is available, could be multiple MS	SEARCH
Domicile	Nice to have		Defines the licence country of the product (home Member State)	Filter & sort
Performance				
Performance indicators	Must have	X	Presents the (future) performance scenario's as per PRIIPs KIDs	Filter & sort
Additional information				
Link to the KIID/KID	Must have	X	Offer a link to the KID/PRIIPS either to the manager website or place where it is posted	N/A

The table (Table 12) above should be read with the following perspective according to its intended use:

After having accessed the Investor Product Hub, the investor is invited to enter its search criteria (based on the list of fields tagged "SEARCH" in table 8).

It should be noted that the proposed search criteria are exclusively based on the target market section as defined by MiFID II, they could similarly be applied in due time to IDD eligible products, they aim to reduce any risk of favouritism and to promote a neutrality vis-à-vis the key criteria to be used. Hence, no search criteria was proposed in relation to performance or costs to avoid inducing investors to make product selection on such a basis - such functionalities should be managed by third parties (such as distributors) but not offered by a public service.

As an illustration, such search should enable the investor to get the list of financial products: "available to retail, basic investors, marketed in a given Member State, with a product containing "emerging markets", denominated in EUR". To avoid any bias, search results shall be displayed randomly.

Once the visitor has validated the search, the investor product hub shall return the list of products matching the selected criteria. The investor should be given the possibility of refining its search by filtering or sorting each data element pertaining

to the resulting search list. For instance, the investor could, from the list of search results, further adjust the selection by selecting product with a certain minimum performance after 1 year (e.g. > 5%) or by increasing value of total costs.

Note that:

- Column 2 ("Information Must have / Nice to have") of table 9 prioritises information: "must have information" is considered more essential to allow potential investors to understand the products concerned; "nice to have" means that the information is less of a priority to the help understand a product.
- The third column ("Display Priority") of table 9 prioritises display of data elements and limits the potential confusion by presenting too many information, at least this should be the view by default. Potential investors might "zoom in" for more detailed information and expand the scope proposed to them by default.

Additional challenges regarding data

This part evidences the different challenges linked to the creation and management of the database, among which the how to maintain a high degree of data quality from production to usage in day-to-day management.

- Data quality and governance

Creating a governance to verify the quality of data will be key when running such a database. It should be ensured that the data provided by product manufacturers and by local authorities is accurate.

Furthermore, as some funds have distribution in multiple jurisdictions, multiple local authorities may submit duplicate information. There is a need for controls and mechanisms to detect duplicates (potentially via identifiers such as ISIN) and resolve contradictions in the data (e.g. contradictions could be identified based on relevant differences with respect to the data previously collected for the same product). The check of the data could be realised during the night and the clean data could be displayed to retail investors and professionals during the day, to ensure that the database can run smoothly during peak hours. Ensuring high data quality is essential to the success of the tool as well as to prevent legal risks to arise.

- Format of data

Although an open format for funds information interchange can be used, as the specifications evolve, the database should also keep abreast of the changes. As mentioned in the "Stakeholders involved" section, in order to agree on the template, working groups with data providers, organised since the first phases of development of such a database, will be useful.

- The case of product host member state data availability

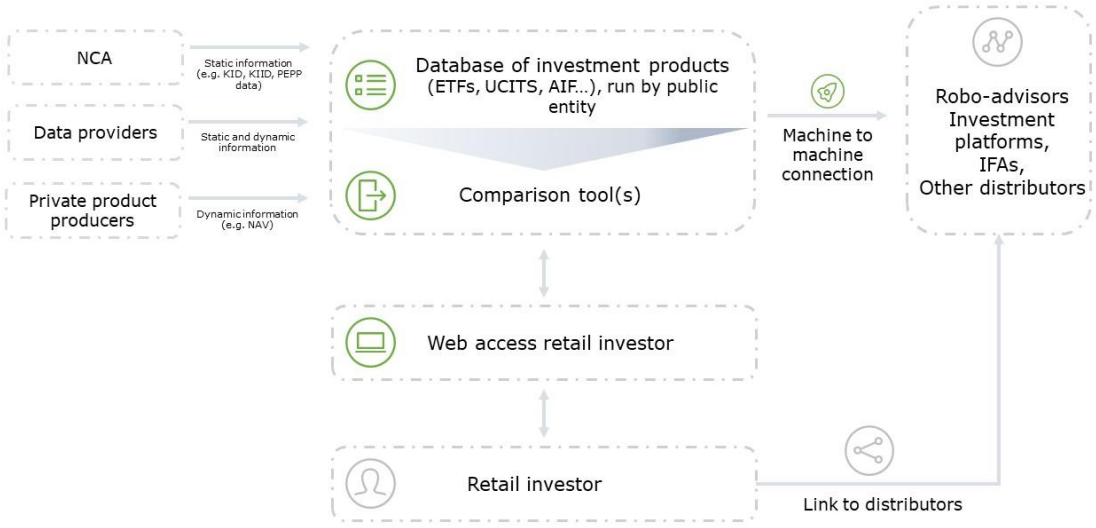
Today, the data about the member state of distribution is not caught in the EPT nor in the PRIIPS regulation, but the host member state receives a notification from the home member state regarding the products available in its country. Hence, in order to limit the entities that will interact with the database and its feeding, the

notification to the database should be done by the host member state that has the information concerning which product is available or not in its jurisdiction.

5.2 Functional architecture

As a reminder, the functional architecture of the tool to be achieved is described in the diagram below.

Figure 8: Tool to be achieved



The databases of investment products will provide mainly a consolidation of EPT (PRIIPS) and EMT (MIFID) information for all products targeting retail investors. Beyond the provision of data, these databases could stimulate a wider service offering, beneficial to the end user, by providing access to other public or private financial institutions as well as other entities (e.g. universities) that would use the data. Data access free of charge would be conditional to certain requirements on completeness and transparency of data usage. As mentioned above, the database of investment products would be centrally managed and mainly fed by third parties through NCA.

Using the **investor products hub**, backed by the database of investment products, users will be able to search for products and compare their cost and performance.

The **"list of distributors"** offers non-comprehensive indications concerning which distributors can provide the listed products once they have enrolled on the investor products hub. The users leave the hub with a print-out/electronic document of the chosen products and the list of distributors.

Lastly, the **machine to machine connection** allows external stakeholders to feed tools (e.g. Robo-advisors,) by extracting it from the database of investment products.

Using the investor product hub, users will be able to identify investment products and select the products to be purchased. In order to avoid potential investors being submerged by information, as discussed under 4.3.1, the display output should offer the option to display only the first 10, 20, 50 or all results. The selection of underlying products, providers and distributors could be either randomised or based on decreasing asset size of underlying product whilst presented in alphabetical order.

5.2.1 Alternative technologies considered for the implementation of the functional architecture

The database of investment products, or data hub, is envisioned to be the foundational platform of investment product key information. On top of this platform, it is anticipated to have an ecosystem of tools and services that would facilitate information and insights to the retail investor.

- Ability to aggregate structured data from a variety of sources;
- Enforce data quality and integrity;
- Allow for ease of exploitation of data for analytic purposes;
- High availability and accessibility.

For the purposes of this discussion, 3 key technologies will be focused upon: (1) Traditional Distributed Database, (2) Distributed Ledger Technology (DLT) and (3) Micro services and API-based Technology. Although other technologies such as event-driven data streaming[6] and data lake solutions[7] have some relevance in the domain, for this particular scenario they are not specifically suitable and will not be considered in further detail.

5.2.2 Traditional Distributed Database

Distributed databases are a mature technology that is the ubiquitous backbone for the majority of enterprise applications. In modern implementations, the database is physically distributed in multiple geographically dispersed locations, but from the point of view of programs and tools, it is a logically consistent whole.

Performance

Sophisticated implementation design allows for high performance for data update and retrieval. It also allows for advanced reporting and analytics. Data replication across physical instances reinforces the resiliency of the solution.

Metadata and supplemental data can be stored as well, to enhance the checking of authenticity of data, tamper-proofing of data and auditability of history. For

[6] Event driven data streaming technologies are interesting in their ability to speed up the dissemination of information updates and events. However, it pushes the responsibility of synchronization to the consumer applications and thus does not easily support consensus and shared views of the state of information (Kreps, 2014)

[7] Data lake solutions are oriented towards the support of large collections of unstructured data in support of deep analytics for the discovery of insights. However, it is not optimized for the efficient processing of structured data (Zweben, 2018)

example, logs and cryptographic hashes can be used to detect changes in data and track the provenance of changes.

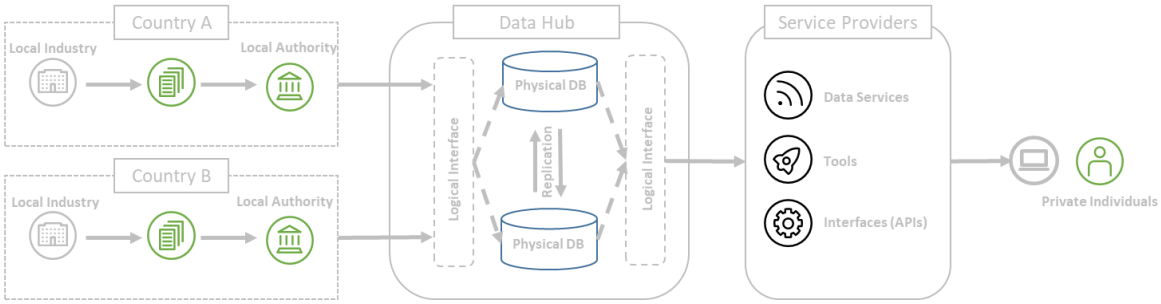
Security

Security and access control is centrally managed via the database management system. This allows for consistent oversight for access control, data quality control and maintenance. On the other hand, it also presents a potential single point of failure in terms of processes and malicious attacks.

Implementation Approach

In this illustrative implementation approach, the database is distributed across a number of physical locations. This is transparent to both the process of updating data as well as accessing the data. Data is optimized to be stored in the most appropriate location and replicated across the locations.

Figure 9: Traditional distributed database – Illustrative implementation approach



5.2.3 Distributed Ledger Technology (DLT)

Distributed Ledger Technology is an emerging technology that allows a large, decentralised network of participants to collectively share and update an immutable record of transactions or ledger. All participants have a synchronized copy of this shared ledger, which reinforces the resilience of the ledger and tamper proofing of the written data.

Performance

Performance-wise, DLT is not designed for fast updates. It is typically designed for the synchronization (consensus) of transactions across the network. Typical implementations do not store data in the ledger, but rather tracks only the records of changes or evidence of authenticity on the ledger.

Security

DLTs can be set up to be public or permissioned with a variety of degrees of participation depending on the technology platform (World Bank Group, 2017). For the data hub, a classification of different kinds of participants (or personas) can be appropriate to allow the assurance of the quality of the data and optimize the data access.

