TECHNICAL ADVICE ON THE DEVELOPMENT OF PENSION DASHBOARDS AND THE COLLECTION OF PENSIONS DATA

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CONTENTS

1. INTRODUCTION

1.1. EIOPA TO PROVIDE TECHNICAL ADVICE ON A PENSION DASHBOARD

1. In December 2020 the European Commission sent a Call for Advice (CfA) to EIOPA, requesting technical advice on the development of best practices on (1) pension tracking systems and (2) a pension dashboard.[1] The roots of this request can be found earlier, in the June 2020 report of the High Level Forum (HLF) on the Capital Markets Union (CMU).[2] This HLF-report observed *inter alia* that 18% of EU citizens currently are at risk of poverty or social exclusion in older age, making pension adequacy a major policy issue. The report signalled the need for a more comprehensive view than currently available to highlight gaps in sustainability and adequacy of pensions of Member States and create a political setting that incentivises identifying and addressing shortcomings at Member States' level. The European Commission was recommended to take action in this area.

2. In response to this and the other HLF-recommendations, the European Commission published in September 2020 its CMU Action Plan.[3] Herein, as part of Action 9, the European Commission declared '*The* Commission *will facilitate the monitoring of pension adequacy in Member States through the development of pension dashboards. It will also develop best practices for the set-up of national tracking systems for individual Europeans*'. EIOPA was subsequently asked to provide technical advice in relation to Action 9, on both the pension dashboard, taking a 'macro' perspective, as well as the national tracking systems, taking a 'micro' perspective. This document puts forward EIOPA's technical advice related to the pension dashboard.[4]

3. In relation to the pension dashboard, EIOPA was requested to provide technical information on:

- Currently available versus required data on occupational pensions;
- Currently available versus required data on personal pension products;

[1] https://www.eiopa.europa.eu/sites/default/files/publications/call-for-advice-to-eiopa-on-pension-tools.pdf

[2] https://ec.europa.eu/info/files/200610-cmu-high-level-forum-final-report_en

[3] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2020:590:FIN

[4] See for advice on tracking systems: EIOPA, Technical Advice on the Development of Pension Tracking Systems, EIOPA-BoS-21/535, 1 December 2021.

- Other data deemed necessary to ensure reliability and usefulness of projections; and
- Indicators to be included in the pension dashboards.

1.2. SCOPE AND NATURE OF EIOPA'S ADVICE

4. EIOPA is providing technical advice on the aspects covered in the Call for Advice in relation to data and pension dashboards.

5. The intention is not to provide recommendations on political choices or public policy, whether at national or at EU level. Nor does EIOPA advise that it carries out activities which go beyond its mandate, which is established at political level. Instead, the technical advice serves as an input to the pension policy of Member States. It will contribute to measuring and monitoring the contribution of occupational and personal pensions to the adequacy and sustainability of national pension systems and to getting a comprehensive picture of future pension developments. To allow long-term projections of supplementary pensions and to inform the dashboard indicators, additional data is needed from a wide range of private pension providers. As such, the costs, and indeed the benefits, accrue beyond EIOPA's immediate stakeholders of IORPs and insurance undertakings, their members and policyholders and supervisors.

6. In this context it should be noted that the primary aim of collecting the data on dashboards is to facilitate economic and social policy, rather than conduct/prudential supervision of pension providers. Even though the technical advice restricts itself to data from private pension providers, and expressly not from social security systems, some data may not be directly relevant for national authorities to fulfil their supervisory objectives, or indeed not be within their powers to collect. EIOPA disposes of established methods for data transfer and validation with NCAs for insurance undertakings and IORPs. For non-insurance and non-IORP private pension providers substantial changes in supervisory practice would be needed, i.e. change of the regulatory perimeter and additional resources to ensure the quality of the data.

7. National authorities would need to consider the usefulness of the data collected against the costs of doing so. In the legal frameworks of some Member States, the data reported to NCAs will not be automatically subject to supervisory confidentiality without a proper mandate. On the other hand there are advantages in having private pension providers report the data to the national authorities designated by Member States to supervise them and some of it will also be relevant for supervisory purposes and may already be collected.

8. EIOPA has met the mandate from the Commission *"to report on the completeness and reliability of the existing data and when it considers there are material shortcomings in existing data sets, make proposals for how completeness and reliability can be improved"* as well as *"When*

relevant data gaps are identified, EIOPA should advise on how to obtain the necessary missing data." EIOPA draws however the Commission's attention to the issues of aims, powers and costs set out in the paragraph above.

9. Moreover, EIOPA advocates a gradual approach to the development of pension projections in the Member States as well as the pension dashboard at European level. The creation of pension dashboards is complex, not only because of the availability of data, but also their comparability as well as the substantial differences in the underlying national pension, social security and tax systems. Existing pensions data should be used to commence with pension dashboards in the short term, considering that the resolution of data gaps will take time. Pension projections and dashboards can subsequently be enhanced in the medium term using newly collected data in order to obtain high-quality dashboards. The additional data reporting by pension providers should be efficient using consistent and internationally recognised definitions and proportionate to the aim of fostering transparency of the contribution of supplementary pensions to the adequacy and sustainability of pension systems in the Member States. Further, more specific proposals for additional reporting requirements would need to be subjected to a cost-benefit analysis.

10. The remainder of this Chapter describes the relation to already existing work of the European Commission in the area of pension adequacy and sustainability (section 1.3), the overall objectives of a pension dashboard (section 1.4) and the structure of the technical advice (section 1.5).

1.3. EXISTING WORK ON PENSION ADEQUACY AND SUSTAINABILITY

11. The right of workers, both traditionally employed and self-employed, to a pension commensurate to their contributions, that would ensure an adequate income post retirement, is the 15th Principle of the European Pillar of Social Rights[5]. The 15th Principle explicitly states that there should be equal opportunities to acquire pension rights regardless of gender. Defining adequate income post retirement and then how sustainable it would be to fund these pensions are complex and rely on multiple variables.

12. Since 2006 Member States together with the European Commission have been projecting age-related public expenditures, including expenditures on public pensions, in the so-called Ageing Report.[6] In this Ageing Report all Member States project expenditures on public pensions over the next 50 years, and replacement rates over the next 40 years. In addition, about a dozen

[5] The European Pillar of Social Rights in 20 principles | European Commission (europa.eu)

[6] https://ec.europa.eu/info/publications/2021-ageing-report-economic-and-budgetary-projections-eu-member-states-2019-2070_en

Member States provide projections for non-public pension schemes (occupational and private pensions), which is voluntary input for the Ageing Report. As a consequence, the current picture of future pension developments is incomplete.

13. Since 2012, the European Commission and the Member States also cooperate in making adequacy projections in the Pension adequacy report.[7] This report considers three aspects of pension adequacy: (i) poverty protection, (ii) income maintenance, and (iii) pension duration. Also these estimates provide valuable, but partial, information on pension adequacy, as there are limited data on occupational and personal pensions (or pension-like saving balances). At an EU level, pensions in the early years after retirement currently amount to more than half of late-career work income at 57%. At national level, the ratio ranges from between one-third and above two-thirds. Between 2007 and 2018, only 12 Member States experienced an increase in aggregate replacement ratios across the income range. In the majority of countries, people with low incomes experienced an increase that was lower than the EU average, if not a decrease[8].

14. It is important to consider pension adequacy in the context of financial sustainability. European public pension systems are facing the dual challenge of remaining financially sustainable and being able to provide Europeans with an adequate income in retirement.[9] Member States with high budget deficits and/or high government debt may – considering ageing and rising life expectancy - need to cut back on future expenditures on public pensions. The fiscal sustainability report, published since 2006, gives a periodic update of fiscal sustainability challenges faced by Member States. [10,11]

1.4. PENSION DASHBOARDS

15. The overall purpose of the pension dashboard is to strengthen the monitoring of pension developments in Member States. Pension adequacy and sustainability estimates, including

[7] https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8084&furtherPubs=yes

[8] Social Protection Committee (SPC) and European Commission, The 2021 Pension Adequacy Report: current and future income adequacy in old age in the EU (Volume 1), June 2021.

[9] See Call for Advice to EIOPA page 1: https://www.eiopa.europa.eu/sites/default/files/publications/call-for-advice-to-eiopa-on-pension-tools.pdf

[10] See for the latest Fiscal sustainability report 2018: https://ec.europa.eu/info/publications/economy-finance/fiscal-sustainability-report-2018_en

[11] The triennial Fiscal sustainability reports are updated on an annual basis through the Debt sustainability reports. See for the latest Debt sustainability monitor 2020: https://ec.europa.eu/info/publications/debt-sustainability-monitor-2020_en

'dashboards' with indicators estimating the contribution of occupational and personal pensions, can enable public authorities to identify early on emerging gaps in the provision of pensions to their population. They are a means to design suitable policy responses coping with future pressure on public finances or poverty of the population at old age.[12] Enhanced transparency can also lead to greater incentives for pensions savings and a greater supply of capital, which can help finance the long-term growth of the real economy, as well as its green and digital transition, contributing to the goals of the CMU.

16. The pension dashboard is foreseen to have several important advantages, compared to the current situation:

- Ease of communication: the dashboard presents relevant data and indicators in a transparent format;
- Completeness: current data on pension adequacy, especially data on occupational and personal pensions, are incomplete;
- Comprehensiveness: the dashboard will be a combination of different indicators that shed light on different aspects of pension adequacy and sustainability;
- Comparability: the dashboard will present the same indicators for all Member States;
- Benchmarking: because of the comparability of the indicators, national governments and the Member States gain insight in where they stand compared to other countries;
- Up to date information: the Ageing Report, Pension adequacy report and Fiscal sustainability report all appear once in every three years. The dashboard could be updated at a higher frequency.

1.5. STRUCTURE OF THE TECHNICAL ADVICE

17. The technical advice to the Commission is structured as follows:

- Chapter 2 ('Data availability') provides an overview of available pensions data at EU and international organisations as well as national level based on a survey EIOPA conducted among 29 NCAs in the EEA.

  A detailed overview of pension data availability in Member States is included in a separate statistical annex;

[12] See Call for Advice to EIOPA page 2.

- Chapter 3 ('Pension projections') discusses the preparation of long-term projections of supplementary pensions in Member States and advices – among others - on the minimum set of quantitative data needed to make such projections;
- Chapter 4 ('Pension dashboards') discusses and contains advice on the development of the pension dashboard, covering the pension indicators to be included, their aggregation in a single indicator and the visualisation as well as the governance for developing and maintaining the dashboards;
- Chapter 5 ('Collection of additional pensions data') discusses options for, and puts forward advice on, the collection of additional data from private pension providers, including its governance.

18. Various sections of the advice are, where relevant, introduced by blue boxes containing the relevant extracts from the Call for Advice. Following the technical analysis, the chapters are concluded with blue boxes outlining EIOPA's advice to the Commission.

19. EIOPA's advice is accompanied by a separate impact assessment, analysing the cost and benefits of the advice.

ADVICE TO THE EUROPEAN COMMISSION

EIOPA is providing technical advice in response to the Call for Advice in relation to data and pension dashboards. The intention is not to provide recommendations on political choices or public policy, whether at national or at EU level. Nor does EIOPA advise that it carries out activities which go beyond its mandate, which is established at political level. Instead, the technical advice serves as an input to the pension policy of Member States by contributing to measuring and monitoring the contribution of occupational and personal pensions to the adequacy and sustainability of national pension systems.

EIOPA advises a gradual approach to the development of pension projections in the Member States as well as the pension dashboard at European level. The creation of pension dashboards is complex, not only because of the availability of data, but also their comparability as well as the substantial differences in the underlying national pension, social security and tax systems. Existing pensions data should be used to commence with pension dashboards in the short term, considering that the resolution of data gaps will take time. Pension projections and dashboards can subsequently be enhanced in the medium term using newly collected data in order to obtain high-quality dashboards.

In this context EIOPA would like to note that the primary aim of collecting the data is to facilitate economic and social policy, rather than conduct/prudential supervision of pension providers. Even though the technical advice restricts itself to data from private pension providers, and expressly not from social security systems, some data may not be directly relevant for national authorities to fulfil their supervisory objectives, or indeed not be within their powers to collect. In the legal frameworks of some Member States, the data reported to NCAs will not be automatically subject to supervisory confidentiality without a proper mandate. EIOPA disposes of established methods for data transfer and validation with NCAs for insurance undertakings and IORPs. For non-insurance and non-IORP private pension providers substantial changes in supervisory practice would be needed, i.e. change of the regulatory perimeter and additional resources to ensure the quality of the data.

Further, more specific proposals for additional reporting requirements would need to proportionality and be subjected to a cost-benefit analysis.

2. DATA AVAILABILITY

2.1. PENSION DATA AVAILABILITY AT EUROPEAN/INTERNATIONAL ORGANISATIONS

20. Nowadays, we experience an increase in data, available in an increasing number of forms and formats. Like many private undertakings, international organisations have taken advantage of this opportunity to enhance the depth work, making use of the available data.

21. In this section of the consultation paper EIOPA aims to provide an overview of the supplementary pension's data available at EIOPA and other international organisations.

2.1.1. EIOPA

22. EIOPA has four channels through which data are collected. The below sets out the scope and content of the data collected, its completeness and data quality.

Decision on EIOPA's regular information requests towards NCAs regarding the provision of occupational pensions information

SCOPE AND CONTENT

23. EIOPA adopted its first Decision on EIOPA's regular information requests regarding the provision of occupational pensions information in April 2018 (the BoS Decision)[13]. The first transmissions of data (reference date Q3 2019) were received in 2020. This was a milestone for EIOPA. For the first time EIOPA received granular data on IORPs, allowing it to have a better understanding of the sector which will translate in data driven policy-making.

24. The information is collected from all NCAs responsible for the supervision of arrangements or activities subject to Directive (EU) 2016/2341[14], which are Members of the Board of Supervisors of EIOPA, and the EEA EFTA Members of the Board of Supervisors of EIOPA to the extent to which Directive (EU) 2016/2341 is binding for them.

[13] https://www.eiopa.europa.eu/content/decision-eiopas-regular-information-requests-towards-ncas-regarding-provision-occupational_en

[14] Directive (EU) 2016/2341 of the European Parliament and of the Council of 14 December 2016 on the activities and supervision of institutions for occupational retirement provision (IORPs); OJ L 354, 23.12.2016, p. 37.

25. The reported information covers IORPs and the occupational retirement provision business of life insurance undertakings in case of Article 4 of Directive (EU) 2016/2341. For IORPs managing occupational pension schemes in combination with social security schemes and or personal pension schemes, only those activities relating to the occupational pension activities are mandatory.

26. For the largest IORPs (or at least five for each Member State if these are larger than EUR 100 million), EIOPA receives the data at the granularity of the IORP. For the data from the remaining IORPs, EIOPA expects aggregated data, unless the Member States prefer to share all information individually for each IORP. Currently the majority of Member States prefer to report solely individual IORP data. For the smallest IORPs, there are proportionality clauses.

27. In its Decision, EIOPA requests:

- Data that allows the identification and categorisation of the IORP. For example, through variables like IORP type, home country, etc. For individual IORPs, this also includes data on the security mechanisms used;
- IORPs' balance sheet data;
- Asset-by-asset data of IORPs investments;
- Look-through data of IORPs' investment in collective investment undertakings;
- Data on the income generated by IORP investments;
- The main elements of the technical provisions;
- Data on members broken down by active members, deferred members and beneficiaries as well as member flow data;
- Contributions, benefits paid and transfers;
- Expenses;
- Cross-border activities.