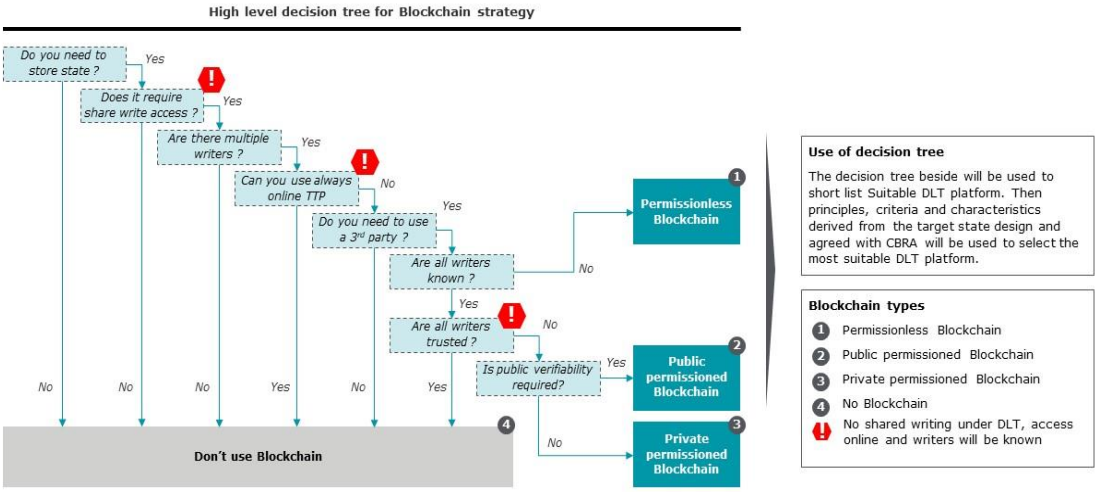
Implementation Approach

As DLT is a rapidly evolving technology, new innovative techniques and novel approaches continue to be developed. A select number of techniques are presented below.

DLT use at present time

The following diagram presents a high level overview of the situations where DLT technologies might be applied.

Figure 10: DLT decision tree



DLT technologies are at this stage and despite the merit they present not the most obvious option to retain du to the design foreseen for the retail investor product hub.

5.2.4 Micro services and API-based Technology

A micro service is a distributed, loosely coupled software service that carries out a small number of well-defined tasks. Each micro service will be accessed by the Service Provider tool through an API Gateway. Data will be collected on-demand (pull) by the tool directly from information providers, instead of the previous scenarios where data is pushed by the local authorities at a pre-defined frequency.

Performance

The update of data into the Service Provider tool is done upon request of the application, hence leading to a performance decrease as the number of information providers and update requests increase. Each request should trigger the update of data from all the information providers. Instead, it is possible to implement a caching database that will store the results of requests for a defined duration allowing the Service Provider tool to take the data from this caching database.

This architecture also ensures a better flexibility and reusability through the use of micro services.

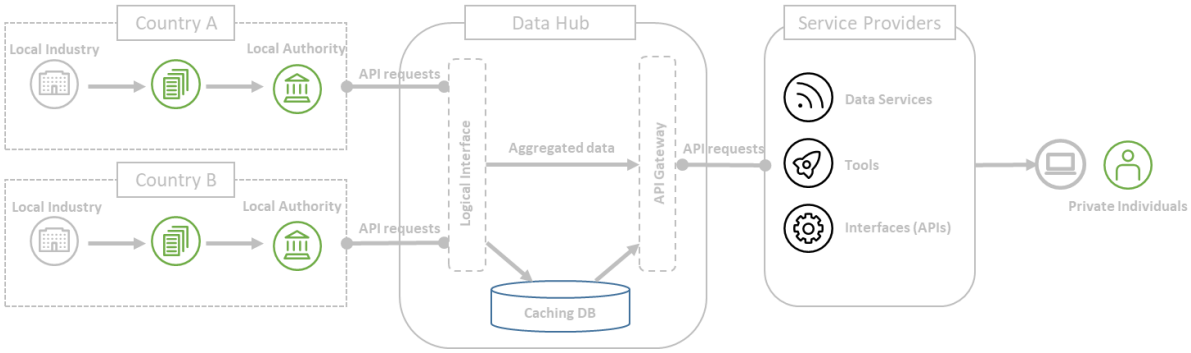
Security

Security, access control, integrity and confidentiality are decentralized and integrated to all micro services. In addition, an authorization portal with Strong Customer Authentication can be setup in order to expose services only to trusted counterparties. The micro service architecture is by design, highly resilient and strong against malicious attacks.

Implementation Approach

In this illustrative implementation approach, the data is requested by the Service Provider tool on-demand through APIs. The only database is used for caching purpose. This approach ensures that the information can be accessed through a standard interface (API) and up to date.

Figure 11: Micro services and API-based technology



5.2.2 Alternatives of database types for the investor products hub

The table below shows the advantaged and disadvantages of the different technologies considered.

Table 13: Advantages and disadvantages of considered technologies

	RELATIONAL DATABASE (SQL)	NON-RELATIONAL DATABASE (NOSQL)	DISTRIBUTED LEDGER DATABASE (BLOCKCHAIN)
PROS	▪Powerful query language ▪Optimised for large numbers of table rows ▪Can handle large numbers of transactions in a single query ▪Fast for searching and querying data ▪High availability and consistency of data	▪Flexible data models, can be changed on the fly without affecting existing data ▪Horizontally scalable, across multiple servers ▪Good at storing large datasets/objects ▪Fast for simple queries, from a single table/collection ▪High availability and partition tolerance	▪Decentralized and highly fault tolerant system ▪Immutability of data stored ▪Transparent and censorship resistant ▪Highly secure database using advanced cryptographic technologies
CONS	▪Predefined and inflexible data model ▪Can be difficult to convert data from Objects into database tables ▪Vertically scalable, can only run on one server ▪Lack of partition tolerance	▪Doesn't verify the referential integrity of data ▪Query languages are varied and often not very powerful ▪Slow for searching and complex queries across multiple/tables collection	▪Does not scale well when it comes to high volume transactions ▪Consume lot of space for storage and as they get bigger it slow them down ▪Interoperability as each blockchain is a very own ecosystem
IDEAL FOR	▪Data that need continuous updating ▪Fast online transaction processing ▪Confidential information ▪Financial data from the markets that require fast processing ▪Data that does not require verification ▪Standalone applications that store data		▪Monetary transactions ▪Transfer of value ▪Verification of trusted data ▪Voting systems

As presented in the table above DLT does not present a clear advantage for this particular purpose at this stage.

5.2.3 Infrastructure recommendations

Cloud technology would present strategic benefits: it would leave technology operations to a professional third party whose core activity is data storage and management. Since infrastructure is commoditized, it can be run securely, at various scale by third parties. Moreover, it would allow the database provider(s) to focus on the core business: align IT resources to directly support the business (e.g. application development, data analytics).

Cloud technology would also provide economic benefits. It enables to pay-as-you-go, pay-as-you-grow: cloud capacity is available on-demand and charged based on utilization/consumption, enabling scalability and flexibility. From an economic perspective, such technology also allows to shift from CapEx to OpEx, reducing large investments in fixed assets (i.e. hardware, facility).

Lastly, cloud technology presents architectural benefits. It is a simple and abstract environment available on-demand for development: cloud providers enable rapid spin-up of IT environments by offering self-service portals and dashboards.

5.2.4 Conclusion on architecture alternatives

The key value proposition is the creation of the centralised repository of high quality, freely available public data on investment products. This data hub can then foster the establishment of an ecosystem of services and tools to aid private individuals in their investment decision making.

Traditional distributed databases are a mature technology that, coupled with appropriate governance and procedures, can meet the necessary requirements for this data hub. The risk involved in implementing such a solution is lower as it is a well-understood technology with a significant history of best practices.

Micro services and API approach coupled with a more traditional caching database offers the possibility to build the data hub with state-of-the-art technologies and scalable architecture. It will also enable to implement each services independently from the other with low risk. In addition, this architecture allows to integrate new services over time easily without needing to re-design the system and leverage existing micro services to develop new applications.

This target architecture will also support seamlessly File based and Service based interfaces with information providers and will be ready to support future evolution towards a more service-oriented information exchange.

Given these features, this analysis shows that a database based on cloud technology would be the most effective solution, it is likely to be even more so if the solution is projected in 4 to 5 years when the database will become live. There is a compelling case for the view and building of the data hub with mature and widely known technologies such as micro services and APIs.

The paragraphs below will provide more details on the creation of "centralised repository of investment product information".

A last comment at this stage, the solution proposed above might have to be confirmed in the deployment phase to factor in potential technological evolution that might occur in the meantime.

5.3 Implementation of the selected solution

The section below will provide an overview of the architecture of the database of investment products, based on the below assumptions.

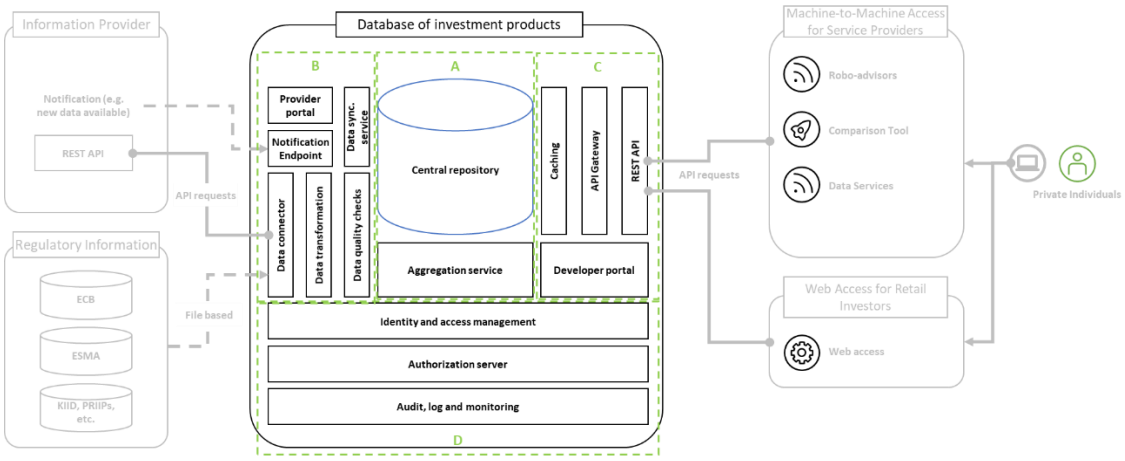
In order to describe the high-level architecture of this solution, several assumptions have been made regarding the infrastructure and technologies:

- use of a micro services architecture in order to increase flexibility;
- use of REST APIs and file-based protocols;
- use of a cloud infrastructure, public or private;
- use of a common data model and data dictionary to ensure a common standard across all stakeholders.

5.3.1 Overview of the architecture

As already mentioned in the assumptions above, the database of investment products will be based on a micro services architecture, leveraging REST APIs and file-based protocols to exchange data and information between the different parties as described in the diagram below.

Figure 12: Overview of the architecture of the database of investment products



This architecture of the database of investment products can be split into four macro components:

A. Core Database, to store the aggregated data coming from the information providers;

B. Information Providers Interfaces, collecting all providers and regulatory information and ensuring data quality;

C. Services Providers Interfaces, to connect with the investor products hubs web interface for retail investors and machine-to-machine interface;

D. Transversal Functionalities such as security, identity and access management, audit, log, monitoring, etc.

In the section below, the individual components will be described in detail. Communication protocols will ensure compatibility with current interfaces (file-based) and allow evolution to API. Communication templates should be defined as well as possibilities to check integrity of the communication between the core functionalities.