COMPLETENESS

28. EIOPA and NCAs made huge efforts to ensure a timely submission of the data requested. As a result, most Member States submitted their data either by the implementation date or in the course of 2020. Only a few Member States had implementation issues and were not yet able to submit any data to EIOPA. In addition, a few Member States were not able to submit all the requested information. However, all NCAs committed to submit the required data in the course of 2021.

DATA QUALITY

29. Considering first reporting was only in 2020, EIOPA assessed the quality of the data received as 'good'. This does not mean that further improvements are unnecessary. EIOPA's experience with Solvency II has shown that improving data quality is a continuous process requiring efforts from both EIOPA and NCAs. EIOPA will continue to implement new validations, improve the templates and log files addressing the feedback received and implement data quality tools and reports which already have been tested and proven successful for improving data quality in the context of Solvency II. Equally, NCAs can learn from their experiences by submitting earlier data and through the data quality feedback received.

EIOPA database on pension plans and products

SCOPE AND CONTENT

30. EIOPA's Database on pension plans and products provides a comprehensive snapshot of the European pensions' landscape with the aim to better understand supplementary pension systems across Europe.

31. Plans and products included in the database are those non-public arrangements and investment vehicles that have an explicit objective of retirement provision (according to a national social and labour law or tax rules), irrespective whether they are occupational or personal. Both so-called '1st pillar-bis' pensions and plans/products which are defined in legislation, but are not yet offered to the public, (or have no members) are also included. Only pension plans managed by the state or public entities (1st pillar pensions) and "pure" annuities (i.e. products not linked to an accumulation phase) are excluded from the database.

32. Quantitative data includes information on the total assets, number of members and number of active members for each product. However, due to the purpose of understanding the pensions systems, the main data elements included in the database are qualitative (i.e. covering the product characteristics, e.g. occupational or personal) rather than quantitative.

33. EIOPA uses the Database as a basis for many of its pension related data requests. One of the main advantages of the database is that a huge number of characteristics can be allocated to the data when requesting a reference to the products included in the database. This makes it easy to categorise the data. It is also one of the main reasons for external parties to make use of the database as a basis for requesting additional information, e.g. the FSB (see section 2.1.6 below).

COMPLETENESS

34. The database has been prepared with contributions from NCAs on a best effort basis. Therefore, the database is not a fully complete, "official" list of all pension plans, products or their

providers available in the EEA. Similarly, following the definitions and classifications used, the information contained in the database may not be entirely explicative of the national context.

35. Despite this, the database is still unique and provides the best overview of all supplementary pension products across Europe. Most of the EEA countries are included in the database.

36. Quantitative data should be updated annually but is sometimes not complete. Especially if the supervisor of the product is not the EIOPA member, the quantitative data might be difficult to come by.

DATA QUALITY

37. Data quality is ensured by NCAs, which have the best understanding on the pension products provided in their country.

Forthcoming PEPP data

SCOPE AND CONTENT

38. A Pan-European Personal Pension Product (PEPP) is a personal pension product, which will be marketed as a 'complementary' product to the present national public and private pension schemes. EIOPA will receive data from these products from the NCAs.

39. The objective of the PEPP data reporting is to ensure that each NCA receives a harmonised set of information on PEPP business, in order to build relevant indicators that support effective and efficient supervisory review processes.

40. The regular reporting package will contain all the regularly reported information necessary for the purposes of PEPP supervision from both a home and host perspective and, as such, foster the collaboration between NCAs and PEPP providers as well as between NCAs and EIOPA. The regular reporting package needs to be sent by the PEPP provider to the home NCA on an annual basis.

41. The templates include data on:

- PEPP information documents: PEPP KID (to be reported upon registration of the PEPP or upon changes);
- Basic information, which allow identification and categorisation of the PEPP provider and linking it to the PEPP KID;

- Information on assets and liabilities relating to the PEPP provider's PEPP business; underlying investments should be reported separately for the basic PEPP and alternative investment options;
- Information on open derivative positions;
- Information on contracts/PEPP savers per investment option, such as the number, contributions, benefit payments;
- Information on costs and charges, complaints and on distribution channels.

COMPLETENESS AND DATA QUALITY

42. As PEPPs can only be registered as from 22 March 2022, no data has been received. It is therefore not possible to comment on the completeness and data quality received from the PEPP products.

Solvency II regular data

SCOPE AND CONTENT

43. The Solvency II reporting contains data from insurance companies reported to NCAs in order to enhance market discipline and increase comparability.

44. While the share of the insurance sector in the provision of pensions is substantial at EU level, almost no data in the Solvency II reporting refers to pensions. While data split by lines of business is available, pensions products are included under 'life insurance' together with other life insurance products. There is also no split between the different types of life insurance products.

45. Only in template S.14.01 on life insurance obligations, reference is made to the term 'pension entitlements'. However, there is no granular information available, which would allow the categorisation of the pension entitlements as occupational or personal or by scheme type.

46. EIOPA collects no other pension data from insurance undertakings. However, the Solvency II reporting includes a template on pension entitlements, which includes granular pension information, but this is only received by the ECB (see section 2.1.2 below).

COMPLETENESS AND DATA QUALITY

47. EIOPA has not made use yet of the data included in Solvency II on pensions entitlements. Also without a definition of what comprises pension entitlements, it is very difficult to assess the quality of the information received in template S.14.01. In any case, the reported values appear low compared to other sources of information on pension products provided by insurance undertakings.

2.1.2. ECB

48. The ECB has started to collect detailed information from pension funds as of 2019 due to the continued importance of pension schemes in household income provision and the institutional role played by pension funds in financial markets.

49. The data received by the ECB is largely aligned with the data received by EIOPA according to its BoS decision (see also paragraphs 23-27) but with the following differences:

- The ECB's scope is wider. EIOPA's scope is limited to IORPs whereas the ECB receives data from all pension funds, whether or not these fall under the scope of the IORP Directive. For example, pension funds regulated by national regulation only, will report to the ECB but not to EIOPA.
- The ECB has added some data points to be submitted to the ECB only. For example, in the balance sheet template 'Excess of assets over liabilities' has been added which is not received by EIOPA.
- The ECB has added some additional templates according to their data needs and statistical requirements. These additional templates refer to pension funds reserves, liabilities for statistical purposes and liabilities split by country.

50. In addition, the ECB also receives technical provisions relating to the pension products and plans provided by insurance undertakings. This information is split by occupational and personal pensions and personal pensions are split between DB, DC, hybrid products.

2.1.3. EUROSTAT

51. Eurostat collects pension-related information in three of its databases. The main benefit of the Eurostat data compared to all other data sources is that it also provides statistics on public pensions.

ESSPROS

52. The European system of integrated social protection statistics, abbreviated as ESSPROS, provides a coherent information on social benefits to households and their financing in the EU. It includes data on precisely defined risks and needs such as health, disability, old age, family and unemployment. In this respect, it also includes data on pension beneficiaries and their social benefits.

PENSIONS IN NATIONAL ACCOUNTS

53. Information included in the Pensions in National Accounts database is collected for both private and public schemes, including pay-as-you-go, defined benefit and social security pension schemes. However, personal pension products are excluded.

54. The data provides a comprehensive overview of households' pension entitlements. It reflects the impact of mandatory social insurance — by different types of pension schemes — to ensure income at retirement. Statistics contain accrued-to-date liabilities of the social security pension scheme and follow ESA 2010, allowing for comparability across Member States.

55. Eurostat has stressed that these data are not a measure for the sustainability of the systems included in the scope.

EU-SILC

56. The EU statistics on income and living conditions, abbreviated as EU-SILC, is a database containing data mainly focussing on income, including pensions. In that respect it is used a reference for data on personal income, poverty, social inclusion and living conditions.

57. Rather than a survey, the data is collected by interviewing targets which are consulted yearly (primary targets) or maximum every four years (secondary targets). Therefore, it is possible to include granularity on the activity status, type of household, age, education level, etc.

2.1.4. SHARE

58. The Survey of Health, Ageing and Retirement in Europe (SHARE) is a study of the different ways senior citizens and their families live in Europe. The study includes a great diversity of information: health condition, mental and physical well-being, economics and social positioning.

59. The data is collected by conducting face-to-face interviews of individuals aged 50 and older and their partners. During the interviews, data is collected relating to a wide range of subjects. Information on retirement savings is collected in the section on the financial history. Due to the harmonised questions and objective measures, it allows for comparisons of the living conditions of the interviewees in the different Member States.

60. The first survey was conducted for in 2004 and subsequently every two years, including more Member States in every round. Currently it covers all Member States plus Israel.

61. Covering the key areas of life, namely health, socio-economics and social networks, SHARE includes a great variety of information: health variables, physical measures and biomarkers, psychological variables, economic variables and social support variables as well as social network information

2.1.5. OECD

62. The OECD's primary source of pensions' data are their annual pension statistics. This includes data of funded pensions by type of pension plans and funding vehicle. It includes all type of pension plans (occupational/personal, mandatory/voluntary). It includes information on investments, liabilities, contributions, benefits paid, expenses and member data.

63. The OECD database is complete in that it contains data from all OECD countries and a number of additional non-OECD countries. However, it does not include all Member States. Not all Member States are members of the OECD, while not all remaining Member States were included in the data provided by non-OECD jurisdictions (e.g. Cyprus is excluded).

64. In addition, the OECD collects qualitative and quantitative data directly from large pension funds and public pension reserve funds, which are considered the largest in the world. The information collected predominately relates to the investment portfolio of these pension vehicles. Data from these entities has been collected six times in the past ten years.

2.1.6. FINANCIAL STABILITY BOARD - FSB

65. The FSB does not collect data on pensions on a regular basis. However, in 2017 its Regional Consultative Group (RCG) for Europe published a Report on the functioning, vulnerabilities and future challenges for private pension schemes in Europe. [15]

66. To gather evidence needed to support its analysis, the FSB launched a survey to the FSB RCG-E countries. A first section of the survey built on EIOPA's database on Pension Plans and Products in the EEA but included more quantitative data (e.g. contributions and benefits paid).

67. The FSB Report concluded that the availability of pension data varied significantly from country to country and between the various types of pension providers. It indicated that pension products provided by insurance companies, banks and asset managers were often included together with the other products marketed by these providers in general statistics, but that data on pension specific products was often absent. An explanation for this data gap was found in the fact that supervisory and reporting requirements often focus on provider sustainability rather than collecting statistical data on product classes if they are not required by national or EU law. Therefore, pension data is often not available or fragmented.

2.1.7. DATA ON NON-PENSION LONG-TERM SAVINGS INSTRUMENTS

68. EIOPA considers that pension products are defined as those products which are included in the EIOPA database on pension plans and products referred to in the above. These are the

[15] https://www.fsb.org/wp-content/uploads/P171017.pdf.

products which national supervisors understand as pension products. However, pension products are not the only long-term savings instruments.

69. Such data on non-pension long-term savings instruments appear not to be available at international organisations. One of the main reasons could be that there is no readily available definition of 'long-term savings instruments'. Therefore, one cannot determine the scope of the required data. Finding a common definition on a 'pension product' across Europe is already a hard task due to their characteristics, which can vary between countries. It should be no surprise that defining long-term savings instruments is an even harder task, as many more products could possibly be included within its scope. For example, is a loan for a house a long-term savings product? Some products could also have the aim for long-term savings but are liquid, in the sense that these can be readily sold.

70. However, data on household incomes and households financial assets does exist with Eurostat, the OECD and the ECB. These make a split between debt and savings. Often also further granularity is included by defining certain savings categories such as insurance and pension products, deposits, equity and other shares, etc. However, as stated above, there is never a category which differentiates between long-term and short-term savings.

2.2. PENSION DATA AVAILABILITY AT NATIONAL LEVEL

2.2.1. GENERAL

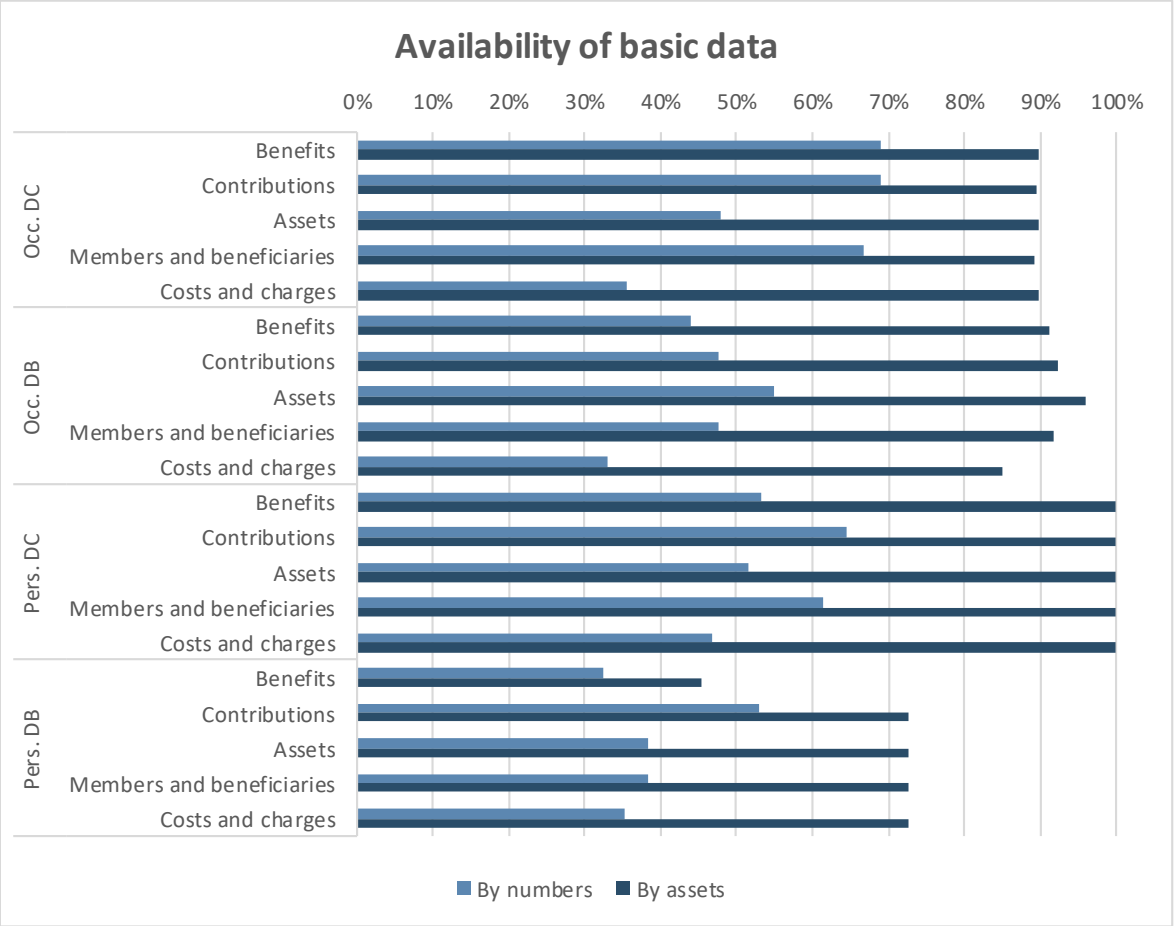
71. The availability of data in the Member States is closely related to the national pension system, the nature of supervision and which information, not directly related to supervision (e.g. pension adequacy data), is considered relevant by the various entities in these Member States. The below analysis is based on the EIOPA survey among NCAs to assess the availability of data in their Member States. NCAs were recommended to collaborate with other entities in their countries but not all were able to.