5.3.2 – Core Database

5.3.2.1 Main functional capabilities

The core database will contain all information from the EPT and the dynamic information about pricing and the data supplied by the product managers to the local NCAs who will supply information in XML format.

The data base should be able to receive information from the different suppliers and be accessible by professionals, following a due diligence process to validate their access in reading mode.

5.3.2.2 Main technical components

- Central repository

This is the central repository of the database of investment products. It will be used to store information and will consolidate all the EMT and EPT information collected. The refresh of information will be file based and triggered at defined interval and, in a future state, could be realised through services, at least for the more dynamic data (e.g. performance).

The central repository could be built on different technology, as described in section 5.2.1 before, depending on the final requirements.

- Aggregation Service

This service will be used to consolidate data and compute aggregated values.

5.3.3 – Information providers' interfaces

5.3.3.1 Main functional capabilities

Information providers, be they NCA or other data providers, will have to communicate with the central database operator via XML files to allow for testing and potential cleansing of data

5.3.3.2 Main technical components

- Provider portal

The Provider portal will offer the Information Providers the possibility to register their API to the Central repository, monitor notifications preferences and manage security and monitoring, in line with data fields to feed into the database.

- Notification Endpoint

The Notification Endpoint will offer the Information Providers the possibility to send notifications and alerts to the Financial Data Repository. This feature will be used to notify that data are updated, new data are available, etc. The notification endpoint will ensure future compatibility with API-based feeds, but is not necessary in the beginning with file-based interfaces.

- Data synchronization service

This service will manage the synchronization between new upcoming data from the Information Providers (both from API and file-based interfaces) and data already stored in the Central repository. It could be based on different technologies, potentially DLT.

- Data connector

A Data connector will manage the exchange of data between the Financial Data Repository and the Information Providers. This data connector will use both file-based and API-based protocols in order to ensure correct fit in the current technical landscape of providers (e.g. existing file-based protocols used to report information to ECB), and allow evolutions. A normalised data format will be used to transfer information and needs to be defined during the initial conception phase.

- Data transformation

This component will receive the data from the connectors, transform it and map it to the target data model in order to be stored and consolidated into the central repository.

- Data quality checks

Controls will be performed on data sent by Information Provider in order to ensure completeness, accuracy and consistency. Data failing to pass controls will be rejected and will not be automatically integrated in the Central Repository.

Controls could be technical (e.g. mandatory data, acceptable values, etc.) or business (consistency of information provided depending on product type and on market evolution).

5.3.4 – Services Providers Interfaces

5.3.4.1 Main functional capabilities

The interface should allow the user to search across the different products and field items, the search options should support: triggers or threshold search (i.e. return in percentage, investment horizon in years…) across all products in the database.

Then that interface should as well, allow services providers and third parties to enrol on the database as suppliers, or providers of financial services (robo-advice).

5.3.4.2 Main technical components

- REST API

REST (Representational state transfer) is a set of architectural constraints/principles to be used for creating an API. This API will use structured HTTP requests (GET, PUT, POST, DELETE) to retrieve data. It will be the main interface to communicate with Service Providers and Information Providers. The advantages of RESTful APIs is to benefits from its stateless characteristics, scalability and flexibility.

- API Gateway

The API Gateway is a server that will receive the API requests, enforce throttling and security policies and pass requests to the right back-end services. It will also pass the response back to the requester. A gateway can also provide other functionalities such as collecting analytics data, supporting authentication, audit compliance, etc.

- Developer portal

A Developer portal is dedicated for the users to freely try the API in a sandbox and provide them with documentation, tutorials, sample code, software development kits, API console, etc. It can be used by the Service Providers to develop new applications in the future based on the existing API/services

- Caching

Technical layer that aims at reducing the number of requests sent to the database. In case of multiple identical requests from the Service Providers, the response will come from this layer instead of the Central repository.

5.3.5 - Transversal functionalities

5.3.5.1 Main functional capabilities

The function that the database should support have to allow for searches across all items, financial, free text or alphanumeric. It should be possible to identify a single product, a range of products as proposes by a single issuer as well as perform searches on multiple criteria.

5.3.5.2 Main technical components

- Identity and access management

This component will manage all access policies and rights for the different users of the repository to ensure that they have the appropriate access to resources. Different profiles will be available to restrict functionalities and access to data.

- Authorization server

The Authorization server will generate the access and ID tokens for users. It will also offer to administrators the possibility to manage and configure the security policies attached to ID tokens.

- Audit, log and monitoring

This component will allow administrators to manage all activities attempted or performed on the Central investment products repository.

5.3.6 – Conclusion

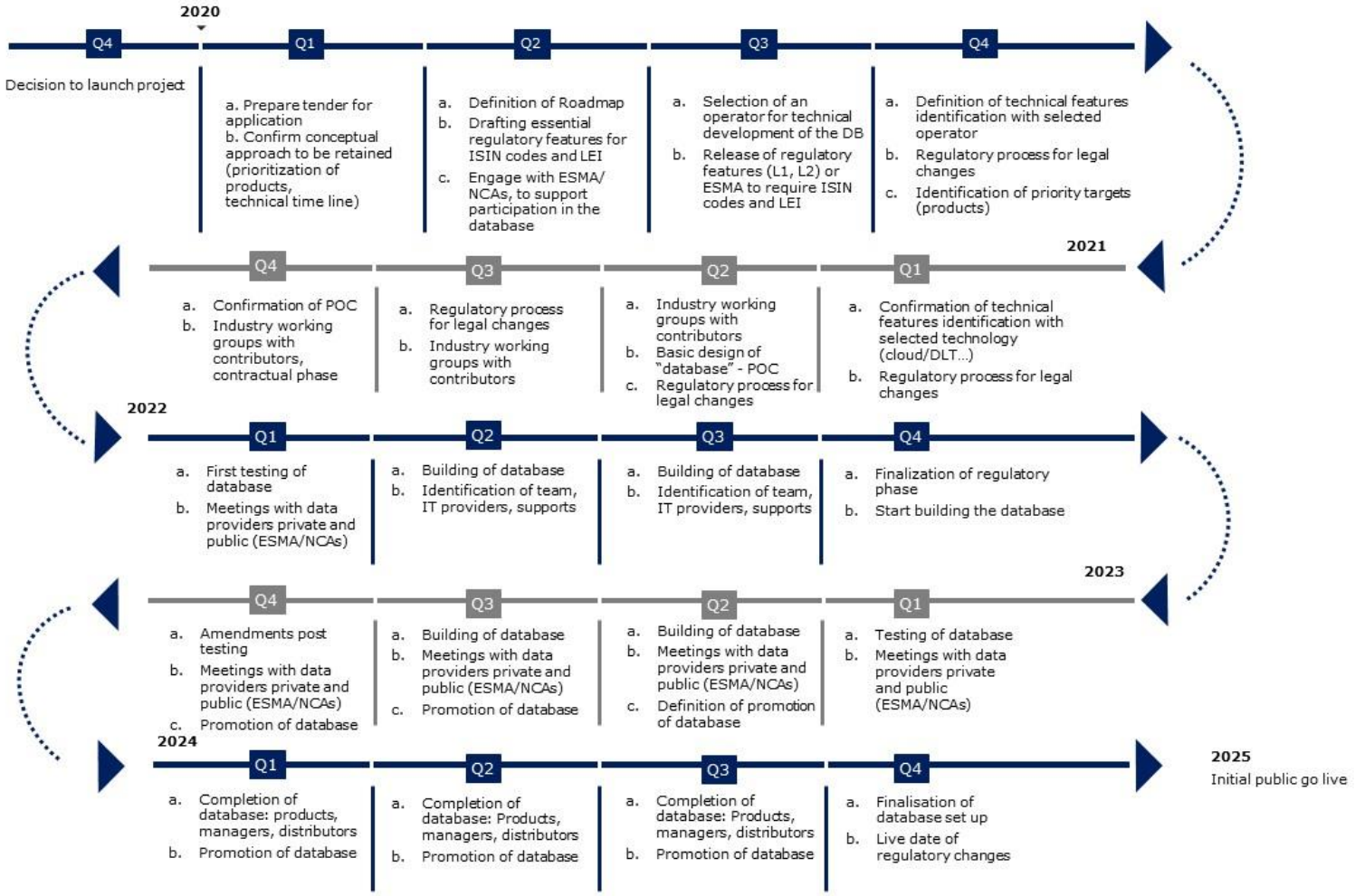
Given the time required for the design phase of the investor product hub and considering the fast moving progress of technology, testing the different options and components will have to be done at the moment of deployment to select the best options. As basic proxy example, if the 5G becomes available in a few years, the functioning, organisation and speed connectivity might be enhanced to accommodate this faster communication option.

Section VI: Implementation roadmap

6 Implementation roadmap

This section will provide an illustrative and indicative overview of the timeline to develop the envisioned project in an iterative process.

Figure 13: Illustrative Timeline (implementation of the tool and regulatory changes)



6.1 Regulatory timeline

The process to amend the required level 1 legislation is expected to take about two years plus potential implementation delay, notably if the option to rely on NCAs is retained. The process will be dependent on two factors: first scope of regulations to review and then the consensus that the proposal will gain. We have described the regulatory changes required in the next section of the document.

6.2 Technical time line

Overall, the implementation of such a project would require a considerable amount of time and resources as well as numerous iterations and adjustments between stakeholders in the development phase. For this reason, an incremental approach is recommended: the development should proceed in different phases. For each phase, the objectives and timeline should be defined and adapted versus the initial implementation plan. Based on the outcome of the development phase, the goals and timing for the subsequent development phase should be determined. It should also be considered that this solution is likely to be in constant evolution, given the rapid technical and market changes and the developments in the regulatory framework determining the documents to be disclosed by manufacturers.

At this stage, a 4-step approach should be followed for the development of this solution as defined below:

- Conception of the first version of the solution;
- Iterative reviews and upgrades of the solution involving all stakeholders (e.g. local authorities, local industry, European Commission);
- Validation and ratification of the solution to all member states;
- Implementation of the solution across all member states and providers.

In order to setup a meaningful solution, it is important to ensure the following main domains remain on the radar during all the 4 steps of the approach and to ensure all the requirements are fully covered:

- Technical and applicative architecture;
- Data model and data dictionary, in order to provide a data standard across all member states. It will be designed based on existing regulatory documents;
- Interfaces with Investor products hubs and Information Providers.

The paragraphs below will focus on the individual phases and describe them more in detail.

Finally, once the first version of the investor products hub is live, several updated versions could be envisaged, notably to incorporate additional technologies and micro services.

Conception of the first version of the solution

The current study is mainly addressing the conceptual creation of an investor products hub and aims to identify all the caveats and hypothesis required. In the

first step of the deployment of the proposed solution, a first conceptual version of the solution will be developed "on paper". The purpose of this phase will be to prepare and confirm the optimal design of the database, assess what are the most adequate technical solutions at the moment of development. This phase will also consist in creating a POC (proof of concept) with the aim to show potential sweet spots in the design and confirm potential difficulties. This phase will be able to test the design and architectures between suppliers of information at Member State level, the EU database and the access portals most likely locally managed (at least offering a local context). After the end of this phase which we estimate to at least 6 months, the main orientations as regards the data model, architecture and interfaces will be defined. After this phase, it will be necessary to initiate the discussions with all the required stakeholders in order to prepare the following phase, hence to test ideas proposed in this paper in real life at the moment of deployment.

Iterative review and upgrade of the solution

In this stage, all main stakeholders (e.g. local authorities, local industries, European Commission) are consulted through several series of workshops to validate, amend or discard the orientations defined in the first step. This is an important phase of the approach as it is during this stage that all stakeholders should provide their "support" to the solution and confirm the technical feasibility as well as potential development or requirement for support in the different Member States or ESAs. This phase is foreseen to last between 1 to 2 years. At this stage, the applicative architecture, technical architecture, data model and data dictionary as well as interfaces with information providers and investor products hub are fully defined and documented. Adequate time should be foreseen during this phase to ensure translation in all EU languages of the interface. For each domain (architecture, data and interface) a deliverable is established and will serve in the next phase to ratify the solution.

Validation and ratification of the solution

This phase aims at validating the solution defined in step 2 with all stakeholders and ratify the solution to all member states of the European Union. It is expected to be achieved in 3 to 6 months.

Implementation of the solution

Once the solution is validated and ratified, it has to be implemented across stakeholders in all member states, information providers and other involved stakeholders. The interfaces with Information Providers will be implemented as well as the data repository and interfaces with the investor products hub. The overall duration for the complete implementation of the solution across all member states is foreseen to be 3 to 5 or 6 years for the first stage. While these estimates provide an idea of the time required to build such a solution, it should be considered that issues arising in the development phase might delay the implementation process. It should also be taken into account that impediments arising on a local level when implementing the solution across Member States might slow down the entire process.

Time constraints could arise during the iterative review phase as well as during the implementation phase, given the different technological standards across member states.

6.3 Next steps

This final part of this report aims at identifying in a simple and straightforward manner the essential next steps to be taken after this study.

Table 14: Final to do list for the implementation of the solution

Who promotes / launches the action	Action	Other stakeholders involved	Timeline
DG FISMA	Prepare call for tender	N/A	No exact timeline can be foreseen, however it is expected that the call for tender will be launched 3 months after the decision to launch the project (Q1 2020), while the operator for the technical development of the database will be selected after approximatively 9 months from the decision to launch the project (Q3, 2020)
DG FISMA	Engage with ESMA/ NCAs, to support participation in the database	ESMA and NCAs	No exact timeline can be foreseen. The dialogue is however expected to start 6 months after the decision to launch the project (Q2, 2020)
DG FISMA	Drafting essential regulatory features for ISIN codes and LEI and EPT guidelines	N/A	No exact timeline can be foreseen, however the process to amend level 1 legislation would last at least two years plus potential implementation delay. The process to amend delegated legislations would be shorter (12 months plus implementation time). The process to draft essential regulatory features should start 6 months after the decision to launch the project (Q2, 2020)
DG FISMA	Release of regulatory features (L1, L2)	N/A	The final regulatory features should be released 3 months after the elaboration of the first draft (Q3, 2020).

Who promotes / launches the action	Action	Other stakeholders involved	Timeline
DG FISMA	Selection of the most suitable contractor	DG FISMA, selected contractor	As mentioned above, the operator for the technical development of the database will be selected after approximatively 9 months from the decision to launch the project (Q3, 2020)
Selected contractor & DG FISMA	Confirmation of technical features identification with selected technology (cloud/DLT…)	N/A	One year after the decision to launch the project (Q1, 2021)
Selected contractor	Conception of the first, basic POC of the solution	Selected contractor; interactive process with DG FISMA	Approximatively 1.5 years after decision to launch the project (Q2, 2021)
Selected contractor & DG FISMA	Industry working groups with contributors	Relevant stakeholders	Industry working groups are launched after the first definition of the POC and will continue until the POC is confirmed (2 years after the decision to launch the project, in Q4 2021)
Selected contractor & DG FISMA	First testing of the database	Relevant stakeholders (e.g. national competent authorities, retail investors, professionals, etc…)	This will happen two years after the decision to launch the project (Q1, 2022)
Selected contractor & DG FISMA	Building of the database and identification of stakeholders such as IT providers and support teams	Data providers (private and public), potential team members	The testing and building phase of the database is expected to start 2 years after the launch of the project and to last 2 years (from Q1 2022 to Q4 2023)
DG FISMA	Finalise regulatory amendments	N/A	The process to amend regulations is expected to be finalised 3 years after the launch of the project (in Q4, 2022)
DG FISMA & Selected contractor	Promotion of the database	All stakeholders involved (ESMA, NCAs, …)	The promotion is expected to start in parallel with the last steps of the testing and building phase, one year before the "go live" of the database (Q3, 2023).

6.4 Indicative project costs

The financial needs to establish such a central investment products repository can be split between the project costs (e.g. costs to design, build and implement the solution) and running costs (e.g. costs to run the solution on a cloud). These costs depend on the detailed architecture and design which will be defined in the first steps of in the proposed approach. Thus, the following is assumed:

- the solution will run on a public cloud provider;
- no SQL databases will be used;
- the provision of the infrastructure will be prepaid 3 years in advance.

Depending on the solution retained (cloud or internal) the cost of running will be the main driver.

The table below summarises the indicative cost for the scenario retained: creation of an investor products hub and a web-based interface for access and searches.

Table 15: Indicative costs incurred by public authorities

Indicative Project cost	
Core Database	2- 4 m EUR
Information Providers Interfaces	1 – 2,5m EUR
Service Providers Interfaces	1,5 – 2,5m EUR
Transversal Functionalities	1,5 – 2m EUR
User interface retail investor	0,3 – 0,5m EUR
User interface professional investor	0,1 -0,3m EUR
Investor products hub functionalities	0,1 -0,3m EUR
Investor products hub interfaces	0,1 -0,3m EUR
Total project cost	6,6-12.4m EUR
Indicative running cost	
Total yearly running costs	2,5 -3,5m EUR
-HR related running costs	2/3rd of costs (10 to 14

	FTE)
Of which: -coordination and support functions -IT profiles -Economists and database analysts (coherence, relevance of data)	 20% 40% 40%
-IT/technology related running costs	1/3rd

The next sections will describe the regulatory changes which should be considered to maximise the value added by the database of investment products to retail investors.

Section VII – Regulatory changes

7 Regulatory changes

This section addresses the regulatory changes that are necessary in order to implement the investor products hub. If in theory any regulatory change could be envisaged to facilitate the design of this investor products hub, the perspective retained is still to limit as much as possible regulatory changes. This would mitigate uncertainty whereas the outcome and in any case reduce the time before the implementation of the solution. Essentially, changes include a mandatory provision of data on investment products and alignment of mandatory information disclosure requirements to ensure all necessary data is available on a digital format in the industry-standard templates EMT and EPT.

To summarise, regulatory changes should aim to:

1. **Ensure that information disclosure requirements are aligned across products' categories and that KIDs are "machine" readable**, namely that the database could be accessed directly by other computers without human interface. This could be done by developing appropriate API relying on accepted communication protocol.

Comparability of products across different categories would request alignment of information disclosure requirements for UCITS and PRIIPS products. Independently of the fact that a revision of the KIID/PRIIPS and UCITS KID is under review, it is key that the content converges towards a single set of data, or a common template. Mandatory disclosure for PPPs should also be aligned with this approach. Comparability across products categories would consequently be achieved.

2. Mandate the incorporation of the ISIN Code in PRIIPS/KID (or equivalent numbering called alternative reference number).

Most of the information necessary in order to feed the database is present in informative documents, but needs to be extracted. However, some of the PRIIPS or PEPP products might not have an ISIN or identification code, which would considerably facilitate the tracking of products on the database. It is suggested that in the review process of PRIIPS this numbering is envisaged.

A numbering, ISIN or other, might be developed and required in the PRIIPS to identify each product. The advantages of that solution are: its relative ease of implantation and possibility to identify all products independently of their nature. However, it would require to develop a numbering procedure so that insurers could use it. Potentially, it also implies that local authorities will have to be notified of the KID PRIIPS to validate the numbers. Such a system has been put in place in a different context under derivative regulation with the concept of the UPI (unique product identifier).

That alternative reference number, might be composed according to an approach similar to the one retained for ISIN: basically, an alpha-numeric 12 figures reference built on country, unique product code (inspiration could be taken from IOSCO UPI, Unique Product Identifier paper from September 2017).

Require that authorities or managers of products and potential distributors in a broad sense communicate their LEI directly or indirectly to the database.

As LEI are already mandatory, the additional requirement would come via a third level guidance to require that the LEI is communicated to the database, notably by inclusion in the EPT template. The LEI would be required as well from distributors if they submit an application for distribution: with that information they could be identified and with the ISIN or alternative reference number the link between distributors and products could be achieved.

3. **Ensure that the EMT and EPT template are filled and submitted to the investor products hub**. That would allow the product hub to receive information in a manageable format and above all ensure that the performance indicator can be computed. Two options are available from that point, either the indicator forms part of a new version of the EMT/EPT document or it is computed by the investor products hub. The alternative is to ensure that data to be computed are present in the information submitted and the investor product hub computes and release data, but in that case, the responsibility of accuracy lies at that level.

7.1 Usage of information and data

After having implemented the database, the following rules should be applied on the usage of data from retail investors as well as professionals to ensure that the value added by this initiative would be maximised.

- Retail investors as well as professionals would be enabled to access the data hub free of charges;
- It would be forbidden for professionals accessing the database with the aim to develop other tools, to manipulate the data retrieved from the database, or to show products in misleading rankings in order to reflect a preference for certain products over others.

7.2 Regulatory updates to consider

a) MIFID & IDD

As the hub's aim is not to provide investment advice services subject to MIFID or IDD, no changes should be envisaged to carve out the investor products hub from the scope of the advice or recommendation requirements. The approach proposed in this document aims to limit this risk, which would otherwise mean that the EU Commission will create an unlevelled playing field with private stakeholders.

To secure the purely informative nature of the investor products hub, an exemption of application of MIFID (EU/065/2014) might be envisaged in the form of a new item under article 2 under letter 1.p. A similar exemption might be sought in IDD regulation (EU/2016/097) under a new article 1.3.d.

Furthermore, to increase the appetite of both product manufacturers and distributors contribution to the investor products hub, it should be envisage to exclude from article 4 the contribution to the tool, either in the form of supplying information or providing names so as to be excluded from the marketing and promotion rules, provided obviously that information is fair, clear and not misleading, as excepted under PRIIPS. The article envisaged could be article in

MIFID 24.3.1, that might exclude the submission of information from the scope definition of marketing, and article 17 under IDD (EU/2016/097).

The delegated act to MIFID II (EU/2017/565) might include in article 44 a ninth item to assimilate the contribution of names and coordinates of both manufacturers and distributors of products to the investor products hub as a non-marketing event. The purpose is to stimulate its use and participation, hence a need to ensure that information provided in the context is MIFID II neutral, it is not marketing, and it is not advice or recommendation.

These amendments would contribute to increase the legal certainty of the project whilst protecting the EU commission and professional stakeholders.

b) PRIIPS/KID

Regarding PRIIPS regulation, and assuming that the current convergence toward PRIIPS from UCITS KID will happen, the focus of the potential regulatory changes should be on:

- In the PRIIPS (EU/1286/2014) regulation Article 8.3.a should include a reference to the inclusion of ISIN, alternative reference number and LEI among the information on issuer and product;
- Article 1.a new of delegated regulation (EU/2017/653) should provide for the introduction of ISIN and LEI on the KID;
- A new article in the delegated regulation might added to define how to provide an alternative reference number to the ISIN, this can take the form of a mandate to ESMA.