2.2.2. AVAILABILITY OF BASIC PENSION DATA

72. The availability of the basic data such as benefits, contributions, assets, members and beneficiaries, and costs and charges is included in Figure 2.1 below. It links the results from the survey with in EIOPA's Database on pension plans and products. The availability of data is weighted with the number of pension plans and products distinguished in the database (blue bars). The assessment was also conducted by weighting the availability of data with assets in order to take into account the importance of the products at national and EU level. However, it should be reminded that data on assets are not reported by each NCA and for every product. Therefore,

results could be biased as these are reported as zero for non-IORPs and assets have only been included for those products where information on the assets was available.

FIGURE 2.1: DATA AVAILABILITY: BASIC DATA



73. The main conclusion is that, for most variables, information is collected for half of the occupational products, independently of whether these DB or DC but that this percentage drops for the personal pension products. It also shows that in most cases, the availability of the data when weighted by assets is higher than when weighted by number of products. This can be explained by the fact that more information is to be reported by those products and providers, which are most important in a Member State. In addition, the reporting requirements from a few big countries and products further positively influence the market share by assets. At the same time, assets might also be missing for non-IORPs thereby skewing the results. As IORP's assets are generally available as well as other basic data, figures by assets shows more positives despite the inclusion of non-IORPs for which both assets and basic data are unknown.

74. The opposite is true for the contributions, and members and beneficiaries for occupational DC schemes. The lack of data collected for a few products, which accounted for a huge part of the total EU market share explains the low data availability for occupational DC in this area.

75. In general, data appears to be least available for personal DB products. This can be explained by the lack of data collected for a few products, which accounted for a huge part of the total EU market share. In addition, personal DB providers are - for about one third of the products - not provided by IORPs or insurance undertakings but by pension funds operating under national legislation, investment companies, banks, etc. (there providers are included in the category 'other' hereafter). These are sometimes not part within the scope of the EIOPA NCA, and subject to different, potentially to the EIOPA NCA unknown reporting requirements. See also Annex I for further information on the aggregated data availability in the EU.

2.2.3. OTHER LONG-TERM SAVINGS INSTRUMENTS

76. Nine (BE, DE, DK, FR, HU, LV, PL, PT, SI) out of the 29 NCAs responding to the survey indicated that data are available on other long-term savings instruments. These relate to data on other insurance-based investment products (8 Member States), savings accounts (6 Member States), direct (6 Member States) and indirect investments (5 Member States) in equity and bonds, investments in real estate for own use (2 Member States) or not (1 Member State) or other saving products (3 Member States).

2.2.4. FINAL CONSIDERATIONS

77. In the responses to the consultation paper, many stakeholders referred to the information available at a national level. The statistical annex to the consultation paper shows that there is indeed 'basic' information available in many countries, especially for IORPs. However, the data is also not available everywhere and especially for non-IORPs, there exists huge discrepancies in the data availability between countries. Furthermore, the results show that there are substantial data gaps in almost all countries - for all product categories and all providers - if the indicators for the dashboard would build on more granular data. This assessment on the data availability at national level, also raises questions on the completeness of the data provided by other pension data sources.

78. Finally, it should be taken into account that these results provide no assessment on the additional effort required from providers if additional information were to be requested. Information can be readily available at the pension providers but might not be collected in a Member State by the NCA or another entity.

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Pension products could be identified by their inclusion in EIOPA's database on pension plans and products. This includes an overview of all pension products, plans and schemes in its database as well as their characteristics. EIOPA also collects granular data from IORPs to support its supervisory role on these entities. However, it does not collect much quantitative pension data from other pension providers.

A lot of data on pensions is collected by international organisations. Such information can be found at the ECB, the OECD, Eurostat and in the SHARE databases. The ECB collects similar data as EIOPA on IORPs but complements this with additional pensions data collected from insurance undertakings. The OECD collects data from almost all supplementary pension providers, including book reserve schemes. However, not all EU countries are members of the OECD or included in the data collected from non-OECD members.

Data on statutory pensions is available in the Eurostat databases. In addition, the Eurostat-SILC database as well as the SHARE database include much more granular data collected from interviewees. These are excellent sources to assess the income in retirement adequacy.

Data on other non-pension long-term savings is generally lacking. Should the European Commission intend to include these in the dashboard, a comprehensive definition of 'other non-pension long-term savings products' would need to be established.

The survey among NCAs confirms the conclusions from the assessment of the data availability at EIOPA and international organisations that much (basic) data is available but that it is not always collected for every pension product or category and in every country. Basic pension data is available at the national level for about half of the products, independently of whether these are occupational or personal and DB or DC. Furthermore, this exercise shows that there are substantial data gaps for all product categories and all providers if the indicators require data that is more granular.

Chapter 5 assesses whether the pension information available at national and international level is sufficient in terms of coverage and granularity to fulfil the minimum data needs to make pension projections (Chapter 3) and the proposed indicators for pension dashboards (Chapter 4).

3. PENSION PROJECTIONS

EXTRACT FROM CALL FOR ADVICE (SECTION 1.1, 1.2, 4.1.2 AND 4.3):

"Member States have been projecting age-related public expenditures jointly with the European Commission since 2006 and future pension adequacy since 2012. The economic and budgetary projections are published every three years in the Ageing report … While all Member States project expenditures on public pensions over the next 50 years, and replacement rates over the next 40 years, few have done so for non-public pension schemes. Complementing those projections with non-public pensions would allow obtaining a comprehensive picture of future pension developments."

"The advice provided by EIOPA on the coverage of occupational and private pensions and indicators for pension dashboards should be provided with an understanding that it could complement the economic and budgetary projections of the Ageing report that the European Commission produces together with the Economic Policy Committee."

"Since pension projections cover all Member States, EIOPA is asked to inform about country-specific conditions that need to be accommodated to ensure the reliability of projections. This should, in particular, include cases where Member States do not have a well-developed occupational (and personal) pension sector. EIOPA is thus invited to indicate where special assumptions or solutions should be applied, and if so, what they should be, in ageing projections, notably in case of substantial idiosyncrasies in the set-up of national schemes. Examples of such national specificities may include schemes that provide one-off payments (that would need to be converted into annuities); and/or of employees' pension entitlements backed up by own resources of the company that employs them."

"EIOPA is invited to report on data that can provide useful supplementary information, even if this is not strictly necessary for pension projections at aggregated level. With regard to the interpretation of the outcome of projections, such potentially supplementary information could relate for example to data necessary to calculate replacement rates (i.e. the benefit of pension entitlements relative to wages), such as the proportion of wage-earners and self-employed

among pension beneficiaries and information on differences in income distribution of users of these pension schemes and the overall population."

3.1. GENERAL CONSIDERATIONS

79. When discussing pension projections, first of all, it is important to clearly set the aim of such projections, as it will define the time horizon, the outputs of the exercise, the structure of the presentation of the results (including coverage and granularity of the presentation) and the approach and methodologies to be applied.

80. The purpose of this chapter is to discuss how Member States could make long-term pension projections with the aim of assessing the contribution of occupational and personal plans or products to future retirement income at the level of the Member State, taking as main reference the structure and outputs of the pension projections made by the Economic Policy Committee (EPC) working group on Ageing Populations and Sustainability (AWG).

THE AGEING REPORT

81. The EPC-AWG has been producing, every three years, long-term projections of age-related expenditures as part of the Ageing Report[16]. These projections, showing the economic and budgetary impact of ageing populations, feed into a variety of policy debates and processes at the EU level.

82. The long-term projections are based on commonly agreed methodologies and assumptions. These assumptions include Eurostat's population projections and a set of key macroeconomic variables covering the labour force (participation, employment and unemployment rates), labour productivity and the interest rate, as well as the GDP. The long-term projections include a broad range of alternative scenarios and sensitivity tests, reflecting the uncertainty surrounding the baseline scenario. Based on these assumptions, separate budgetary projections are carried out for four government expenditure items, namely pension, health care, long-term care and education.

83. Pension projections are run by the Member States using their own national model(s), allowing the projection to capture the country specificities, while ensuring consistency by basing the projections on commonly agreed underlying assumptions. Public pensions have been the focus of the projection exercises. Member States may report private (either occupational or

[16] The 2021 Ageing Report has been published in 7 May 2021: https://ec.europa.eu/info/publications/2021-ageing-report-economic-and-budgetary-projections-eu-member-states-2019-2070_en

personal) pension projections on a voluntary basis. In the 2021 Ageing Report, 10 countries reported non-zero data, mostly for occupational and individual mandatory schemes.

OUTPUTS OF THE PENSION PROJECTIONS UNDER THE AGEING REPORT

84. According to the reporting sheet of the 2021 Ageing Report, the variables (i.e. outputs of the pension projections) that are expected for supplementary pensions, separately for occupational schemes, individual mandatory schemes and individual non-mandatory schemes are the following:

- Pension expenditure;
- New pensions (for which a breakdown by number of new pensions, average contributory period, average accrual rate, monthly average pensionable earning, adjustment factors and average number of months paid the first year is foreseen);
- Tax revenues;
- Number of pensions;
- Number of pensioners;
- Contributions;
- Number of contributors;
- Assets / reserves and average return (%).

85. These results, together with other projections on average gross wage (at retirement), are then used to calculate indicators such as the benefit ratio (i.e. average pension income per pensioner divided by the average gross wage) and gross average replacement rate (i.e. average amount of new pensions per new pension divided by the average gross wage at retirement).

86. The reporting of total pension expenditure by age group and total number of pensioners by age group and gender is also foreseen, meaning that this disaggregation is also expected for private schemes.

RELATION BETWEEN METHODOLOGY, DATA AVAILABILITY AND ASSUMPTIONS

87. The analysis is based on the assumption that calculations will be performed by the Member States (i.e. government agencies / departments and / or NCAs), as oppose to pension providers, meaning that projections will most probably be conditioned by data availability issues (i.e. data that would be available at an individual provider level but not collected by the institutions making the calculations) and so additional assumptions or simplifications will have to be made.

88. There is a two-way relationship between methodology and data: on one hand, the choice of the methodology determines the data that is needed to perform the calculations; on the other hand, data availability also determines the methodologies that are possible.

89. To accomplish the purpose of identifying a minimum set of data (in terms of scope and granularity) and assumptions to be considered when data is not available, one has to give some consideration to possible modelling approaches that could be applied. Nevertheless, it is not the aim of this chapter to set a one size fits all type of model. In fact, given the heterogeneity of occupational and personal pensions across the EU, flexibility is a key element in order to ensure that the specificities of the plans and products and the underlying population are appropriately captured. It is therefore also not the aim of the proposals to prevent Member States from using their own models or performing calculations at a more granular level, when possible, and subject to a certain level of consistency with the general specifications of the exercise (e.g. common demographic, economic and / or financial assumptions that could be established by the European Commission) to ensure some comparability of the results between Member States (or even within a Member State, given the potential variety of plans and products).

90. Another key element of making pension projections is the application of the proportionality principle, to ensure an appropriate balance between the burden of data collection and making calculations and the gains in terms of quality and / or reliability of the results.

91. Given the complexity of pension projections and foreseeable limitations in terms of data availability, consideration should be given to the adoption of a staged approach, starting with a lower level of ambition in terms of outputs to be produced, coverage and quality (e.g. including the most representative segments only, use of simpler models) in the short term and enhancing over time.

92. In the following points, a more detail discussion on how to make pension projections and modelling issues is presented. A summary of possible modelling approaches per type of envisaged variable and the relation with the potential data and assumptions that are needed is presented in Annex II.

3.2. GRANULARITY OF THE PROJECTIONS

93. The structure of the presentation of the results will, in principle, determine the minimum level of granularity at which the calculations should be made.

94. In this regard, EIOPA is assuming that the disaggregation between occupational and personal pensions, as in the Ageing projections, is envisaged, provided that data availability allows to make such disaggregation, especially at an initial stage.

95. However, this does not mean that, to the extent possible, projections should not be done from a more detailed perspective and the results aggregated to the level that is intended.

96. While for the public system, it is more likely that pension rules are similar for the entire population or subsets of the population, in the scope of private pensions, not only the heterogeneity between Member States needs to be considered but also, within the same Member State, the specificities of the different categories of pension plans and products. In general, the levels of granularity can be divided into:

- Level 1: Occupational vs personal;
- Level 2: DB / hybrid / DC;
- Level 3: Plans or products that falls in the scope of each category in Level 2 (e.g. DB scheme that covers the employees of a certain company, unit-linked type insurance pension product);
- Level 4: Individual members and beneficiaries / individual contracts covered by a plan or product (e.g. an individual that is contributing to a certain insurance product).

97. In principle, the more granular the calculations, the more reliable the results will be, as it allows to take into account the specific individual features. However, this may not be feasible due to data availability issues and very detailed calculations will also increase the burden of pension projections.

98. Although some consistency between Member States in terms of granularity of the calculations is desirable, this will ultimately depend on the data availability.

3.3. MODELLING APPROACH

99. Depending on the aim of the pension projections, the modelling of risks, especially regarding financial parameters, can be based on a stochastic approach or a deterministic approach.

100. The use of a stochastic approach allows the simulation of the randomness of the real world and the calculation of a large range of scenarios. Probabilities can then be attached to the outcomes of the simulations and confidence intervals can be determined. Implementing and running a stochastic approach is, however, more complex and burdensome than performing deterministic calculations.

101. On the other hand, if the purpose is to complement the Ageing projections, where a set of pre-defined underlying assumptions for different scenarios are provided by the European Commission, then a deterministic approach should be followed.

3.4. NON-PENSIONS RELATED ASSUMPTIONS

102. For making pension projections, apart from assumptions that are related to the data and the characteristics of the pension plans and products, demographic, economic and financial assumptions are also needed.

103. Taking as reference the Ageing projections, the demographic and macroeconomic assumptions that are made available by the European Commission generally cover the inputs that are required for making supplementary pension projections.

104. Within this set, some of the most relevant assumptions are the following:

- Mortality rates and other population projections;
- Labour market assumptions, such as unemployment and wages;
- Inflation rate;
- Interest rate return.

105. As these assumptions are provided for the overall population of a Member State, if they are used for private pension projections one should take into account whether they appropriately reflect the specificities of the population covered by supplementary pension schemes. It may happen that only certain groups of individuals have access to such plans and products and, therefore, instead of using population or economy-wide assumptions, in order to obtain more reliable results, a more tailored approach could be considered.

106. Given that private pensions are mostly funded schemes, in which benefits paid and / or level of contributions are generally dependent on the financial performance of the assets, the assumptions on assets return are particularly relevant.

107. Each asset portfolio financing pension plans and product will have its own investment policy and the existence of different investment options and the application of life cycle strategies may also lead to changes in risk profiles over time, with impact on returns.

108. Therefore, instead of a single interest rate assumption as it is provided in the Ageing projections, it could be considered setting common return assumptions for each main category of assets, such as government bonds, corporate bonds, equities, etc., to be used where data on asset allocation is available. An approach like the one applied in the 2019 EIOPA IORPs Stress Test[17], with the definition of risk premiums over risk free rates per main asset classes is an example of how prospective return assumptions could be set.

[17] https://www.eiopa.europa.eu/occupational-pensions-stress-test-2019_en.

3.5. PENSIONS RELATED ASSUMPTIONS AND OTHER MODELLING ISSUES

109. At the most aggregate level, pension projections could be performed using total amounts of the variables that are available, looking at past trends and making assumptions on how these variables will continue to develop in the future.

110. In case it is possible to take into account the type of scheme (i.e. DB / hybrid / DC), the model to perform pension projections will be different, as well as the data and assumptions needed.

111. Nevertheless, there are some common issues that should be considered in all cases.

MODELLING OF THE NUMBER OF MEMBERS AND BENEFICIARIES

112. Irrespective of the type of scheme, the projection of future pension entitlements depends on the evolution of the number of members and beneficiaries.

113. The number of members depends on new entries and exits that occur in each year and having the age distribution would allow some insight into the length of the accumulation period.

114. If detailed historical data on past dynamics is available, one possibility will be to project such trends into the future. Otherwise, assumptions on entry and exit rates and / or the respective age profile will have to be assumed based on expert judgement.

115. Another possibility is to project the members' population based on the Member State's total population and making some assumption on the coverage rate.

116. Similarly, to determine the number of beneficiaries in each year, one needs to consider the number of members that becomes entitled to pension benefits in each year (i.e. new beneficiaries). This tends to be lower than the decrement in the number of members, as exits can occur due to other reasons other than retirement (change of employment, death, etc.)

117. An additional aspect to be considered is the time of when a person becomes entitled to benefits. This will mainly depend on the expected retirement age, but pension plans and products can foresee other contingencies that will give rise to the payment of benefits. This part is discussed in more detail in the next point.

118. To determine the decrease in the number of beneficiaries, mortality rates that appropriately reflect the life expectancy of a certain population or sub-population are the most relevant assumption to be considered.

CONTINGENCIES FOR THE PAYMENT OF BENEFITS

119. While the pay-out phase will generally start at the expected retirement age, country or plan and product specific rules may allow for early withdrawals in certain specified conditions (e.g. after a certain age, adverse events that affect the health or financial situation of an individual, etc.) or even at any time, subject or not to certain penalties or withdrawals fees. Deferred retirement may also be possible.

120. In addition, pension plans and products can foresee other types of coverage other than retirement such as disability, illness, unemployment, early retirement, survivorship (partners and descendants), health benefits, etc.

121. If these contingencies are, where applicable, to be modelled, it will require additional assumptions on the probability, timing and the amount of benefits to be paid.

PAY-OUT PHASE

122. Another aspect to consider is the design of the pay-out phase, i.e. life annuity, programmed drawdown and / or lump sum.

123. In order to ensure the comparability of results between different plans and products, when lump sums are allowed, accumulated capital can be converted into a life annuity for projection purposes. For this, assumptions on annuity rates will be needed.

124. Also in this case, attention has to be paid to the fact that beneficiaries that have received a lump sum payment in the past will no longer be included in the statistical data in the following years (or, in case of a partial lump sum payment, only the remaining amount of the benefits will be included in the database). Therefore, the number and / or amount of pensions in payment may be underestimated in these cases.

125. There may also be situations where the accumulation and decumulation are not within the same provider or even type of provider (e.g. accumulation phase is within an IORP but the payment of a life annuity is transferred to a life insurance undertaking).

126. At last, to model pensions in payment, where applicable, consideration should also be given to indexation rules (e.g. to inflation or other external indexed), profit sharing, other discretionary increases and / or benefit reductions mechanisms.

OTHER CHARACTERISTICS OF DC TYPE SCHEMES (INCLUDING DC WITH MINIMUM GUARANTEES)

127. For schemes with a DC nature, the level of future retirement income is generally determined by the contributions paid and investment returns, subject to costs and charges.

128. Where contributions are linked to wages, data and / or assumptions on contribution rates and members' salary and salary growth will be needed.

129. Contribution rates may differ from scheme to scheme and even for the same scheme, it can be different for different members. Therefore, average assumptions may need to be estimated, e.g. using aggregate data on contributions and salary.

130. For plans or products where contributions are made on a purely voluntary basis, the level and timing can be even more volatile. As simplification, stable patterns may need to be assumed.

131. The modelling of asset returns, as discussed above, are particularly relevant for this type of schemes.

132. Where applicable, average financial guarantees that are offered by the providers and / or sponsors (in the case of occupational pension schemes) also needs to be taken into account.

OTHER CHARACTERISTICS OF DB TYPE OF SCHEMES

133. In DB schemes, benefits can be fixed or calculated according to a formula that may consider the years of service, age and /or level of salary (e.g. final, average salary, etc.).

134. Particularly for occupational pension schemes these rules can be defined by a contractual agreement between individual employers and employees or at sector / industry level (e.g. by collective bargaining agreements). Within the same company, the rules can also be different for different employees. For personal products, where applicable, the rules will depend on the contractual clauses. It could therefore be difficult to define a common model and assumptions that would fit all cases.

135. On the other hand, given the potentially large number of plans and products, a certain level of standardization of the pension rules and grouping of schemes using approximations may be required to estimate the amount of the pension to be paid in the decumulation phase. Assumptions on annual accrual of pension entitlements will probably be needed for this projection.

136. In DB schemes, contributions and, where applicable, sponsor support, may depend on the funding level of the schemes, meaning that the projection of technical provisions may be required, together with the evolution of the total amount of assets.

137. Where the modelling approach applied requires the projection of technical provisions, the collection of data with regard to expected (unconditional) cash flows on benefits to be paid may be a useful input to calculate the actuarial value of liabilities in future years. In addition, where benefits do not depend on the funding level and / or other types of non-guaranteed indexation, these cash flows directly provide an estimate for the future amount of benefits. In case data on

cash flows is required, providers will be the ones performing such calculations, leading to the need to ensure consistency with other assumptions that are being made in the projection exercise (e.g. by using interest rate/longevity sensitivities).

3.6. IMPACT OF GOVERNMENT POLICY ON SUPPLEMENTARY PENSIONS

EXTRACT FROM CALL FOR ADVICE (SECTION 4.1.2):

"As developments in public finances may shape the development of the occupational (and personal) pension sector, EIOPA is asked to analyse whether and how the public sector activity has impacted on the use of occupational (and personal) pensions. If deemed relevant for the reliability of projections, EIOPA is invited to propose how the public sector involvement should be treated in projections, i.e. tax incentives in accumulation and taxes in retirement phase, link to public minimum support and other interaction with public pension or other benefit schemes."

138. Beyond the provision of state pensions to entitled individuals, government policy and public intervention has an effect on supplementary pensions. National governments rationale for designing and implementing public policies lies in supplementary pensions capacity to cope with challenges welfare states are facing. With regard to public finances sustainability, occupational and personal pensions are perceived as a potential policy response to relieve exerted pressure on budgetary constraints. Also, from a pension adequacy perspective, consumption smoothing, poverty risk-reductions and welfare-enhancing can be assisted by an increased reliability on supplementary pensions. At national level, diverse mechanisms and strategies have been adopted to increase contributions in both occupational and personal pension plans. Government policy impact on supplementary pensions can be qualified as direct (e.g. automatic enrolment schemes, financial incentives and retirement savings) or indirect (i.e. depending on the generosity of publicly provided pensions).

139. Direct impact of government policy on supplementary pensions can be described as policy measures or incentives undertaken to impact occupational or personal pensions sectors provision. Automatic enrolment and financial incentives are part of them.

140. A rising-popular and more widely used option by governments is automatic enrolment in private and funded pension schemes, as highlighted by OECD, Increasing private pension coverage and automatic enrolment schemes: Evidence from six OECD countries, Chapter 4 in Pensions

Outlook 2014[18]. Including such a feature aims at increasing participation and involvement in privately provided plans hence coverage of funded schemes. Automatic enrolment has the potential to overcome issues associated to voluntary and non-compulsory participation (e.g. inertia, procrastination, lack of pensions knowledge or/and interest). Additionally, it still allows individuals to opt-out of the scheme leading them to be involved and responsibly engaged in the way they plan their future pension. From experience and evidence from six OECD countries, automatic enrolment resulted in an overall increase on coverage of private pensions. However, the extent to which it increased varies considerably from one country to another ranging from +48.6 percentage points for New-Zealand to only +7.5 percentage points in Italy. As the main account for explanation, OECD pointed out that observed discrepancy among countries can be explained by the automatic enrolment schemes design. Numerous components and parameters of the plan seem to have an effect on coverage, including non-exhaustively target population, opting-out window and re-enrolment and contribution rates.

141. A common tool for a government to influence individual behaviour and decision-making is introducing or removing a tax or adjusting the taxation rate in case it already exists. Any modification of the financial environment experienced by individuals is likely to make them reconsider the choices they previously made; hence resulting in a behavioural response (i.e. though inaction can also be considered as an individual response). To increase overall savings or make the contributions of complementary pension plans grow among others alternative explanations for taking action, financial incentives appear to be potential policy response. Chapter 4 in the OECD report Financial Incentives and Retirement Savings 2018[19] assesses the effectiveness of financial incentives regarding participation increase and contributions to retirement savings plans. From empirical results and academic literature evidence, numerous methodological issues jeopardise a clear interpretation of results. This issue can be explained by the diversity of tax and non-tax financial incentives characteristics (e.g. TTE, EET or EEE tax regimes; contributions limits, eligibility criteria and more). Nevertheless, three main points emerge from this report. First, middle and high-income households are more likely to increase participation in and contributions to retirement saving schemes in response to taxable income deduction. Second, increases in those savings can be the result of individuals increasing their savings (i.e. around 25-30% of retirement savings are estimated as "new"; tends to be low-income individuals choice) but also people's choice to reallocate savings from other financial instruments to the retirement plan (tends to be higher-income individuals choice). Third, non-tax financial incentives (e.g. matching contributions) increase participation in retirement saving plans.

[18] https://read.oecd-ilibrary.org/finance-and-investment/oecd-pensions-outlook-2014_9789264222687-en#page1.
[19] https://www.oecd-ilibrary.org/finance-and-investment/financial-incentives-and-retirement-savings_9789264306929-en

142. Government policy has an indirect impact on supplementary pensions if changes to the pension system in general or state pension affect their provision. For example, the pensionable age for supplementary pensions may be linked to the standard retirement age of public pensions or supplementary pensions may only be accumulated above a certain threshold reflecting the minimum public pension.

143. In its survey on pension plans and products data availability sent to NCAs, EIOPA asked whether government policy effects were included in projections. Three countries (IT, NL, SE) indicated government policy effects were taken into account when making projections. They all include changes already adopted in domestic legislation or ratified to be implemented in the future. Clearly, the main component integrated is statutory retirement age. Also, tax rates are included to calculate future projections as both statutory retirement age and tax rates have an effect on private pension coverage. However, not all of the three countries consider potential future changes in legislation. SE did not give more information on this aspect but two members diverge on their approach. Indeed, NL indicated not formulating any assumption regarding possible future reforms. They rely on "constant arrangements" meaning a stable set of baseline parameters.

3.7. PROJECTIONS AT NATIONAL LEVEL

3.8.1. ARE COUNTRIES MAKING PENSION PROJECTIONS?

144. The below table gives an overview of the responses to the question in EIOPA's NCA survey asking if long-term projections for occupational and/or personal pensions are regularly made at country level. Respondents were asked to give reasons if their answer was "No" (also included below).

145. In total, nine NCAs (DK, EE, ES, HR, IT, NL, PT, RO, SE) indicated that long-term pension projections are regularly made in their Member State. Some countries have made projections in the past but they are not carried out regularly. In one country private pension providers do their own projections as the market is quite small.

TABLE 3.1: LONG-TERM PROJECTIONS IN MEMBER STATES AND REASONS FOR NOT MAKING PROJECTIONS

Are long-term projections for occupational and/or personal pensions regularly made in your country, either by your NCA or an (other) government agency/department?			
No		Yes	
20		9	
7	Insufficient data abvailable	4	Yes, only the long-term projections for the EPC's AWG
6	Insufficient resources	2	Yes, both long-term projections for national purposes and the EPC's AWG
4	Making long-term projections is too complex	3	Yes, only long-term projections for national purposes
3	No material risks to the adequacy and sustainability of future retirement income		
1	Occupational and personal pension provision are not material in my country		

3.8.2. PROJECTIONS OF OCCUPATIONAL PENSIONS

146. Six Member States (DK, ES, IT, NL, PT, SE) indicated that long-term projections for occupational pensions are made in their countries.

147. In ES, NL and PT projections are carried out in the context of the EPC's AWG Ageing exercise, in DK and IT they are performed for national purposes and in SE with both of these purposes. Overall, the variables that are projected are within the same nature of the ones that are foreseen in the Ageing exercise, although not always covering all the items. Pension expenditures and number of pensioners (with breakdown by age groups) are the variables most commonly projected.

148. For those Member States that only participate in the Ageing exercise, the length of the projections is the same as the one requested in the latest exercise, i.e. 50 years, until 2070. In the remaining cases, the number of years varies, but tend to be between 30 to 50 years. SE indicated that the model is run for a longer horizon, but they tend to focus on shorter periods.

149. Historical data for the same variables is also available for most cases. The length of the time series varies depending on the Member State and the variables, but in some cases, past data is available for more than 20 years.

150. In what concerns the scope of occupational pension projections, they tend to cover all occupational plans and products or, at least, the most representative part (i.e. schemes that cover the majority of employees, the IORP sector, etc.).

TABLE 3.2: VARIABLES FOR WHICH HISTORICAL TIME SERIES AND LONG-TERM PROJECTIONS FOR OCCUPATIONAL PENSIONS ARE AVAILABLE

	Historical	Projections
Pension expenditure (gross nominal amount)	6	5
- new pensions	3	4
- breakdown by age groups	2	3
Tax expenditure/revenues (nominal amount)	2	2
- accumulation phase	0	2
- decumulation phase	2	3
Benefit ratio	3	3
Gross average replacement rate (at retirement)	2	4
Number of pensions	6	3
- new pensions	3	4
- breakdown by age groups	2	2
Number of pensioners	6	5
- breakdown by age groups	3	5
- breakdown by gender	2	2
Total contributions	6	4
Number of contributors (employees)	5	3
Assets and reserves (nominal value)	6	4
Average annual return (in %)	3	3
Average annual costs (in % assets)	1	0
Other specified below	0	0

Note: Projections of average annual costs are not required in the Ageing exercise

151. In four Member States projections are made aggregating all pension plans and products and, in the other two, by grouping pension plans and products (e.g. in PT projections are made separately for DB and DC schemes).

152. In SE, occupational pensions are simulated in a micro simulation model for a sample which is representative of the Swedish population. This allows the reporting of estimates of a large number of different key data. In NL, the model contains one representative pension fund which represents the total of all individual pension funds, thereby managing all domestic pension wealth.

153. In relation to the calculations and assumptions underlying the projections, the Member States provided the following information:

- **Members and beneficiaries**: Three Member States (ES, PT and SE) indicated that projections are based on detailed data on the membership.

In some Member States, statistical data by age or age group is taken into account, in some cases with reference to the country level population data or projections to obtain the age distribution.

When asked about how the number of (active) members / contributors in modelled, past trends are considered in some cases. There are differences in the modelling approach used by different Member States, for instance, PT indicated that assumptions on entry and exit rates are used, while ES explained that the proportion of members in the total population is considered to remain constant and the evolution of members is estimated based on the demographic projections for the total population.

To determine the number of new pensions, the retirement age, either the current average retirement age or taking into account its future expected evolution, is taken into account;

- **Contributions**: The projection of contributions depend on the type of scheme, but is either based on past or latest available data, on salary data or projections or the actuarial cost-effective contributions for each year;
- **Assets (or technical provisions / accrued benefits)**: Assets tend to be modelled considering contributions paid and investment returns, minus benefits paid. Three Member States indicated that they considered long-term assumptions on investment returns;
- **Pension benefits**: The approach used by different Member States to project pension benefits differs in terms of methodology and granularity.

  For instance, SE, based on the micro simulation model referred above, uses a "bottom up" approach, considering the simulated number of pensioners and their individual pensions, according to the rules in the respective pension system and relevant assumptions (e.g. probabilities to be employed, unemployed, retired, etc.).

  PT estimates the average pension benefit that will be paid in each year, separately for new entrants and existing beneficiaries, and the total is obtained by multiplying the average pension benefit and the pensioners' population.