The code should be attributed on the PRIIPS/KIID document to be notified to the local competent authority. Ideally the numbering should be provided by the institution in charge of the product.

If ESAs might have to agree on the numbering methodology proposed, as they did under EMIR regulation for UPI and UTI (unique product identifier and unique trade identifier), the numbering should be attributed by each provider of products when no ISIN is available at the moment of creation of the product. The number should be evidenced on the essential documents of the product concerned (i.e. contract and KID). A listing of the products should be maintained and available at the provider and in this context shared with either the supervisory authority or the investor products hub. The reference number could be constructed as follows:

XX YYYYYYWWWWWWZZ BBB AAA

- XX: country code
- YYYYYYWWWWWZZ: security specific code (alphanumeric/numbers)
- YYYYYY: manufacturer identifier or BIC

- WWWWWW: product code identifier (alphanumeric)
- ZZ: issue identifier (i.e. risk grade, based on SRRI)
- BBB: issuing entity location
- AAA: control code

A list of product codes might be prepared by the Commission relying on ESMA and EBA advices and shared across the industry, identifier will be for example:

- ISO Country letters, e.g. LU for Luxembourg, FR France according to licencing country;
- Acronym for products, e.g. "LF" life insurance, "PP" for pension product, "PE" for PEPP;
- A number for the risk grade/profile from 1 to 5;
- An alphanumeric for openness to underlying: OOO for full open choice, OFO open for funds.

PRIIPS should as well envisage two amendments to allow for electronic dissemination of KID/EPT to NCAs and feeding of member states of distribution. NCAs would have to relay or input information in the EU database. This could be done by amending article 15 of the PRIIPS regulation, adding a 15.3. item to provide NCAs with the relevant document in electronic format. Then via a level 3 measure (to coordinate the work among NCAs and the EU database), the process of relaying the information of the EPT should be presented, so that the information is submitted to the relevant NCA by the product manager and from that NCA to the investor products hub. The format of the file should be XML so that controls could be performed more easily. Regarding the second element, the distribution member states, the article 15.4 new could envisage to require local NCAs to feed on a daily basis the information about the products distributed in their jurisdiction, the information should be available via the UCITS, AIFs notification processes.

At the end of article 15, under 15.5 should be included a mandate for ESAs to develop or "validate" the current industry templates to transform them into a legally accepted template. The EPT templates are already used by the industry (and are subject to industry-supervisors exchanges via the Findatex platform). The current template and the ensuing ones should be endorsed or approved by the ESAs (level 3) so that information is standardised, available and easily shareable. Knowing that products can change and in order to be flexible vis-à-vis new trends the change in the legal approach might be to require the definition of a template and to achieve it via level 3 measures, so as to be able to update it as required.

For the long run and considering an evolution of the database, a further performance indicator might be considered to help sort products, on top of the current proposal that should be computed at the level of the investor products hub as discussed earlier in this document. If that route is pursued, an amendment to the PRIIPS delegated regulation (EU/2017/653), for example an article 1.c new, should require manufacturers of products to propose a performance indicator. That performance indicator should then be defined under ESAs guidelines either one indicator, or one per typology of products (e.g. Sharpe, Treynor, Sortino, Calmar),

it should be based on historical price to be meaningful and to avoid distortions stemming from projections.

Finally, to have the highest informative value in the EPT document, a reference benchmark, where available, should be included. KIDS/PRIIPS EPT should be updated with the same frequency, notably to cater for significant changes due to market conditions to the risk of presenting even for a few days inaccurate information.

7.3 Last remarks on data protection

The Regulation (EU) 2018/1725 on the protection of personal data for public entities should be considered when deciding how to deal with retail investor's data. In particular, it would be advisable not to store users' data on the tool, but rather to delete them on a daily basis, in order to avoid issues from a regulatory perspective. The introduction of a disclaimer about the potential use of data is a standard practice that should be considered here as well.

The most efficient way to limit the potential impact of The Regulation (EU) 2018/1725 on the protection of personal data for public entities will be to store as limited as possible investors' information and in any case to ensure deletion of all data. Additionally, as seen on most websites today, consent to sharing of information should be obtained as per Regulation (EU) 2018/1725 on the protection of personal data for public entities and use of cookies. On that front, it might be preferred to remain neutral vis-à-vis investors' data not to use such technology.

In the design of the user interface, it would be advisable to carefully assess the different items of the search list so as to have them as neutral as possible or to ensure that, where required, the platform meets the regulatory demands of MIFID, IDD, and PEPP at constant perimeter.

Section VIII – Conclusions

Conclusions

The tremendous technology developments in recent years enabled the creation of many solutions aiming to facilitate retail investors' journeys into the financial markets. As described in study, such tools include robo-advisors, investment platforms, digital investor products hubs, investment product calculators, social proxy investing and a number of additional online services. In addition, regulators have adopted new frameworks aiming at increasing retail investors' participation in EU capital markets.

However, it appears that EU citizen still face difficulties when to search, compare and select the investment products that best match their needs, be it a fund, structured product or life insurance.

This study proposes scenarios offering the better compromise between stakeholders' interests, costs of financing, with the least regulatory impacts and potential for liabilities. Based on dialogue with expert stakeholders, the most appropriate solution has been identified.

Investor products hub

Based on a cost benefit analysis of the proposed scenarios, **the industry public cooperation was identified as the most suitable alternative. In this scenario, public authorities would be responsible for developing a publicly backed database of investment products called investor products hub, a retail investor interface and access to professionals**. Private actors (e.g. retail investors and professionals) would be granted free access to this publicly backed database and would be allowed to use the dataset freely. This scenario allows public entities to support retail investors, foster innovation and at the same time maintain control on the market by defining conditions for the usage of the dataset.

After having determined the preferred scenario for the implementation of the database, technical aspects and alternative technologies for the creation of this investor products hub were discussed. Once the preferred technology (cloud technology) was chosen, the needed financial resources were estimated. The development of such a solution should ideally take maximum 5 years and the development cost should be approximatively 10m EUR, plus yearly running costs. The creation of such a database, will require a few regulatory changes to investment product disclosure regulation (PRIIPS) and the distribution directives MIFID and IDD.

The implementation of the hub of investment products as well as the suggested regulatory changes should substantially increase the comparability of investment products features by providing retail investor with a user-friendly, easy to access, free, reliable and centralised data set (with comparison features). This should in turn increase retail investors' confidence in financial products and trust in online solutions. And as for many other projects, like the ECB database and Finansportlen.no have shown, the proposed investor product hub shall be further improved and upgraded right after its "go-live" date as its user community shall grow and will provide valuable feedback thereupon.

Annex

Annex A – Contributors

Experts

A panel of experts was set and was consulted during the entire project on specific issues that aligned with their areas of expertise. The expert panel is composed of four experts with a diverse set of expertise:

- Dr. Jan Sebo is a researcher and associate professor of public finance, pension economics and pension finance at Matej Bel University in Banská Bystrica, Slovakia. During his academic career, he has cooperated with the Institute of Savings and Investment, a non-profit organization helping retail investors and savers to better manage their investments and retirement savings in DC (Defined Contribution) schemes. Since 2010, he holds the position of member at Financial Services User Group (FSUG), European Commission in Brussels.
- Christiane Hölz joined DSW (Deutsche Schutzvereinigung für Wertpapierbesitz, Germany's leading association for private investors) in 1999 and acts as managing director for the region North Rhine-Westphalia since 2011. At DSW, she is primarily responsible for (international) Corporate Governance issues, as well as for DSW's participation in legislative procedures regarding German and European regulation. Christiane is currently also member and Vice President of the EU Commission's FSUG (Financial Services User Group) which advises the Commission in the preparation of legislation or policy initiatives that affect the users of financial services.
- Prof. Michael Haliassos holds the Chair for Macroeconomics and Finance at Goethe University Frankfurt and is Founding Director of the CEPR (Centre for Economic Policy Research) Network on Household Finance, and Research Fellow of the Centre for Economic Policy Research and of NETSPAR (Network for Studies on Pensions Aging and Retirement). He has been advisor to the European Central Bank on the Household Finances and Consumption Survey since its inception in 2006; and is consultant to the ESMA (European Securities and Markets Authority) on Investor Protection. Prof. Haliassos is also involved in the "Think Forward" initiative led by Deloitte.
- Prof. Isabelle Riassetto holds a degree and a doctorate in law from the Robert Schuman University in Strasbourg. She has won several prizes, including the prize of the AEDBF (Association Européenne pour le Droit Bancaire et Financier) - France (1999) and that of PARIS BOURSE SA (1999). She has taught corporate law, banking law, financial market law (derivatives markets, financial instruments, and especially asset management law), as well as community law. Her main areas of research focus on the law of UCIs (Undertakings for Collective Investment) as well as socially responsible investing. She is the author of numerous publications in financial market law and more specifically in the field of UCIs. She currently works as a professor at the University of Luxembourg in the faculty of law, economics and finance.

Interviewees

Within this study, interviewed experts are: European and local public entities, FinTechs, database providers and comparison websites using semi structured interview questionnaires. The list below shows the stakeholders interviewed:

- Guillaume Prache, Managing Director at Better Finance
- Financial Services Officer at Bureau Européen des Unions de Consommateurs (BEUC)
- European Securities and Markets Authority (ESMA)
- President of Penelop, co-founder at Groupe HubSYS - Gestion & Patrimoine, Administrator of Association Nationale des Conseils Financiers
- Senior Regulatory Policy Advisor at European Fund and Asset Management Association (EFAMA)
- Head of Compliance at Raisin
- Head of the Conduct of Business department at Insurance Europe
- Head of the Personal Insurance department at Insurance Europe
- Senior Director of the Global Retail Investment Product Solutions Team of ING bank
- Regulatory Director at Finleap
- Responsible for the Norwegian finance portal Finansportalen
- Director at OPCVM360
- Director at Fund KIS
- Data relationship manager at Morningstar
- Head of Digital Policy at Banco Santander
- Head of Innovation and Creation at KBC
- Managing Director for Fidelity International
- Retail markets specialist at The Investment Association
- Secretary General of FEPI (European Pensions Institute) and member of the Advisory Committee of FECIF (Fédération Européenne des Conseils et Intermédiaires Financiers)
- Stakeholders from UK Financial Conduct Authority
- Stakeholders from Openfunds

Participants to the first workshop

Name	Institution
Jasper De Meyer	Financial Services Officer at BEUC (Bureau Européen des Unions de Consommateurs) and regularly in contact with other European Consumers Associations active on the field of investments
Nebojsa Sreckovic	President of Penelop, co founder at Groupe HubSYS - Gestion & Patrimoine, Administrator of Association Nationale des Conseils Financiers