  To project the future pension benefits, in NL an assumption is made on the accrual rate (same across all age groups and for all years). The important drivers of the annual amount of pension benefits for a cohort of new pensioners are therefore their average pensionable earnings, contributory period and accrual rate. For pensioners, assumptions on the indexation of pensions (combination of price and wage inflation) are made. In both cases, indexation cuts to restore funding levels are considered, when necessary.

154. In addition, four Member States (DK, IT, NL, SE) indicated that projections take into account the impact of government policy (e.g. statutory retirement age, tax rules) on future coverage and benefit levels of occupational pensions.

3.8.3. PROJECTIONS OF PERSONAL PENSIONS

155. Four countries (ES, HR, RO, SE) indicated that long-term projections for personal pensions are made in their country.

156. SE specified there are differences in assumptions between national projections and EPC's AWG ageing exercise. They concern population projections (i.e. Eurostat at EU level versus the statistics office at national level) and labour supply projections (i.e. same characteristics without distinction of birth country at EU level and assumption that foreign born individuals have a lower labour supply at national level). Other assumptions that differ include non-exhaustively productivity growth rates and investment returns on assets.

157. The length of the projections is also the same as the latest Ageing exercise, i.e. until 2070. SE indicated such projections are performed until 2110.

TABLE 3.3: VARIABLES FOR WHICH HISTORICAL TIME SERIES AND LONG-TERM PROJECTIONS FOR PERSONAL PENSIONS ARE AVAILABLE

	Historical	Projections
Pension expenditure (gross nominal amount)	4	4
- new pensions	3	3
- breakdown by age groups	3	3
Tax expenditure/revenues (nominal amount)	1	1
- accumulation phase	0	0
- decumulation phase	0	0
Benefit ratio	2	2
Gross average replacement rate (at retirement)	2	3
Number of pensions	2	3
- new pensions	2	3
- breakdown by age groups	1	2
Number of pensioners	4	4
- breakdown by age groups	1	3
- breakdown by gender	1	2
Total contributions	4	4
Number of contributors (employees)	4	4
Assets and reserves (nominal value)	4	3
Average annual return (in %)	3	3
Average annual costs (in % assets)	2	2
Other specified below	1	1

158. Historical data for the same variables is also available for most cases. The length of the time series varies according to the Member State and the variables, but in some cases, past data is available for more than 20 years. Variables are projected at least for around 50 years in the future.

159. Regarding the scope of personal pension projections, they tend to cover all personal plans and products.

160. In the four Member States making long-term projections for personal pensions, each of them makes them in a different way: SE aggregates by all products/plans, ES aggregates by group of products/plans and RO aggregates by individual product/plan. HR did not give information.

161. In relation to the calculations and assumptions underlying the projections, three Member States (ES, RO, SE) out of four provided the following information:

- **Members and beneficiaries**: Two Member States (ES and RO) indicated that projections are based on detailed data on membership.

  Concerning how the number of (active) members / contributors is modelled, ES uses a percentage of the active members over the total population from latest data available. This rate is constant for projections to obtain projected members by age without assumptions for entry and exit rates.

  RO considers existing members at the date when the projection is made for entry rates and a probabilistic exit rate. SE take into account past trends and assessment of future effects of change in rules.

  To determine the number of new pensions, ES takes into account the amount of future pensioners which is calculated by age, taking into account mortality tables and the retirement age. New pensions are determined without considering early withdrawals. RO uses a probabilistic rate. SE makes projections of new pensions under an assumption of unchanged behaviour.

  To determine the number of existing pensioners, ES uses the same method as the one used for new pensions, based the tables on retirement age. RO does it by using individual biometric data of all members and a probability of occurrence rate. SE bases it on the number of people who has paid contributions earlier and their retirement behaviour, and their estimated life length.

- **Contributions**: Projections depend on type of schemes. From latest data available, ES makes projections year by year considering macroeconomic assumptions. It also indicates that contributions are linked to the salary. RO also bases the amount of contributions on salaries and contribution rates. SE noted that contributions are only tax deductible for self-employed without an occupational pension since 2016, this has lowered the number of contributors a lot.

- **Assets (or technical provisions / accrued benefits)**: ES models the projections of TP and accrued benefits (DB) as equal to the amount of this variable last year plus the contribution of the year minus the benefits paid. RO uses the sum of stochastic simulation of individual accounts evolution based on the individual biometrical data/contribution/salary/historical returns of the pensions fund/risk free rate/HICP/GDP projection. SE bases on assumption on average return which follows an average interest rate.
- **Decumulation phase**: RO and SE use annuity rates for projections and ES uses a mix of capital and annuity rate (in %).
- **Pension benefits**: There are different approaches countries take. However, countries tend to adopt the same method for projections of benefits and projections of benefits related to new pensions.

  SE uses rules concerning the pensions system and assumptions on average return on funded pension deposit.

  ES adds yearly contributions to current assets and deducts benefits paid to project pension benefits.

  RO makes benefits projection by using the stochastic simulation of the evolution of individual accounts taking into account the individual biometrical data, contribution, salary, historical returns of the pension funds, risk free rate, HICP and GDP projection. Assumptions are made for the type of annuity and probability of occurrence rate.

162. IT and SE indicated that they take into account the impact of government policy on future coverage and benefit levels of personal pensions. It includes present rules and future changes decided by parliament or other governing bodies.

3.8.4. DIFFERENCES WITH AWG PROJECTIONS

163. Only one Member State (SE) that does both long-term projections for national purposes and for the EPC's AWG, specified if there were any differences in the features and underlying assumptions provided for the projections for national purposes compared to the projections for the EPC's AWG. SE noted that there are a number of differences in assumptions between national and AWG projections, but they are made the same way, using the same model. The differences indicated included - population projections, productivity growth rates and investment returns. SE also noted that the demographic projections of the AWG differed fundamentally from those provided by their national statistical authority.

ADVICE TO THE EUROPEAN COMMISSION

The discussion on pension projections is based on the perspective that calculations will be performed by the Member States (e.g. by government agencies / departments and / or NCAs), with the aim of complementing the public ageing expenditures in the Ageing report projections.

In this regard, EIOPA is assuming that, where data availability allows, the disaggregation between occupational and personal pensions is envisaged and that the variables to be projected are the ones that are foreseen in the Ageing report for supplementary pensions.

Given the heterogeneity of occupational and personal pensions across the EU, it is not the aim of EIOPA to set a one size fits all type of model. In fact, flexibility and proportionality are considered key elements for this exercise.

Also, given the complexity of pension projections and foreseeable limitations in terms of data availability, consideration should be given to the adoption of a staged approach, starting with a lower level of ambition in terms of outputs to be produced, coverage and quality of results in the short term and enhancing over time.

Regarding non-pensions related data and assumptions, apart from the demographic and macroeconomic assumptions that are made available by the European Commission in the context of the Ageing report projections, EIOPA considers that the assumptions on assets return could be particularly relevant for private pensions, which are mostly funded schemes. In order to appropriately reflect the investment profile of different asset portfolios, a common approach to model future returns could be foreseen, to be used where data on asset allocation is available. An approach like the one applied in the 2019 EIOPA IORPs Stress Test, with the definition of risk premiums over risk free rates per main asset classes, is an example of how prospective return assumptions could be set.

Depending on the type of scheme (i.e. DB / hybrid / DC), the model to perform pension projections will be different, as well as the data and assumptions needed.

EIOPA considers that the minimum set of quantitative data that is needed to make pension projections are (as applicable):

- data on members broken down by active members, deferred members and beneficiaries, and member flow data;

- pensions in payment;
- contributions;
- assets, if possible, considering asset allocation;
- value of liabilities;
- cost and charges;
- breakdown of assets (for DC), liabilities (for DB), contributions and members and beneficiaries by age or age group and gender, which will, among other aspects, provide some basis for modelling the length of the accumulation period, the start and the end of pension payments;

Besides the minimum set of quantitative data, information on cash flows or sensitivities of liabilities with respect to interest rate and longevity changes would be beneficial to project DB liabilities using common interest rate and life expectancy assumptions in EU-wide projections.

Pension projections will also depend on information of a more qualitative nature, such as legal and / or contractual rules, that determines the characteristics of pension plans and products, including, but not limited to:

- formulas for calculating benefits, including minimum guarantees and annual accrual rates;
- contingencies that give rise to the payment of benefits;
- pay-out options that are allowed;
- indexation rules;
- security and benefit adjustment mechanisms.

Where this information is available and it is feasible to take it into account in the model, it will, in principle, enhance the quality of the results. However, it has to be recognised that for making aggregated projections such as one envisaged in the chapter, it may not be proportional in terms of costs and benefits to do so.

Finally, pension projections should take into account the direct and indirect impact of implemented government policy on the future provision of supplementary pensions (e.g. changes in future retirement age).

When making projections, to the extent possible, Member States should take these characteristics into account. Statistical data may also provide some insights on these characteristics and serve as a basis for making assumptions on the future behaviour of certain variables (e.g. when there are options regarding, for instance, early withdrawals, statistical data can be used to estimate the probability or size of early withdrawals in the future).

4. PENSION DASHBOARDS

164. This chapter explores the designs of dashboards that are currently in use in an EU context and how their design might suit a European pensions dashboard. The second half of the chapter sets out methodologies and indicators for building a pension dashboard. The final section explores the governance options for a European wide pensions dashboard.

4.1. DEFINITION OF A DASHBOARD

165. A dashboard takes large data sets and presents them in a way that is manageable to analyse, compare and comprehend. By prioritising the visual display of the data through charts and infographics instead of large data spreadsheets or overly textual analysis, overviews of complex data can be presented easily. Also, through dashboard software (such as Power Bi or Tableau), various large data sets can be made malleable and interactive for study and comparison, making them accessible to larger populations and making the decision making process and the formation of policy more transparent.

WHY ARE THEY USEFUL?

166. Dashboards are particularly useful in a European context due to the number of data sets that need to be compared per each EU/EEA country. Dashboards lend themselves to the analysis of variables and indicators across Member States through a focus on the visual presentation of data and through the use of tools that enable cross country/regional comparisons. For this reason the European Commission and many EU institutions use dashboards and dashboard software to present data sets on a wide range of areas. Examples of existing European Dashboards are presented in Annex III.

TERMINOLOGY

167. For this paper EIOPA has used the Commission's term from the CfA - 'Dashboard' in referring to the tool the CfA sets out to measure national pensions sustainability and adequacy. However, working with both stakeholders and internally on this topic, it became clear that different people attach different meanings to the term dashboard.

168. The term 'pensions dashboard' is used by a number of countries for their personal tracking service (PTS) and is also being used by countries such as the UK and Germany for the PTS services

they are developing. Some stakeholders were confused by the term 'dashboard' and mistook it for a PTS.

169. To avoid such confusion, it may be advisable to emphasise in the title the terms 'sustainability and adequacy' as well as the European nature of the tool – so not to confuse with national tools – or avoid the term dashboard altogether. The European Pensions Adequacy and Sustainability Index (EPASI) or more simply European Pensions Index (EPI), the European Pensions Hub, the European Pensions Adequacy and Sustainability Barometer (EPASB) are some examples of language that could alternatively be used.

4.2. WHAT IS A DASHBOARD?

170. For the purposes of this paper dashboards are defined in the following ways: live dashboards and report dashboards.

LIVE DASHBOARDS

171. A live dashboard is an online visual tool that enables users to view and interact with one or many data sets through the same platform. Dashboards take data sets of either raw data or aggregated key performance indicators (KPI) and through data visualisation software create an interface where data can be compared, contrasted, analysed and extracted. A key component of a live dashboard is their interactive visual element where users can gain an understanding of more complex datasets at a glance, through manipulating and interacting with graphs, maps and other interactive visual tools.

172. Live dashboards are commonly used to track the progress of KPIs and will update as the underlining datasets they are based on update, giving a responsive view of the present situation. A good example of their responsiveness can be found in the various national Covid-19 dashboards that have been used from 2020 onwards to track infection rates and other indicators about the Covid-19 pandemic in specific countries/regions (see Figure A3.1 in Annex III). The ECB Fiscal dashboard is another example of a live dashboard used for policy formation (see Figure A3.2 in Annex III).

REPORT DASHBOARDS

173. A report dashboard shares many of the attributes of a live dashboard but does not have the interactive and constantly updateable elements. As with live dashboards there is a heavy emphasis on visuals to communicate large data sets including graphics, charts and infographics. Report dashboards normally present data in two ways; either through a single comprehensive high-level graphical or visual representation of the data sets (for this paper they are called

'comprehensive report dashboards') or; in addition to the high-level visual representation, further lower level graphics add further granularity and detail and are usually supplemented by textual analysis in a report form (for this report – 'itemised report dashboards'). Report dashboards will be released at regular intervals, for example quarterly or annually, to keep data current and relevant. Often there is a progress report element based on data from previous iterations of the dashboard.

174. Examples of these forms of dashboard are the European Commission's DG AGRI Dashboard on Dairy Products (an example of a comprehensive report dashboard) and the Eurostat Covid-19 Recovery Dashboard (an example of itemised report dashboard but without textual analysis, see Figure A3.3 in Annex III).

4.3. ADVANTAGES AND DISADVANTAGES OF LIVE AND REPORT DASHBOARDS

175. In the context of the CfA to create a pensions dashboard for Europe the following advantages for each type of dashboard are presented and some considerations that should also be taken into account for each.

ADVANTAGES OF A LIVE DASHBOARD

176. A live dashboard will be able to present both an aggregated indicator on pensions gaps across Member States while also give more granular data on adequacy and sustainability across the pensions pillars, through features that enable interaction with the dashboard. This will give more depth and context to an overall aggregated indicator of the pensions gap. Live dashboards also use interactive maps frequently (see the ECB Fiscal Dashboard Figure A3.2) to present information. This would be a strong visual tool that would take the emphasis off listing or ranking Member States, while the interactive element leaves space to add context about each Member State's unique situation in terms of retirement savings and coverage.

CONSIDERATIONS OF A LIVE DASHBOARD

177. A live dashboard will need to be hosted and maintained regularly which may require additional resources from the organisation that hosts it. The underlying dataset that feeds into a live dashboard would require regular updating as new data comes on stream – while the bulk of this work can be automated there will need to be some form of supervision to ensure data quality. Similarly, if the interactive elements include a description of each countries profile or social and labour laws, this may need to be regularly updated to ensure accuracy. Also as set out further in

Chapter 5 additional data will be required to make a live dashboard a more comprehensive tool for analysis.

ADVANTAGES OF A REPORT DASHBOARD

178. A report dash board gives space and consideration for nuance where a live dashboard may not have the scope to do. This could be important when considering the differing systems that make up the collective European retirement savings pensions environment. A report dashboard could present the specific considerations of each Member State, and why they fall in their particular position on the dashboard, in the form of an itemised report dashboard such as the Mercer CFA Institute Global Pension Index.

179. A condensed dashboard in the form of a comprehensive report dashboard would give a quick and digestible snapshot of the gaps using aggregated indicators and would be a useful and accessible tool for both policy makes and civil society, journalists and the general public such as the EIOPA Risk Dashboard for the insurance industry (see Figure A3.4 in Annex III).

CONSIDERATIONS FOR A REPORT DASHBOARD

180. A report dashboard will also have to be published by a host organisation at regular intervals (quarterly or in an annual/multiannual format). This will mean a further report on the European retirement savings environment on top of the Pension Adequacy report and the Ageing Report produced by the European Commission. A report dashboard could replace or be incorporated into one of these existing reports but this may take away from its potency and impact. This could also be potentially a resource heavy exercise for a host organisation to publish.

181. The nature of both a comprehensive and an itemised report dashboard mean that the best means of communicating the data for each country would be in a list form – where countries are ranked (for example as in the Mercer CFA Institute Global Pension Index). This could give an overly simplistic view of each Member State's pension system (particularly using a comprehensive report dashboard) unless pan European aggregate indicators are used – this however runs against the CfA specifications.

4.4. PENSION DASHBOARDS AT NATIONAL LEVEL

182. One NCA (BE) indicated through the survey that dashboards on pension adequacy and sustainability exist in its Member State. Although Pensionstat.be cannot be considered a fully-fledged dashboard, as defined in the technical advice, the publication of these statistics does contribute to a better understanding of Belgian pension policy. Four other NCAs indicated that a

pensions dashboard is envisaged to be developed in the future (five countries did not respond to this question).

183. It should be noted that the term "dashboard" was not defined explicitly for this question and there may have been some alternative inference by respondents, as the term "dashboard" could also be understood to mean an individual pensions tracking service. Possibly the question was interpreted differently based on the understanding of dashboard as tracking service. Similarly some countries dashboards may not measure "adequacy and sustainability" and respondents have noted that they felt their dashboard did not meet the requirements of answering "Yes" to the question.

184. Some countries noted that challenges that they foresee in making pension dashboards include a lack of data at the individual member level, a lack of resources at the NCA and a lack of political will to gather data at a national level. One country noted that each pension scheme or group of pension schemes have its own specificities and this would make data gathering difficult. Multiple countries noted that their occupational and private pensions system is either not developed enough or in the accumulation stage.

4.5. INDICATORS FOR PENSION DASHBOARDS

EXTRACT CALL FOR ADVICE (SECTION 4.4):

"EIOPA is requested to identify suitable indicators to monitor the state of play in Member States and their progress to achieve adequate and sustainable pensions. These indicators should provide quantitative information about the contribution of different sources of future retirement income that complement revenues from public pensions. It would be important that they can be combined with indicators that inform about the contribution of state-run pensions to retirement income in order to come forward with a single indicator per Member State. The indicators should therefore be compatible with the numbers produced by the triennial pension projections performed by the European Commission and Member States, most notably those relating to state-run pension schemes, and the occupational and personal pension data identified above.

EIOPA should compare the indicators proposed in the pension dashboards with those already existing and used by European or international organisations in terms of (i) how accurately they reflect future pension benefits, (ii) how extensive their coverage is, and (iii) [..]."

185. The European Commission jointly with the Social Protection Committee and the Economic Policy Committee already publish a comprehensive set of indicators on the adequacy and sustainability of pension systems through:

- the triennial Pension Adequacy Reports;
- the triennial Ageing Reports;
- the triennial Fiscal Sustainability Report, updated on an annual basis through the Debt Sustainability Monitors.

PENSION ADEQUACY REPORT

186. The Pension adequacy report considers pension adequacy to consist of three main components:

- Poverty protection;
- Income maintenance; and
- Pension duration.

187. Six sets of adequacy indicators have been agreed with the EU Member States. The around 50 indicators measure replacement rates, the duration of pensions, the distribution of retirement income among different groups – including the risk of poverty and the gender gap – and the health and housing situation of older people (see Figure 4.1, a detailed overview of all indicators is included in Annex IV). [20]

188. The adequacy indicators are not restricted to public pensions, but also cover retirement income derived from occupational and personal pension provision. The current adequacy indicators are sourced from the EU Survey on Income and Living Conditions (EU-SILC). The EU-SILC data includes occupational pensions under old-age pensions and personal pensions as a separate income category. Moreover, the long-term projections of theoretical replacement rates for various hypothetical cases take into account privately provided funded schemes, where these are mandatory or widespread at the national level. [21]

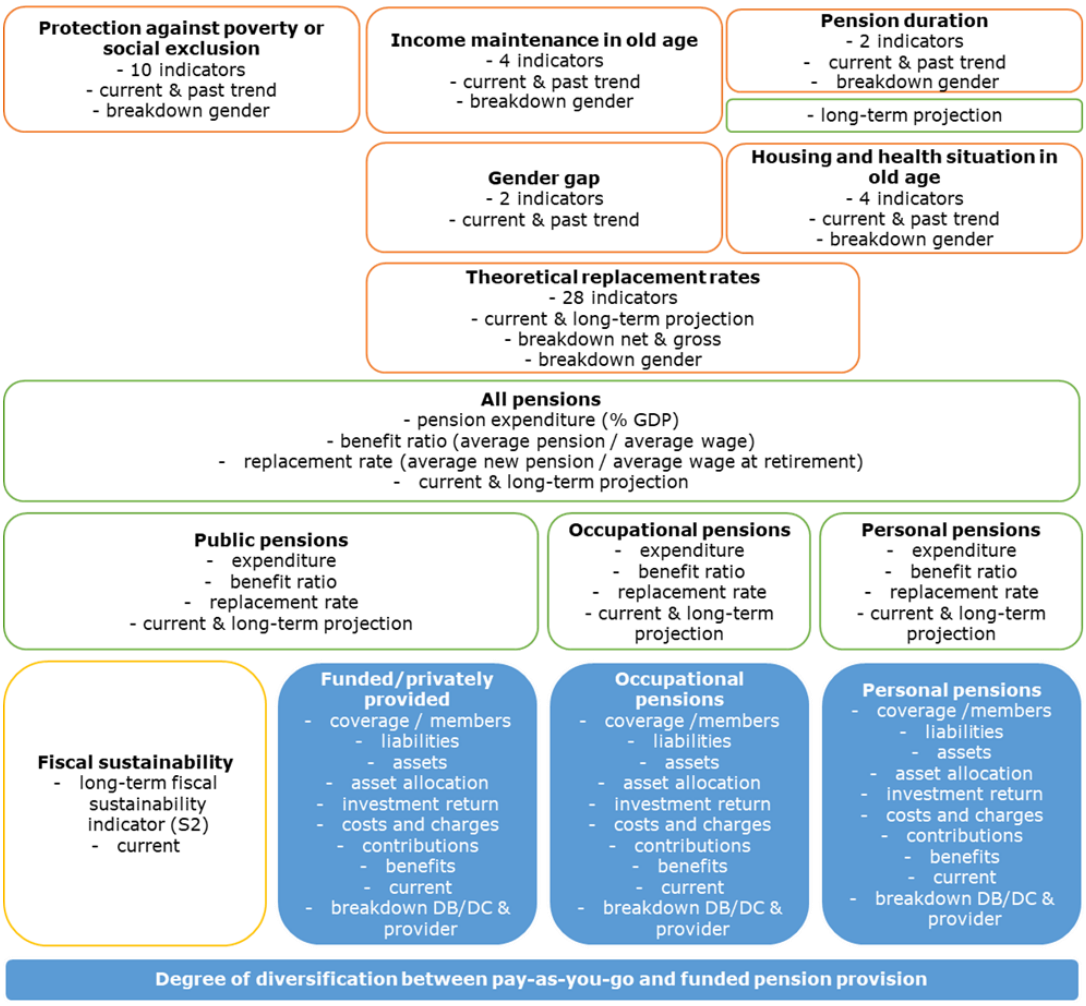
189. The adequacy indicators in four sets ("Relative incomes of older people", "Poverty and material deprivation", "Gender differences" and "Housing and health situation of older people") constitute annual data available through Eurostat, measuring the current situation and historic

[20] See Volume 2 (Country profiles) of SPC and European Commission, The 2021 Pension Adequacy Report: current and future income adequacy in old age in the EU, June 2021.

[21] Eleven Member States (BE, BG, DK, EE, IE, HR, LV, LT, NL, PL, SE) included the 1st pillar-bis or occupational pensions in their projections of theoretical replacement rates.

trends in indicators. The theoretical replacements rates are prepared for the purpose of the (triennial) Adequacy Report and relate to current situation and long-term projections (40 years ahead). The indicator for retirement duration also relates to the present and the future situation (50 years ahead) and is taken from the (triennial) Ageing Report.

FIGURE 4.1: OVERVIEW OF EUROPEAN COMMISSION'S INDICATORS AND INDICATORS PROPOSED BY EIOPA



Note: The indicators in the orange-bordered boxes relate to the Pension Adequacy Report, in the green-bordered boxes to the Ageing Report and in the yellow-bordered box to the Fiscal Sustainability Report. The blue boxes contain the additional indicators proposed by EIOPA.

AGEING REPORT

190. Whereas the Adequacy Report provides projections of theoretical replacement rates for different (hypothetical) groups of people under different assumptions, the Ageing Report contains

long-term projections of a couple of measures for aggregate retirement income. The three measures provided are pension expenditure (% GDP), the so-called benefit ratio and the average replacement rate. Member States can include in their projections funded pillar 1bis, occupational and/or personal pensions on voluntary basis.[22]

191. These indicators not only provide another measure for the adequacy, but also of the sustainability of pension systems. Member States with low projected pension expenditure / replacement ratios, may be subject to public pressure to increase pensions, jeopardising the sustainability of public finances. The long-term projections of ageing-related government expenditures also feed into the triennial Fiscal Sustainability reports.

FISCAL SUSTAINABILITY REPORT

192. The Fiscal Sustainability Report contains an indicator for the long-term sustainability of public finances, including expenditures on state pension provision. The so-called S2 fiscal sustainability gap indicator measures the budgetary adjustment that would ensure sustainable public finances in the long term. Specifically, this indicator shows the budgetary adjustment that is required to stabilise debt-to-GDP ratio over a long-term horizon, taking into account additional expenditure arising from an ageing population. A sustainability gap may put at risk the adequacy of retirement provision, since public pension expenditure constitutes a substantial (and usually growing) part of government budgets.

4.6. ADDITIONAL PENSION INDICATORS PROPOSED BY EIOPA

193. EIOPA proposes to complement the existing adequacy and sustainability indicators used by the European Commission with:

- Coverage rates of public, occupational and personal pensions, since these are an important underlying determinant of future adequacy;
- Current financial variables relating to the funded pillar 1bis state pensions, occupational pensions and personal pensions:
    - Benefits;
    - Assets and asset allocation;
    - Liabilities;
    - Contributions;

[22] In the 2021 Ageing Report, eleven Member States (BE, DK, EE, ES, HR, LV, LT, NL, PT, RO, SE) included the 1st pillar-bis, occupational or personal pensions in their long-term projections.

- Gross investment returns;
- Costs;

The financial indicators should give a breakdown with respect to the various private pension providers (IORPs, insurers, UCITS and banks) and the type of pension scheme (DC and DB);

- An indicator to measure the risk diversification between retirement income derived from pay-as-you-go (demographic risk) and funded pension schemes (interest rate risk).

194. The financial indicators can be interpreted as drivers of the replacement rates indicators used by the European Commission. Future pensions depend on current accumulated assets, future contributions/savings and the returns on those assets/contributions. Costs and charges will result in net investment returns being lower than gross investment returns. However, the financial indicators also provide additional information on the adequacy and sustainability of privately provided pension products and plans:

- The asset allocation provides an indication of investment risk to which future retirement income is exposed, most notably in defined contributions (DC) plans;
- A shortfall between assets and liabilities in defined benefit (DB) schemes, constitutes the risk that future retirement income may fall short of what is promised.

195. Finally, the financial variables also provide a link with the objective of further developing the Capital Markets Union (CMU).

4.7. INDICATORS ON OTHER LONG-TERM SAVINGS INSTRUMENTS

EXTRACT FROM CALL FOR ADVICE (SECTION 4.4 & 4.2):

To obtain a comprehensive view over sources of individual retirement income, EIOPA is invited to advise on the feasibility, coverage and granularity of long-term saving instruments to be included in the dashboard under personal pension income. In its advice, EIOPA should consider possible alignment with the individual pension-tracking tool in this regard. EIOPA is requested to select only those long-term saving instruments which would provide a quantitatively meaningful contribution to individual retirement income at aggregate (Member State) level. For saving instruments with a meaningful contribution, EIOPA is expected to indicate whether data exists at Member State (or European) level.

The outcome of this task should be a list of instruments (variables) for which relevant statistical data on contributions, returns, number of participants and pay-outs can be collected for each Member State and subsequently aggregated. If data collection is not feasible for some quantitatively meaningful long-term saving instruments, EIOPA is asked to identify these instruments and indicate whether the information can be approximated using economic assumptions (as well as set out those assumptions)."

196. Long-term savings through products and plans, not recognised as pensions by the Member States, are considered to be 'other' long-term savings instruments. These other long-term savings may contribute to achieving adequate retirement income during people's retirement.

197. As indicated in Chapter 2, 'long-term' is not well defined and data for these 'long-term' savings are not readily available. Therefore, EIOPA recommends not to pursue the inclusion of statistical data on contributions, returns, number of participants and pay-outs for other long-term savings instruments for the first iterations of the pensions dashboard. Instead, it could be considered to include indicators such as:

- the proportion of homeownership among (future) pensioners;
- net wealth component(s) of young and older households;
- individual non-pensions savings rates.

198. One of the most important of components of household wealth is peoples' own home. In particular, for retired citizens since they normally had time to pay off their mortgage. The Adequacy Report includes an indicator on the proportion of homeowners among older people in Member States, given that homeowners are likely to spend less on housing. The report also demonstrates that the risk-of-poverty rates are considerably lower among homeowners.

199. Although not among the agreed set of national indicators, the 2018 Adequacy Report also considers other net wealth of households using micro data taken from the ECB's Households Finance and Consumption Survey (HFCS).[23,24] A drawback is that the survey only contains data for countries in the euro area. Moreover, there is some overlap with pension plans, since the survey includes personal pension savings in household wealth.

200. Alternatively, deducting the pensions savings from the total savings could provide an estimate on households' non-pension related savings. Information on the total households'

[23] https://www.ecb.europa.eu/pub/economic-research/research-networks/html/researcher_hfcn.en.html

[24] Eurostat (Ageing Europe – looking at the lives of older people in the EU - 2020 edition) also uses indicators from the ECB's Households Finance and Consumption Survey. See: https://ec.europa.eu/eurostat/documents/3217494/11478057/KS-02-20-655-EN-N.pdf/9b09606c-d4e8-4c33-63d2-3b20d5c19c91

savings can be found at Eurostat, the ECB and the OECD. However, in such manner there is no differentiation between short and long-term savings products.

4.8. OVERALL ADEQUACY AND SUSTAINABILITY INDICATOR

EXTRACT FROM CALL FOR ADVICE (SECTION 4.4):

"EIOPA is requested to identify suitable indicators to monitor the state of play in Member States and their progress to achieve adequate and sustainable pensions. These indicators should provide quantitative information about the contribution of different sources of future retirement that complement revenues from public pensions. It would be important that they can be combined with indicators that inform about the contribution of state-run pensions to retirement income in order to come forward with a single indicator per Member State."

201. This section/subsection addresses three main challenges: assessing advantages and weaknesses of a single indicator, proceeding data aggregation and attributing weights to data.

CONSIDERATIONS FOR A SINGLE INDICATOR

202. EIOPA acknowledges the advantages of having a single indicator per Member State. Here, the main strength lies in the capacity to directly compare countries based on their pension system situation. A single number is easy to understand and clear but can result in various unintended consequences. Indeed, a number of stakeholders raised concerns about only having a single indicator. A single indicator would be limited in its usefulness as it does not give a comprehensive view about pensions. It is not possible to understand which key determinants explain the final outcome (e.g. is a country performance explained by its performance on adequacy or/and sustainability?) Also, a single number by member-state could even be misleading and lead to wrong policy conclusions as there is not any possibility to locate a policy problem at the level of adequacy or sustainability hence incapacity to tackle the issue. Finally, an adverse outcome of a single indicator raised by a stakeholder is a potential commercial use: as a single indicator lacks of transparency in absence of more detailed information, some pension providers could benefit from a low single indicator score in their country to promote their business. However, this low performance can be attributed to low sustainability hence not being explained by inadequate pension savings. Moreover, pension dashboards are performed at macro-level and does not reflect the situation of every individual.