Name	Institution
Andreas Stepnitzka	Senior Regulatory Policy Advisor at European Fund and Asset Management Association (EFAMA)
Marc Roberts	Head of Compliance at Raisin
William Vidonja	Head of the Conduct of Business department at Insurance Europe
Nicolas Jeanmart	Head of the Personal Insurance department at Insurance Europe
Hans Koning	Senior Director of the Global Retail Investment Product Solutions Team of ING
Jan Sebo	Professor at the University Matej Bel in Slovakia in public finance, pension economics and pension finance, member of Financial Services User Group (FSUG)
Michalis Haliassos	Professor and Chair of Macroeconomics and Finance at Goethe University Frankfurt
Christiane Holz	Managing Director at Deutsche Schutzvereinigung für Wertpapierbesitz e.V. (DSW) and member of Financial Services User Group (FSUG)
Isabelle Riassetto	Professor at the University of Luxembourg in the faculty of law, economics and finance
Guillaume Prache	Managing Director at Better Finance
Nils Mc Grath	Senior Manager at Deloitte Belgium, leading the government and public services team and leader of Digital Services
Simon Ramos	Partner at Deloitte Luxembourg, leading the Investment Management Industry in Advisory and Consulting and Deloitte Regulatory Strategy practice
Benoit Sauvage	Project team, Director at Deloitte Luxembourg, leading the regulatory watch solution within the firm
Carlo Duprel	Project team, Director at Deloitte Luxembourg, leading the policy team and FinTech leader within the firm
Imran Tas	Project team, Deloitte Luxembourg
Camilla Dimitri	Project team, Deloitte Luxembourg

Participants to the second workshop

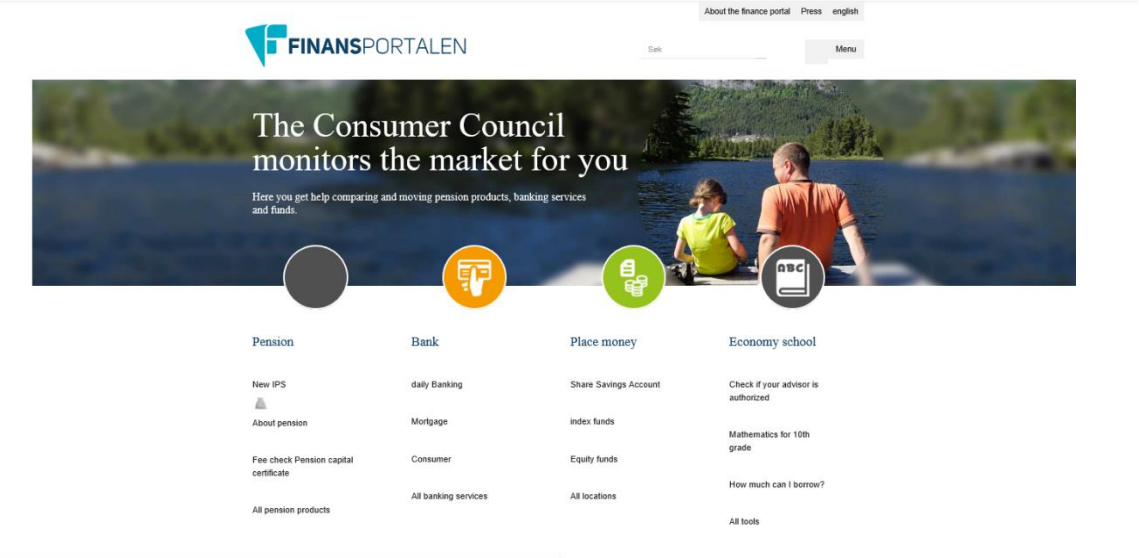
Name	Institution
Jasper De Meyer	Financial Services Officer at BEUC (Bureau Européen des Unions de Consommateurs) and regularly in contact with other European Consumers Associations active on the field of investments
Andreas Stepnitzka	Senior Regulatory Policy Advisor at European Fund and Asset Management Association (EFAMA)

Name	Institution
William Vidonja	Head of the Conduct of Business department at Insurance Europe
Sandra Kumhofer	Regulatory Director at Finleap
Simon Colboc	Secretary General of FEPI (European Pensions Institute) Member of the Advisory Committee of FECIF (Fédération Européenne des Conseils et Intermédiaires Financiers)
Elisabeth Realfsen	Senior Manager at Finansportalen
Eva Dauberton	Retail Markets specialist at The Investment Association, UK
Jan Sebo	Professor at the University Matej Bel in Slovakia in public finance, pension economics and pension finance, member of Financial Services User Group (FSUG)
Michalis Haliassos	Professor and Chair of Macroeconomics and Finance at Goethe University Frankfurt
Christiane Holz	Managing Director at Deutsche Schutzvereinigung für Wertpapierbesitz e.V. (DSW) and member of Financial Services User Group (FSUG)
Isabelle Riassetto	Professor at the University of Luxembourg in the faculty of law, economics and finance
Guillaume Prache	Managing Director at Better Finance
Simon Ramos	Partner at Deloitte Luxembourg, leading the Investment Management Industry in Advisory and Consulting and Deloitte Regulatory Strategy practice
Benoit Sauvage	Project team, Director at Deloitte Luxembourg, leading the regulatory watch solution within the firm
Carlo Duprel	Project team, Director at Deloitte Luxembourg, leading the policy team and FinTech leader within the firm
Imran Tas	Project team, Deloitte Luxembourg
Camilla Dimitri	Project team, Deloitte Luxembourg

Annex B - Finansportalen

Finansportalen is a Norwegian online portal established in 2008. The Norwegian Ministry of Children and Equality finances the development and operations, while the Consumer Council is responsible for the management of the portal itself. Information concerning investment products is time-consuming for potential investors to collect, compile, and compare. In addition, financial products are complex information about prices is difficult to compare. Establishing an independent portal like Finansportalen that collects information in a single place, contributes to lower the overall search costs in the market and to facilitate a more efficient market for financial services for the retail investor.

Finansportalen webpage



Today, Finansportalen is the most well-known market portal under the Consumer Council's administration and covers a number of financial services in the field of pensions, banking, insurance and savings/cash. Moreover, providing financial education is a crucial element of the mission of Finansportalen.no. For this reason, the portal offers educational content as well as e-learning tools.

Business model

At the beginning, data contribution for investment products manufacturers (through a designed user interface for reporting) was voluntary, but not all providers would share the necessary information. Hence, data contribution to Finansportalen.no was made mandatory through several regulations. For instance, the Norwegian Insurance Act made data contribution to Finansportalen.no compulsory for insurance products. Data contribution for funds has become mandatory as part of the Security Funds Act. Today, depending on the product category, the data is retrieved from the stock exchange, bought from Morningstar or provided by manufacturers.

Beyond these regulatory requirements, the increased popularity of Finansportalen.no has led financial product providers to spontaneously provide information to Finansportalen.no in order to gain exposure on the market.

Concerning the diffusion of data displayed on Finansportalen, only information about products that are safe and transparent enough can be displayed on Finansportalen.no and data quality is controlled before the data is published. The Norwegian Freedom of Information Act requires Finansportalen to share financial information with other public or private actors without charging any fee. Thus, private investor products hubs use Finansportalen's data but are not allowed to make any change to the dataset. Additionally, financial institutions are obliged to attach a visible link to Finansportalen on their websites where they show prices of products covered by Finansportalen.

Services offered

As mentioned above, Finansportalen was established in 2008 with services for daily banking, mortgages, deposits and mutual funds. Since 2008, more information was included on the portal: rates and terms for a total of 690 mortgage products, 733 bank savings and 354 daily bank rates. In addition, prices and relevant data were shown in relation to 120 mutual funds and conditions for about 80 damage insurance products were also added. In 2009, services were established for "swap bank", credit cards and small loans. In 2010 the service "Send Money Home" was established. In 2011, a price calculator for damage insurance was created. In 2013, this calculator was extended for insurances in the field of death and disability. In addition, data for accident insurance, critical illness, and child insurance were included. In the fall of 2014, the Ministry of Children, Equality and Inclusion financed the development of financial professional training tools, and a beta version of an e-learning tool was developed with the aim to support mathematics teaching in schools.

Data sources

Finansportalen uses four main data sources for the respective product categories:

- Data relating to investment products is collected from Morningstar and from the Stock Exchange;
- Data relating to banking products is collected from 160 banks. Finansportalen specifies what type of data has to be disclosed and how it should be reported;
- Data relating to insurance products is collected from 15 insurance companies. The Norwegian Insurance Act made data provision mandatory for insurance companies;
- The provision of data relating to pension products is currently not mandatory. However, manufacturers are spontaneously providing data to Finansportalen.

Data quality is checked before information is shown to the user.

User's interfaces

When accessing the tool, retails can visualise the services offered grouped into 4 broad categories, covering the respective investment products, namely: services for

pension products, services for banking products, for insurance products and for funds.

- Pension products

When accessing this area of the website, users can visualise the pension rights accumulated with working activities. Finansportalen shows pension plans divided per defined contribution and defined benefits. In the context of pension products, Finansportalen was the first information provider to display administrative fees for each product.

- Banking products (loans)

Users have to input their details and the most suitable loan products are consequently shown. For instance, loans can be shown based on targeted age groups so that only the loans targeting younger users will be displayed. Moreover, the user input can consist of: loan size, value of collateral and repayment period. Banks contribute to the loans' dataset providing the name of the product, the price elements (nominal interest rates, fees, etc.) and the additional products that have to be purchased (if any) together with the loan. Finansportalen's software instead computes and shows the value of the loan compared to the value of the collateral, the effective interest rate and other relevant data about each product. Accuracy and quality of data is checked before being displayed on the website.

- Insurance products (car insurance)

To use the car insurance calculator, users have to first input the characteristics of the car and their personal data. Then, they have to give their consent to send data to insurance companies for price calculation purposes. The parameters needed to calculate the insurance price have been determined in collaboration with industry players. Due to REGULATION (EU) 2018/1725 ON THE PROTECTION OF PERSONAL DATA FOR PUBLIC ENTITIES issues, the car insurance calculator has not been accessible.

Usage of the tool

The portal was evaluated in 2018[8] to identify its effects on investor knowledge, investor behaviour and competition in the market.

The evaluation showed that between 34 and 42 percent of adult Norwegian retails are familiar with the portal. Saving is the most common reason for visiting the portal (32 percent of portal visitors), followed by loans (21 percent) and insurance (21 percent). 15 percent of those using the portal are seeking information on pension. The remaining 12 percent visits the portal for other reasons.

[8] Rapport Evaluering Av Finansportalen, Menon Economics, 2018 (https://www.menon.no/wp-content/uploads/2018-48-Evaluering-av-Finansportalen.pdf)

The evaluation also mapped users according to the financial products they purchased, indicating that Finansportalen is relevant for users of many different types of financial products:

- Deposits: 50%
- Insurance against illness: 46%
- Money transfer abroad: 46%
- Auto insurance: 45%
- Fatality risk insurance: 45%
- Disability insurance: 45%
- Accident insurance: 44%
- Credit card: 44%
- Property insurance: 44%
- House insurance: 44%
- Mortgage: 44%
- Insurance: 43%
- Salary: 43%
- Consume: 43%
- Children insurance: 42%
- Car / boat loans etc.: 39%

Results also showed that, since the establishment of Finansportalen in 2008, there has been an increase in the number of users of the portal. The chart below shows statistics about traffic on both Finansportalen directly, and indirect traffic deriving from other web pages that use data from Finansportalen. The Norwegian portal has more than doubled the number of users since its establishment in 2008. In fact, in 2008 it had on average 9 600 unique users per week, while in the 2017 there was an averaging 20 800 unique users per week.

Investor knowledge

The evaluation of the portal showed that 80 percent of those who visited Finansportalen confirmed that the visit helped to increase knowledge of prices and/or other relevant market conditions. As regards insurance, loans and savings, the portal particularly contributed to increasing the knowledge of pricing conditions. For pensions, Finansportalen mainly increased the knowledge of other conditions, such as information on how the pension system is built up, how to accumulate earnings in addition to own pension savings. In addition to the direct knowledge effect of visiting the portal, indirect information derives from the fact that Finansportalen is often mentioned by media. Moreover, as already mentioned, data displayed on Finansportalen is used by other market portals. Lastly, the usage of Finansportalen by friends and family also contributes to informing retails. Overall, these results indicate that Finansportalen succeeds in reducing costs related to orientating in the market and increases retails' knowledge.

Percentage of users whose knowledge of price and / or other relevant market conditions increased

Financial product	Proportion that experienced increased knowledge	Proportion that experienced increased knowledge about prices	Proportion that experienced increased knowledge of other conditions
Pension	82 %	50 %	71 %
Insurance	82 %	70 %	50 %
Loan	81 %	78 %	49 %
Savings	79 %	73 %	57 %
Other	63 %	40 %	37 %

Investor mobility

Investor mobility is defined as the exchange or renegotiation of financial services. In the context of the evaluation study, investor mobility was investigated in relation to banking products and insurance products.

The evaluation showed that an increasing proportion of retails are using Finansportalen as a starting point for exchanging or renegotiating financial services. Among those who exchanged or renegotiated their banking services, the proportion that had used the financial portal was 12 percent in 2017 (up from 3 percent five years earlier).

Focusing on insurance products, the proportion of retails using Finansportalen to renegotiate their insurance products has been increasing over the years while the number of exchanges and renegotiations for insurance products has remained relatively stable in the last five years.

However, the fact that the proportion of exchanges and renegotiations has been relatively stable over time does not mean that Finansportalen did not have a positive effect on investor bargaining power. Changes in exchange and renegotiation behaviour are also influenced by price differences in the market. It is therefore important to see the behaviour in the context of the prevailing market conditions. A high level of exchange and renegotiation activity can mean that retails are well informed and are affecting the market, while low activity may be due to relatively similar prices. For instance, renegotiation activity was particularly high in 2008, in the period around the financial crisis, when there were major changes in the overall interest rate.

Effects on the market

To determine the effects of Finansportalen on the market, the evaluation investigated the impact of the portal on the competition in three types of financial services: mortgages, bank deposits and mutual funds.

As far as it concerns the mortgages market, the indicator to determine whether the portal had an impact on the market was the rate margin. The evaluation found out that a single percent increase in the use of the Finansportalen, on average reduces the rate margin by 0.012 percentage points for mortgages. In a separate analysis, it was found out that the "link to Finansportalen Regulation" introduced as of 1st July 2016 had a positive impact on competition in the market for mortgages.

Analysis shows that there is no connection between banks' margins on deposit rates and the traffic on Finansportalen. The same applies to the introduction of requirements for the link to the Finansportalen. Robustness tests included in the evaluation indicate, however, that the introduction of the link to Finansportalen contributed to a marginal reduction in the price range of banks' deposits. No significant correlation between the ongoing management costs of mutual funds and the scope of visits to Finansportalen was found. For the other product groups in the portal, such as pension and insurance, no data was available that allowed the implementation of similar analyses. In addition, some of these products, like retirement savings, can be said to be more heterogeneous, and customers ' preferences more multidimensional. These conditions make it challenging to evaluate the effect of Finansportalen on these products.

In general, the evaluation could not detect strong, positive competitive effects due to the fact that competition is a dynamic and process. Hence, it is difficult to identify the effects of a single variable. However, the increased number of visits on Finansportalen proves that such a tool is a valuable resource for retail investors who wish to orientate themselves in the financial market.

Finansportalen can be considered as a best practice. However, it is a purely Norwegian solution and retail investors across EU capital markets still have to select the investor products hub they wish to rely on from a wide offer.

Annex C - Potential, additional features of the tool to be developed by third party service providers

Financial check-up

This feature, developed in complement to the investor products hub, would allow retail investors to provide information concerning their current financial and personal situation. Users would be requested to input the details below to define how much they could invest.

- Current financial situation
- Personal details and family situation (users would also be asked whether they plan to get married or to have children)
- Income (determined based on the type of employment and monthly net salary, while considering also other income sources)
- Household expenses
- Real estate
- Other assets (savings, investments, etc.)
- Liabilities
- Pension provision
- Current insurance coverage and other protection (such as: private legal protection, occupational invalidity, complimentary health insurance, property insurance, provision for dependents, nursing care insurance, etc…)

Based on these inputs, retail investors would receive an overview of their financial situation (potentially according to a certain standard e.g. DIN 77230). Based on this overview, the amount to be invested would be estimated. It is however important to note that for a relevant proportion of users, the final suggestion might be to save in order to accumulate an investable amount. The figure below summarises the process described.

Financial check-up process

Investor profile

Before arriving to the investor products hub, the potential retail investors might first assess if it disposes of an investable amount. Such an investor profile feature, could be developed by external service providers, to support less confident retail investors in defining their profile.

Based on standard investor profile models, retail investors would be required to input information concerning their investment goal (capital growth, retirement, children's education, etc…), the amount to invest, the time horizon, attitude to risk. Moreover, retail investors would be asked about the desired investment strategy (e.g. ethical investing, growth investing, index investing, quality investing, and value investing).

Based on this information, an indication concerning the mix of asset classes which would be suitable for such a profile would be provided.

According to recent research, the traditional investor profile approach suffers from at least two shortcomings.

First, "people are poor forecasters of their future emotions and future tastes" (Daniel Kahneman, 2009). Hence, questionnaires are likely to be poor predictors of actual future behavior. Second, investor profiles mainly assess the client's willingness to bear risk in order to obtain higher returns. Behavioral finance convincingly argues that actual human behavior is more refined. Hence, current investor profiling could be improved in two ways:

1. Relying on behavioral finance to improve the content: an investor's personality includes behavioral elements current profiling ignores;

2. Relying on technology and digitization to improve the method: replacing questionnaires with dynamic quantitative methods improves the anticipation of future behaviour.

Improvement of investor profiling based on behavioral finance[9] findings can be achieved in alternative ways. Important to note is that such improvement need not be in conflict with the current approach. In fact, the bestselling title "Thinking, fast and slow" of Nobel laureate Daniel Kahneman illustrates the complementarity of a classical and behavioral approach. It is a targeted combination of both that ensures improvement. The outcome is a two-dimensional investor profile that combines classical and behavioral investor preferences. The first dimension of such enhanced investor profile covers the classical balance between long-term expected return versus the predictability of realized performance. This is the focus of existing standard investor profiling. The second dimension of an enhanced investor profile deals with behavioral elements. After the investment, the portfolio value evolves along the waves of financial markets. While from a classical, rational point of view, people are supposed to treat ups and downs equally, from a behavioural point of view some retail investors are likely to be impacted by a potential loos more than by a potential gain. Also in everyday life, people tend to take more effort to prevent a loss than to pursue a gain. In the context of investing, many people react to changing market conditions in a way that challenges rationality. An investor profile that is supposed to stand the test of time includes at best both aspects of human behaviour. It is in fact perfectly possible that two investors with the same classical investor profile nevertheless differ in their concern of losing money.

In order to reflect the importance of behavioural finance, traditional questionnaires could be complemented by quantitative methods, which would be much more

[9] *The improvement of investor profiling based on behavioural finance is based on input from Jurgen Vandenbroucke.*

effective since they are dynamic and personalized. While very hard to implement in a traditional setting, a digital application is straightforward. The preferred method will likely differ depending on whether the assessment deals with the long-term trade-off between risk and reward, or with the reaction to interim gains and losses. The general approach however, is to present the investor a personalized sequence of choices. The sequence is personalized because the terms in the current setting of the problem depend on the revealed preference in the previous setting. The sequence stops if a convergence criterion is met, which irrevocably unveils the investor's point of indifference between long term risk and reward or interim gains and losses. The result is a multi-dimensional investor profile, obtained through interaction and revealed preferences.

List of robo-advisors

The investor products hub could be enhanced with an improved understanding of what to consider when investing through robo-advisors, on purely informative basis. This would be achieved through educational material, concrete checklists of issues to consider when investing with robo-advisors as well as a list of robo-advisors registered with the national regulator. Preparing retail investors so that they can challenge the advice received is key, above all considering the increasing popularity of robo-advisors. As described in previous sections, the robo-advice market has been constantly growing over the last years and is likely to do so for the future. Also, it is widely believed that competition in the robo-advice market will positively affect costs and breadth of services and thus ultimately have a beneficial impact for the retail investor.

An additional synergy between the investor products hub and existing robo-advisors would be enabled by the database of investment products feeding the robo-advisers. The complete database of investment products would allow robo-advisors' service providers to extend the current product coverage to types of products that currently are not covered or covered to a very limited degree by robo-advisors. For instance, robo-advisors could extend the coverage from a few dozen ETFs to hundreds or even thousands of ETFs (provided this would lead to an improved situation for retail investors). Moreover, robo-advisors could provide tax-optimized advice by complementing ETFs with IBIPs and/or PPPs (depending on the specific national tax incentives). But these again are services to be developed outside of the core of this projects by private providers.

Portfolio simulation

The users could export their selection in their preferred portfolio simulation tool to check that the suggested mix of product/categories (and thus their investor profile) is respected. In order to realise a portfolio simulation, retail investors would need make sure that their provider will be able to input at least the following information: portfolio assets (asset identifier, portfolio weight and rate of return), the initial amounts invested in any of the selected assets, the periodic adjustments they plan to make (i.e. contribute/withdraw amount), rebalancing, benchmark, etc.

Based on this input, the tool would realise a simulation of the future performance of the portfolio of chosen assets with regards to risk exposure (this parameter would allow retail investors to check whether the chosen portfolio respects their investor profile), total costs in EUR, future value of portfolio after fees and expenses, comparison to peer assets (an example is displayed in the below figure) and the past performance.

Information about financial products and product categories

Complementary to the tool retail investors should be able to learn about investing basics and investment plans. This feature parallel to the tool would also help users understanding their attitude to risk and how different investment options meet different risk preferences.

Calculators

In the longer run, or provided by professionals using data feeds from the investor products hub, various calculators might be developed. For instance, users could benefit from a pension calculator, which estimates the income at retirement, covering also contribution schemes and basic State Pension. Such a tool would allow to calculate: the amount to invest each month in order to achieve a certain target value, the target value when investing a certain amount each month. A further example could be the implementation of a cost calculator according to article 36 of the PRIIPS regulation, available free of charge and allowing retail investors to calculate the costs of PRIIPs products.

Complaints support

Retail investors would be provided with information about issues they might be facing when investing (mis-selling, scams, etc.). Additionally, the investor products hub would provide information on how and where to file a complaint and support users in resolving disputes with their financial services providers.