203. For these reasons, next to a single indicator, sub-indicators assessing adequacy and

sustainability separately could be considered. A number of stakeholders raised concerns about only having a single indicator. Indeed, a single indicator would be limited in its usefulness as it does not give a comprehensive view about pensions. It is not possible to understand which key determinants explain the final outcome. Also, a single number by Member State could even be misleading and lead to wrong policy conclusions.

204. Though acknowledging the advantages of having a single indicator, measures for member-pension adequacy and sustainability in Member States could be considered. Adequacy and sustainability sub-indicators would make easier the identification of strengths and weaknesses in national pension systems. In fact, they would overcome the problems faced with a single indicator. Moreover, it would avoid inaccurate data interpretations and facilitate the identification of policy issues and room for policy measures to improve pension performance at Member State level.

DATA AGGREGATION

205. Considering both the plurality and diversity of data for pension dashboards, it is not possible to straightforwardly make comparisons between countries on a fair basis. Indeed, the main risk would be having a biased indicator as inappropriate data aggregation will not reflect national pension systems state of play. This issue can be tackled by using a common scoring scale for each variable across member-states. This approach is similar to the one in the Mercer CFA Institute Global Pensions Index[25], usually referred as a consistent benchmark for comparison of pension systems over the world. Regarding scoring scale, we suggest to define 0 as minimal score and 10 as maximal score for each and every variable. Arguably, other possible scales from 0 to 1 or 0 to 100 are respectively not wide enough or too broad to have a good overview of pension adequacy and sustainability.

Score attribution

206. The first option requires to define a bottom and top threshold for each and every variable. Any value falling under or equalling the bottom threshold is assigned a score of 0. Any value equals or above the top threshold is assigned a score of 10. All values between bottom and top thresholds are assigned a proportional score between 0 and 10. Negative values cannot be attributed negative scores as it would mean subtracting points to a member-state on its overall score for the indicator. This option represents the most consistent way to fairly assign scores before comparison of EU countries. Nevertheless, it is necessary to be able to set thresholds for variables hence undertaking careful assessment of what "poor" and "strong" performance is. Moreover, it means being able to justify the values chosen for thresholds based on social and macroeconomic evidence.

[25] https://www.mercer.com/our-thinking/global-pension-index-2021.html

207. Alternatively, bottom and top thresholds can be set by using percentiles of distribution for each and every variable. For instance, it is possible to use deciles of distribution. The top 10% countries would be assigned a 10 and bottom 10% a 0. This approach has the benefits of having common threshold for all variables hence avoiding considerations stated above for the absolute approach. However, it looks rather at ranking countries as a primary goal though where a fair assignment of scores is the priority. As thresholds and scores are based on statistical distribution, a Member State performance is assessed "better" or "weaker" than other countries performance.

208. In summary, the first absolute approach assesses what a "strong" or "poor" performance is whereas the alternative relative approach assesses what a "better" or "weaker" performance is, for a specific variable and Member State.

DATA WEIGHTING

Statistical and normative dimensions

209. **Statistical dimension** highlights how numbers are sensitive to weights. Any inaccurate weighting scheme would distort balance between data and variables hence resulting in misleading indicator per Member State. To achieve an overall balanced set of weights for variables, performing a sensitivity analysis, simulating different scenarios with diverse weights would be essential. Such a technique would allow for observing how each weight for a variable influences the final outcome being the aggregated sub-indicators single indicator.

210. **Normative dimension** refers to the attribution of more or less importance to a variable. Indeed, it can be argued some variables are more important than others when assessing pension adequacy or sustainability at national level. As pension systems reflect Member State specificities, variables might not have the same influence from a country to another one. However, a common set of weights need to be universally defined to set a fair basis for comparison. In brief, weighting variables is also giving importance to a variable. This is why any choice of weighting scheme also needs to refer to real-world evidence demonstrating some variables are more important than others in practice.

Variable and sub-indicator levels

211. A single indicator can be obtained by attributing a specific weight to each variable. Alternatively, weights can be assigned to a set of variables gathered in sub-categories, e.g. adequacy and sustainability sub-indicators. Then, each variable would have a specific weight but also sub-indicators would be weighted. Weights for sub-indicators depend on the number and characteristics of sub-indicators.

4.9. VISUAL CONSIDERATIONS FOR A PENSIONS DASHBOARD

212. The following section will look at how a final dashboard product may look and elements that should be considered for the final users of a pensions dashboard.

TARGET AUDIENCE

213. A key starting point when looking at the visual elements of a dashboard starts with identifying the audience or audiences who will use the dashboard.

214. As an EU tool the dashboard should have as wide a reach as possible and as such would be both used for general informative purposes, as well as for professional and expert purposes. The audience breaks down into two major categories of users: generalist users and expert users.

- **Generalist users**: this includes Europeans interested in getting high-level information about their country's pension adequacy and sustainability.

  This group includes:

  - the general public;
  - the media;
  - politicians;
  - students studying public policy;
  - people with a general interest in public policy.

- **Expert users**: this includes professionals who are interested in granular, specialised information that they can analyse and process the indicators and data. They would routinely use statistical software to analyse data.

  This group includes:

  - policy experts;
  - data analysts;
  - politicians;
  - pensions industry;
  - academics.

215. To allow both groups of users to use the dashboard in a user-friendly way, we suggest using a layered approach that we present below.

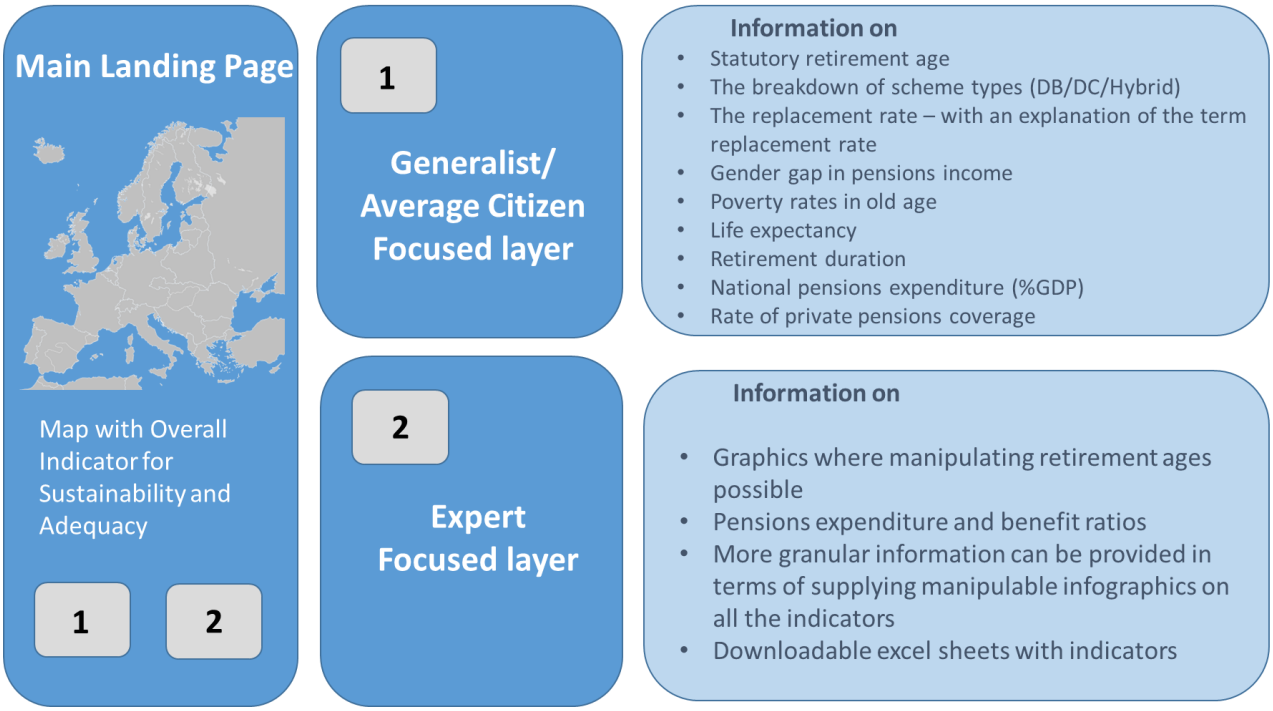
STRUCTURE OF THE DASHBOARD FROM AN AUDIENCE PERSPECTIVE

216. Taking into account the needs of the two identified target groups, the dashboard should be composed of three layers:

- A landing page (for both target groups)
- General information layer (for the generalist group)
- Granular information layer (for the expert group).

217. Access to one or another layer should not be restricted to a specific group. Users could choose to access one or both layers. To give them an indication on what is to be found in the different layers, consideration needs to be given to the language used. It is advisable that communication experts are engaged with to tailor the information to the correct audience and ensure the accessibility of the dashboard.

FIGURE 4.2 – MOCK UP LAYOUT FOR POTENTIAL DASHBOARD USING PLACEHOLDERS



LANDING/HOME PAGE

- **Audience**: generalist and expert users
- **Objective:** to introduce the viewer to the idea of pension suitability and adequacy in terms of national pensions systems

- **What indicators this page should include:**

218. As set out in the CfA the main information on this landing page should be the single indicator per member state that demonstrates a Member State's pensions adequacy and sustainability. We suggest this is done in the form of a European map in order to move away from any idea of ranking. See the ECB Fiscal Dashboard see Figure A3.2 in Annex III as an example.

219. The landing page should also give some additional information relating to:

  - The meaning of sustainability and adequacy in terms of the dashboard and national pensions coverage;
  - A link that brings the viewer to information on how the indicators where calculated and where the data was sourced;
  - A legend or description of what the indictors mean in terms of levels of adequacy/sustainability e.g. if a certain Member State has a particular value – is this value positive/negative or neutral.

220. Finally, the landing page should give access to the two layers of the dashboard: one for the general public to access and one for more granular expert analysis of the data/dashboard.

GENERAL INFORMATION LAYER

- **Audience**: generalist users.
- **Objective:** to give the general population an insight into pension's adequacy and sustainability.
- **What indicators this page should include:**

221. Information could include comparisons across the EU of the following indicators:

  - Statutory retirement age;
  - The breakdown of scheme types (DB/DC/Hybrid);
  - The replacement rate – with an explanation of the term replacement rate;
  - Gender gap in pensions income;
  - Poverty rates in old age;
  - Life expectancy;
  - Retirement duration;
  - National pensions expenditure (%GDP);
  - Rate of private pensions coverage.

222. In tandem with the live dashboard showing the above indicators, the general information layer could provide access to existing information sites by both the Commission and NCAs on pensions rights and entitlements.

223. Currently, there are three Commission sites that offer differing degrees of information on pensions: one from DG Employment, one by "Your Europe" a coordinated site by DGs across the Commission, for citizens to understand their social rights in Member States other than their own (this site offers specific Member State related information on selecting the country) and the European Tracking Service (ETS) site which is still in development. The dashboard could be a portal that brings these existing information sources together to provide EU citizens with access to information on their pension rights domestically but also across the EU while also providing a focal point for them to access information on pension adequacy and sustainability across the Union.

- **How to visualise the indicators**:

224. A key element of the general information layer will be accessibility, where the average citizen can access the information with ease. A good example of this approach is the Eurostat Regional Year Book which is based almost exclusive through an interactive map that the user can manipulate.

GRANULAR INFORMATION LAYER

- **Audience**: expert users.
- **Objective:** to give access to detailed information into pension's adequacy and sustainability.
- **What indicators this page should include:**

225. The second layer to the dashboard would focus on much more granular detail and where policy experts, politicians, pensions industry and academics could explore the data at a more detailed level than the above. As well as providing similar infographics as listed above, the second layer of the dashboard could explore with manipulating retirement ages, pensions expenditure and benefit ratios to view the impact on adequacy of national and EU pensions cover. More granular information can be provided in terms of supplying manipulable infographics on all the indicators as set out in Annex III of this paper. The option of downloading excel tables for further study should also be provided.

226. Links to the previous Ageing Reports and Pension Adequacy reports by the Commission, jointly with the EPC and SPC, can be supplied along with any reports from EIOPA, or the other ESAs that shed a light on the sustainability and adequacy of pensions across the EU. A more detailed explanation can be provided on how the indicators were composed and how the overarching indicator for the landing page infographics map was developed. Links to the Eurostat website can

be provided to direct viewers to where some of the raw data can be accessed if it is not accessible through the dashboard website.

- **How to visualise the indicators:**

227. A layer with more granular detail could resemble the ECB Fiscal Dashboard or the Eurostat Statistical Recovery Dashboard - where there again is an interactive European map but also a focus on charts that are easy to manipulate and compare across states. As this layer is focused on experts that would routinely use statistical software to analysis data a focus on charts and tables is recommended on a more user friendly visually focused dashboard. Also access to data sets and information on weights and how indicators were compiled would be useful here.

4.10. DASHBOARD GOVERNANCE

228. The initiation of an EU wide pension's sustainability and adequacy dashboard requires consideration on how such a tool will be developed, disseminated and governed as there will be considerations on data collection and database management, on its production and about day to day management of the dashboard.

229. The data gaps that currently exist have been laid out in some detail in Chapter 2 and 5 of this paper. A more detailed overview on data availability, distinguishing the different variables for pension products and plans at Member State level can be found in the separate statistical annex. This section looks at the steps that would follow once there is agreement on what additional data will be needed for Member States to make pension projections and to form the dashboard.

BUILDING AND MAINTAINING THE DASHBOARD

230. The creation of a pension's dashboard should take into consideration both the audience and how the technology of available BI (business intelligence) software can enable that audience to interact with the dashboard.

231. In building a dashboard some consideration will need to be given by IT experts on the best course of action to develop the following:

- Data integration - data should automatically feed into a data base that then feeds into the dashboard, the data will come from multiple data sources (NCAs or individual pension providers);
- Data calculation – depending on how statistics are displayed there may be a need for the software to produce calculations, as in Excel, including computations combining different datasets and indicators;

- Data visualisation – again depending on decisions about how the data will be displayed, the software will need to create tables, charts and be able to refresh them automatically when new data are received;
- Accessibility – the organisation that will host the dashboard will need to be able to use the source data directly and be able to analyse data and make clear reports using them. Effectively the software will not be exclusively used by IT experts and as such should be user friendly, it should be easy to integrate, combine, refresh data and easy for the software users to create dynamic and flexible dashboards.

232. While the below options focus on institutions individually, there is scope for one institution to gather the data and then another institution to produce and manage the dashboard, i.e. gathering and producing are not mutually exclusive. A similar exercise for the same institutions on who should gather the data is available in Chapter 5. The impact assessment accompanying this advice sets out the best options for the collection of data and production of the dashboard.

233. To explore the options of which organisation should build and maintain a dashboard the following criteria will be used;

- experience with dashboard creation and maintenance;
- potential synergies, particularly if data gathering and dashboard building are carried out by the same body; and
- capacity.

EIOPA

234. EIOPA currently maintains or is in the process of developing a number of dashboards related to the supervision of insurers (for the EIOPA Risk Dashboard for the insurance industry see Figure A3.4 in Annex III). The pension's dashboard could be part of a public portal for European citizens to engage with EIOPA on pensions topics while also, as set out below, being a central hub for information on pensions from an EU context.

- **experience with dashboard creation and maintenance**

235. EIOPA has a proven record of producing similar types of dashboards and is in the process of developing further dashboards for its regulatory remit.

- **potential synergies, particularly if data gathering and dashboard building are carried out by the same body**

236. EIOPA has an established relationship with NCAs responsible for data collection on pensions and insurance at Member State level and currently receives considerable data streams from these

NCAs. Similarly, as the Member State NCAs are the members of EIOPA's Board of Supervisors, there would be an oversight role for the NCAs in how the dashboard is produced and maintained.