It is advisable to organise potential financial guidance features with the aim to maximise user friendliness. For instance, previous research shows that retails were likely to look for financial guidance when experiencing key life events (Citizens Advice, 2015) (European Commission, 2016). A previous study cites in particular the following life events: starting university, expecting a baby, expecting or changing jobs, taking out or extending a loan, buying a house, serious illness, divorce, retirement, (Citizens Advice, 2015). Hence, organising the information and tools provided based on key life events, could help users to easily find the content they are interested in. For instance, the UK website Money Advice, allows users to select material based on key life occurrences (e.g. birth, death, buying a home, etc…).

Annex D - EPT and EMT template

Abstract EMT template

EUROPEAN MIFID TEMPLATE - EMT V2.0

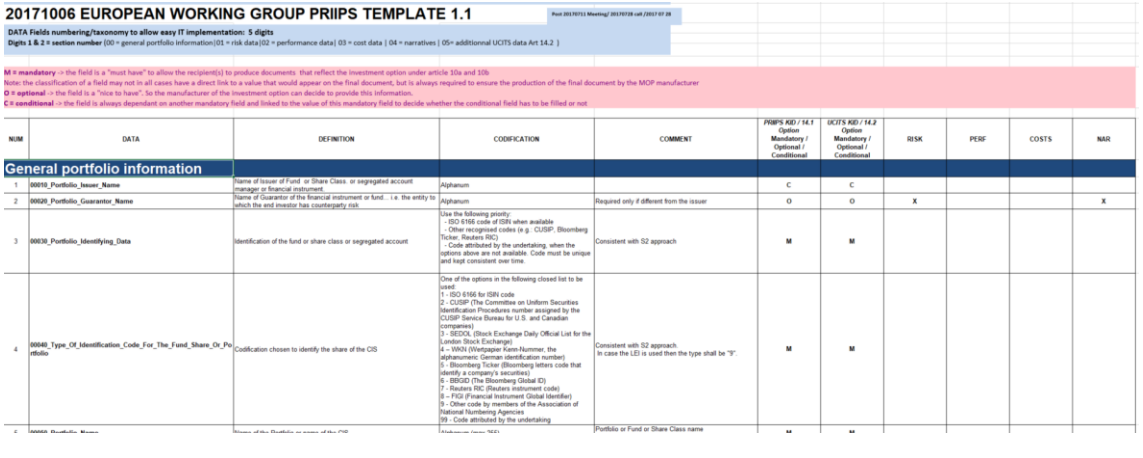
Disclaimer:
The use of this template is not compulsory. It is free of use, intellectual property and copyright. It has been designed by the European Working Group (EWG) which includes European asset managers, banks, insurers and distributors.
The target market specifications of this template apply for stand-alone proposals of products and do not need to be taken into consideration in case of providing investment advice adopting a portfolio approach and/or portfolio management for diversification and/or hedging purpose. In this latter case, the criteria to be considered should be at least "investor type" & 'knowledge & experience'.
The template transports accurate information of the target market and the costs by the manufacturers. Agreements between manufacturers and distributors remain unaffected. National regulatory requirements must be taken into account.
This file covers only funds and structured securities
For any question, please contact first your association, then the EWG coordinator : Ghislain Perisse (ghislain.perisse@schroders.com)

For Mandatory / M fields of the Target Market section, if the data is not available, manufacturers are requested to report 99.99 in the field. Indicative means Mandatory but the answer

2018 10 22 EUROPEAN WORKING GROUP MIFID TEMPLATE V2.0 - EMT V2.0

NUM	DATA (consistent with TPT & EPT for common data point)	DEFINITION	CODIFICATION	COMMENT	Mandatory / Optional / Conditional / Indicative
EMT Version					
1	**00001_EMT_Version**	Used Version of the EMT : V1 (3rd August 2017) or V2	V1 or V2		M
2	**00005_File_Generation_Date_and_Time**	Date and Time of the creation of the EMT file	YYYY-MM-DD hh:mm:ss ISO 8601 (UTC+0)	Universal Time zone	M
General Financial Instrument information					
3	**00010_Financial_Instrument_Identifying_Data**	Identification of the financial instrument	Use the following priority: - ISO 6166 code of ISIN when available - Other recognised codes (e.g.: CUSIP, Bloomberg Ticker, Reuters RIC) - Code attributed by the undertaking, when the options above are not available. Code must be unique and kept consistent over time.	Consistent with S2 & PRIIPS approach.	M
4	**00020_Type_Of_Identification_Code_For_The_Financial_Instrument**	Codification chosen to identify the financial instrument	One of the options in the following closed list to be used: 1 - ISO 6166 for ISIN code 2 - CUSIP (The Committee on Uniform Securities Identification Procedures number assigned by the CUSIP Service Bureau for U.S. and Canadian companies) 3 - SEDOL (Stock Exchange Daily Official List for the London Stock Exchange) 4 – WKN (Wertpapier Kenn-Nummer, the alphanumeric German identification number) 5 - Bloomberg Ticker (Bloomberg letters code that identify a company's securities) 6 - BBGID (The Bloomberg Global ID) 7 - Reuters RIC (Reuters instrument code) 8 – FIGI (Financial Instrument Global Identifier) 9 - Other code by members of the Association of National Numbering Agencies 99 - Code attributed by the undertaking	Consistent with S2 & PRIIPS approach. If you want to use LEI use 9.	M
5	**00030_Financial_Instrument_Name**	Name of the financial instrument	Alphanum (max 255)	Consistent with S2 & PRIIPS approach.	M
6	**00040_Financial_Instrument_Currency**	Denomination currency of the financial instrument	Code ISO 4217		M

Abstract EPT template



20171006 EUROPEAN WORKING GROUP PRIIPS TEMPLATE 1.1

DATA Fields numbering/taxonomy to allow easy IT implementation: 5 digits
Digits 1 & 2 = section number (00 = general portfolio information|01 = risk data|02 = performance data| 03 = cost data | 04 = narratives | 05= additionnal UCITS data Art 14.2)

M = mandatory -> the field is a "must have" to allow the recipient(s) to produce documents that reflect the investment option under article 10a and 10b
Note: the classification of a field may not in all cases have a direct link to a value that would appear on the final document, but is always required to ensure the production of the final document by the MOP manufacturer
O = optional -> the field is a "nice to have". So the manufacturer of the investment option can decide to provide this information.
C = conditional -> the field is always dependant on another mandatory field and linked to the value of this mandatory field to decide whether the conditional field has to be filled or not

NUM	DATA	DEFINITION	CODIFICATION	COMMENT	*PRIIPS KID / 14.1 Option* Mandatory / Optional / Conditional	*UCITS KID / 14.2 Option* Mandatory / Optional / Conditional	RISK	PERF	COSTS	NAR
General portfolio information										
1	**00010_Portfolio_Issuer_Name**	Name of Issuer of Fund or Share Class. or segregated account manager or financial instrument	Alphanum		C	C				
2	**00020_Portfolio_Guarantor_Name**	Name of Guarantor of the financial instrument or fund… i.e. the entity to which the end investor has counterparty risk	Alphanum	Required only if different from the issuer	O	O	X			X
3	**00030_Portfolio_Identifying_Data**	Identification of the fund or share class or segregated account	Use the following priority: - ISO 6166 code of ISIN when available - Other recognised codes (e.g.: CUSIP, Bloomberg Ticker, Reuters RIC) - Code attributed by the undertaking, when the options above are not available. Code must be unique and kept consistent over time.	Consistent with S2 approach	M	M				
4	**00040_Type_Of_Identification_Code_For_The_Fund_Share_Or_Portfolio**	Codification chosen to identify the share of the CIS	One of the options in the following closed list to be used: 1 - ISO 6166 for ISIN code 2 - CUSIP (The Committee on Uniform Securities Identification Procedures number assigned by the CUSIP Service Bureau for U.S. and Canadian companies) 3 - SEDOL (Stock Exchange Daily Official List for the London Stock Exchange) 4 – WKN (Wertpapier Kenn-Nummer, the alphanumeric German identification number) 5 - Bloomberg Ticker (Bloomberg letters code that identify a company's securities) 6 - BBGID (The Bloomberg Global ID) 7 - Reuters RIC (Reuters instrument code) 8 – FIGI (Financial Instrument Global Identifier) 9 - Other code by members of the Association of National Numbering Agencies 99 - Code attributed by the undertaking	Consistent with S2 approach. In case the LEI is used then the type shall be "9".	M	M				
5				Portfolio or Fund or Share Class name						

Annex E - Abbreviations used in this study, list of figures and list of tables

Abbreviations used in this study

A

AEDBF, Association Européenne pour le Droit Bancaire et Financier
AI, Artificial Intelligence
AIF, Alternative Investment Fund
API, Application Programming Interface
AUA, Assets Under Administration
AuM, Assets Under Management

B

B2B, Business to Business
B2B2C, Business to Business to Consumer
B2C, Business to Consumer
BEUC, Bureau Européen des Unions de Consommateurs

C

CAGR, Compound Annual Growth Rate
CEPR, Centre for Economic Policy Research
CMU, Capital Markets Union
CSV, Comma-separated values
CT, Investor products hub

D

D2C, Direct to Consumer
DC, Defined Contribution
DCT, Digital Investor products hub
DIN, Deutsches Institut für Normung
DLT, Distributed Ledger Technology
DSW, Deutsche Schutzvereinigung für Wertpapierbesitz

E

EC, European Commission
ECB, European Central Bank
EFAMA, European Fund and Asset Management Association
EIOPA, European Insurance and Occupational Pensions Authority
EMT, European MIFID Template
EPT, European PRIIPs Template
ESMA, European Securities and Markets Authority
ETF, Exchange-Traded Fund
EU, European Union
EUR, Euro

F

FAQ, Frequently Asked Questions
FECIF, Fédération Européenne des Conseils et Intermédiaires Financiers
FEPI, European Pensions Institute
FINRA, Financial Industry Regulatory Authority
FINDATEX, Financial Data Exchange Templates
FSUG, Financial Services User Group

G

GBP, British pound sterling
REGULATION (EU) 2018/1725 ON THE PROTECTION OF PERSONAL DATA FOR PUBLIC ENTITIES, General Data Protection Regulation

H

HTTP, Hypertext Transfer Protocol

I

IBIPs, Insurance Based Investment Products
ID, 95
IDD, Insurance Distribution Directive
IFA, Independent Financial Adviser
IOD, Investment Option Document
ISAs, Individual Savings Account
ISIN, International Security Identification Number
IT, Information Technology

K

KID, Key Information Document
KIID, Key Investor Information Document
KYC, Know Your Customer

M

MiFID, Markets in Financial Instruments Directive

N

NAV, Net Asset Value
NETSPAR, Network for Studies on Pensions Aging and Retirement

O

ODIM, Online Discretionary Investment Management

P

PDF, Portable Document Format
PPP, Personal Pension Product 19
PRIIPs, Packaged Retail and Insurance-based Investment Products
PSD2, second Payment Services Directive

R

RDR, Retail Distribution Review
REST, 92
RHP, Recommended Holding Period

S

sFTP, Secure File Transfer Protocol
SD, Structured deposits
SIX, 27
SQL, Structured Query Language
SRI, Summary Risk Indicator
SRP, Structured Products

T

txt, Text

U

UCITS, Undertakings for Collective Investment in Transferable Securities
UK, United Kingdom
UPI, Unique Product Identifier
US, United States

W

WCAG, Web Content Accessibility Guidelines

X

XLS, ExceL Spreadsheet
XML, Extensible Markup Language

List of figures

List of tables

Annex F - References

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