- **capacity**

237. EIOPA has shown it has capacity to build and maintain similar projects.

ECB

238. The ECB currently manages a number of dashboards including the 'Supervisory statistics dashboard' and the 'ESRB Risk Dashboard'. The ECB Fiscal dashboard is an example of a live dashboard used for policy formation (see Figure A3.2 in Annex III).

- **experience with dashboard creation and maintenance**

239. The ECB has a proven record of producing similar types of dashboards.

- **potential synergies, particularly if data gathering and dashboard building are carried out by the same body**

240. The ECB has an established relationship with national central banks responsible for data collection on pensions and insurance products at Member State level. It has a wider remit than EIOPA and collects additional (although limited) pension's data from insurance undertakings. However, the ECB only collects data from euro area countries plus a limited number on non-euro Member States.

- **capacity**

241. The ECB has shown it has capacity to build and maintain similar projects.

EUROSTAT

242. Eurostat produces and publishes a number of dashboards on a wide range of different topics for EU citizens.

- **experience with dashboard creation and maintenance**

243. Eurostat has a proven record of producing various types of dashboards, both with and without, a financial regulatory function.

- **potential synergies, particularly if data gathering and dashboard building are carried out by the same body**

244. Eurostat has a developed network with national statistics' offices around Europe but has a weaker connection to NCAs that are responsible for the supervision of private pension providers.

- **capacity**

245. Eurostat has shown it has capacity to build and maintain similar projects.

EUROPEAN COMMISSION TOGETHER WITH THE ECONOMIC POLICY COMMITTEE AND SOCIAL POLICY COMMITTEE

246. Currently the Ageing Report and the Pensions Adequacy report are produced the European Commission, jointly with respectively the EPC and SPC, while these are not dashboards they use pensions projections based on pensions data from the Member State level.

- **experience with dashboard creation and maintenance**

247. The Ageing and Adequacy reports use projections from Member States based on national pension's data – this is not a dashboard, however, and lacks contemporary impact due to its triennial nature.

- **potential synergies, particularly if data gathering and dashboard building are carried out by the same body**

248. The European Commission has an established relationship with national authorities and works with them through the EPC and SPC to produce the Ageing and Adequacy reports every three years.

- **capacity**

249. While the European Commission, together with EPC and SPC, had not undertaken a similar project previously in relation to pensions data there should be no issue in resourcing such a project.

4.11. STEP-BY-STEP APPROACH TO THE IMPLEMENTATION OF THE PENSION DASHBOARDS

250. The data for the financial variables are not all presently available (see Chapter 5). The regular IORP data collected by EIOPA contains information on all the variables, but the availability of pension information of other providers, most notably insurance undertakings, is much more limited.

251. In EIOPA's view the development and publication of pension dashboards should not wait until all the indicators are comprehensive and of the highest quality. The publication this year of a new iteration of the Ageing and Pension adequacy reports provides an opportunity to launch the

national dashboards with up-to-date adequacy and sustainability indicators. The dashboard should be a dynamic tool to which new and improved indicators are added.

252. For example, the 2018 Pension adequacy report presented microsimulation outcomes for a small number of countries. If the use of such methods becomes more widespread, these simulations could in time replace the projections of theoretical replacement rates based on (hypothetical) groups of people and assumptions. This would yield richer and more realistic projections of the adequacy of pension provision in Member States.

253. As another example, pension projections incorporate the impact of government policy. The estimated effects of financial and non-financial incentives – most notably automatic enrolment – might be included in pension dashboards at a further stage.

254. EIOPA has limited itself to proposing indicators that are relevant to the adequacy and sustainability of pension systems from a financial perspective. Sustainability may be defined in a wider sense, encompassing environmental, social and governance (ESG) considerations. Indicators could be considered for later versions of the dashboard which measure the extent to which the adequacy and sustainability of pension systems are exposed to ESG risks as well as the extent to which pension systems contribute to sustainability in a wider sense.[26]

ADVICE TO THE EUROPEAN COMMISSION

In order to give a platform that will present the complexities of European pensions systems in one place while not summarising down the data to the point of irrelevancy, EIOPA proposes a live dashboard as the best method to present the information. Using a live dashboard will enable multiple variables to be displayed and compared, reduce the semblance of a Member State ranking system and give maximum transparency to the data, making it available to everyone from policy makes to the general public, while also being the best use of resources.

Considering that the audience will exist of generalist and expert users, EIOPA advises that the dashboard is composed of three layers to meet the needs of these two target groups:

- A landing page (for both target groups)

[26] The Mercer CFA Institute Global Pension Index 2021 contains an indicator on whether trustees/fiduciaries are required to consider Environmental, Social and Governance (ESG) issues in developing their investment policies or strategies. The Mercer CFA Institute Global Pension Index 2021 gives a broader assessment of pension systems also in other respects. Besides an adequacy and sustainability sub-index, it also contains an integrity sub-index, considering – for example – the quality of regulation and governance and communication towards plan members. See: https://www.mercer.com/our-thinking/global-pension-index-2021.html

- General information layer (for the generalist group)
- Granular information layer (for the expert group)

In line with the Call for Advice, EIOPA proposes to use the existing adequacy and sustainability indicators employed by the European Commission as a basis, i.e.:

- The around 50 indicators agreed in the 2021 Pension adequacy report measuring replacement rates, the duration of pensions, the distribution of retirement income among different groups – including the risk of poverty and the gender gap – and the health and housing situation of older people;
- The long-term projections of a couple of measures for aggregate retirement income from the 2021 Ageing Report. The three measures provided are pension expenditure (% GDP), the so-called benefit ratio and the average replacement rate;
- The so-called long-term fiscal sustainability gap indicator (S2) from the Fiscal Sustainability Reports, measuring the budgetary adjustment that would ensure sustainable public finances in the long term.

EIOPA proposes to complement the existing adequacy and sustainability indicators used by the European Commission with:

- Coverage rates of public, occupational and personal pensions, since these are an important underlying determinant of future adequacy;
- Current financial variables relating to the funded pillar 1bis state pensions, occupational pensions and personal pensions: benefits, assets and asset allocation, liabilities, contributions, gross investment returns and costs. The financial indicators should give a breakdown with respect to the various private pension providers (e.g. IORPs, insurers, UCITS and banks) and the type of pension scheme (DC and DB);
- An indicator to measure the risk diversification between retirement income derived from pay-as-you-go (demographic risk) and funded pension schemes (interest rate risk).

EIOPA recognises the benefits of combining the identified dashboard indicators in order to come forward with a single indicator per Member State, as envisaged by the Call for Advice. A combined indicator enhances the transparency on the overall adequacy and sustainability of pension systems and avoids “cherry picking” from a substantial number of individual

indicators. However, producing a single indicator will also entail substantial challenges. It involves weighing different kinds of indicators, like risk of poverty, aggregate income maintenance after retirement and distribution of retirement income. Moreover, there are multiple approaches to attribute scores to indicators (absolute, relative), determine weights (statistical, normative) and to set the scope of the indicators to be aggregated (all or a subset). The creation of a combined, single indicator requires further exploration, including appropriate sensitivity analyses.

Other 'long-term' savings instruments are not well defined and data for these 'long-term' savings are not readily available. Therefore, EIOPA recommends not to pursue the inclusion of indicators for other long-term savings instruments for the first iterations of the pensions dashboard.

The EU pension dashboard is an important tool for providing insight in the adequacy and sustainability of pension systems. Therefore, the development and publication of pension dashboards should not wait until comprehensive data of the highest quality is available for all the proposed indicators. EIOPA envisages a step-by-step approach, starting with a dashboard based on currently available data to which new and improved indicators are added at a later stage.

Considering capacity and experience, as well as potential synergies with the gathering of the indicators, there are multiple EU entities that would be able to further develop and maintain the pension dashboard, including EIOPA, also depending on the governance of the collection of additional data.

5. COLLECTION OF ADDITIONAL PENSIONS DATA

EXTRACT FROM CALL FOR ADVICE (SECTION 4.1.1 AND 4.2):

"When relevant data gaps are identified, EIOPA should advise on how to obtain the necessary missing data. In doing so, EIOPA should detail the granularity of data, identify potential data sources and, where unavailable, how and from whom data can be collected (e.g., via a reporting requirement in relevant sectorial legislation). In the case of a new reporting requirement, EIOPA is invited to estimate reporting costs and propose how collected data should be administered and by whom.

In case, it is concluded that information cannot be collected at reasonable cost, EIOPA is invited to propose how information can instead be estimated and put forward suggestions for assumptions underpinning these estimations. In doing so, EIOPA is in particular invited to consider assumptions related to the length of contract, length of contribution (accumulation) and pay-out (decumulation) periods, the age structure of contributors and beneficiaries, interaction between the length of contract and statutory retirement age, cost of managing the investment and/or other relevant factors.

Where data [on long-term savings instruments] does not exist, EIOPA is invited to propose how (e.g. in a form of a reporting requirement in sectorial legislation), from which entities and what data needs to be collected, assess possible reporting cost and propose solutions, where data cannot be collected at reasonable cost (e.g. estimation of projections on investment return/ participation and contribution rates based on assumptions)."

255. The previous chapter analysed the pensions data that is available at national and international level (section 2), the minimum data required to make projections of supplementary pensions (section 3) and the supplementary pension indicators EIOPA advices to include in the pension dashboard (section 4). This chapter discusses and delivers the advice on the scope and governance of collecting the additional data.

256. The impact assessment accompanying assesses sets out the best options for the collection of data and production of the dashboard.

5.1. OVERVIEW OF PENSION DATA NEEDS AND AVAILABILITY

257. A summary overview of the information needed for pension projections and dashboards is provided in Table 5.1.

258. To enable Member States to prepare pension projections, information on key supplementary pension variables will be needed: members, liabilities, assets, asset allocation, investment returns, costs and charges, contributions and benefits. To complement the existing indicators used by the European Commission, EIOPA also recommends to include indicators relating to these key variables in the pension dashboards.

TABLE 5.1: SUMMARY OVERVIEW PENSION DATA NEEDS AND AVAILABILITY

	Use		**Availability in EEA, % pension products and plans**			
Data variable	Projections	Dashboards	Occ. DC	Occ. DB	Pers. DC	Pers. DB
Members	✓	✓	67%	48%	61%	38%
- breakdown by age	✓		19%	17%	31%	12%
- breakdown by gender	✓		24%	26%	24%	12%
- breakdown by member type	✓		63%	45%	37%	29%
Liabilities	✓	✓	-	35%	-	35%
- breakdown by age	✓		-	na	-	na
- breakdown by gender	✓		-	na	-	na
Assets	✓	✓	48%	55%	52%	38%
- breakdown by age	✓		8%	na	18%	na

- breakdown by gender	✓		na	na	na	na
Asset allocation	✓	✓	32%	43%	45%	38%
Investment return	✓	✓	na	na	na	na
Costs and charges	✓	✓	36%	33%	47%	35%
Contributions	✓	✓	69%	48%	65%	53%
- breakdown by age	✓		11%	2%	16%	6%
- breakdown by gender	✓		na	na	na	na
Benefits	✓	✓	69%	44%	53%	33%
(Cash flows past DB accruals)	✓		-	7%	-	12%

259. To project future pension income at retirement by gender and age cohorts, also a breakdown of the key variables by gender and age groups will be necessary. These key variables are:

- Assets in DC schemes and liabilities in DB schemes to estimate accumulated savings or pension rights by gender and age cohorts;
- Contributions to establish future pension savings and accruals by gender and age cohorts;
- Members to convert the total amounts of savings/accruals per cohort into savings/accruals per person.

260. Although not part of the minimum data needs, information on future cash flows would contribute to making projections of future pension benefits on a common basis. The EU-wide projections, i.e. for the triennial Ageing Report, are projections based on common assumptions, like the interest rate and longevity. The availability of cash flow data would make it possible to adjust DB liabilities in order to reflect those common assumptions. An alternative would be to

collect sensitivity analyses with respect to changes in interest rates (e.g. modified duration) and longevity assumptions.

261. The cash flow data or sensitivity analyses could also be relevant for pension dashboards, especially in relation to IORPs which are subject to heterogeneous national valuation standards. IORPs' pension liabilities can be presented in the dashboards using national valuation standards. An alternative would be to present IORPs' liabilities on a comparable basis, making use of the cash flow data or sensitivity analyses.

5.2. OPTIONS FOR COLLECTING ADDITIONAL DATA

262. EIOPA considers two options for collecting the additional data:

- Bringing together the data that is currently available at national and international level, i.e. without collecting any additional data from pension providers;
- Collecting the additional data directly from pension providers.

263. An obvious advantage of the first option is that there is no additional reporting burden for pension providers. Another potential benefit is that the data may be collected at a more granular level, if such information is available (see section 5.3). A clear drawback of utilising existing information is that the required data would be incomplete and inconsistent, hindering the preparation of pension projections and the completeness of the pension dashboard. Table 5.1 shows that information on key pension variables is available for one- to two-thirds of pension products and plans, while more detailed breakdowns by age and gender often for less than twenty-five percent of pension products and plans. This is confirmed by EIOPA's experience with the Database of pension plans and products and plans, in which information on the amount of assets and number of plan member is often not reported.

264. The option of collecting the additional data directly from pension providers does yield complete and consistent data, facilitating the preparation of pension projections and the completeness of the pension dashboard. This option would contribute to a level playing field as pension providers in all Member States have to report the same minimum level of pensions data, but also impose additional reporting requirements on providers which did not already have to report the data at national level.

265. The two options are not mutually exclusive in the sense that they can be sequenced over time. The existing pensions data could also be used to start developing and publishing the pension dashboards in the short term, considering that the collection of additional pensions information to fill data gaps will take some time. The pension dashboards can subsequently be enhanced in the medium term with newly collected data from pension providers.

NOTE ON THE LIMITATIONS OF ADMINISTRATIVE DATA

266. The two options distinguished do not include the collection of pensions information through household surveys, although existing pension data may also rely on those.

267. Collecting pension information from financial institutions will not be able to resolve all data issues. A key indicator to measure the adequacy of pension systems are coverage rates, i.e. the extent to which people are covered by supplementary pensions. An important issue with respect to calculating coverage ratios is that people may have multiple pension products and plans. Administrative data can identify persons having multiple plans and products within financial institutions, but not persons having multiple plans and products at different pension providers.

268. Another concern with regard to the adequacy of pension systems is that self-employed persons and workers with temporary and/or part-time contracts are insufficiently covered by supplementary pensions. However, unlike birthdate or gender, information on the type of employment will generally not be collected by pension providers.

269. To establish correct coverage ratios, survey data will be needed which take the perspective of individuals/households. EU-SILC includes variables on contributions and benefits relating to individual private pension plans, which means that the survey results could be used to calculate coverage ratios for personal pension plans. However, EU-SILC does not contain separate variables for occupational pension contributions and benefits. Rather, these variables are part of overall social insurance contributions and old-age benefits, including state pensions. EU-SILC does contain variables on employment status and type of employment contract.

5.3. OPTIONS ON GRANULARITY OF THE DATA

270. The data required to make pension projections and to feed into the pension dashboards should refer to national pension plans and products. Considering that the EEA is comprised of thirty countries with each disposing of multiple pension plans and products, this implies that pension providers would potentially have to provide pension information along a substantial number of dimensions. For example, where additional data are directly collected from pension providers, a provider that is active in all EEA countries would have to report the variables in Table 5.1 thirty times.

271. To keep the information collection manageable, the number of dimensions can be reduced by:

- distinguishing occupational and personal pensions as well as DB and DC, instead of all national pension plans and products;

- distinguishing only total pension provision at EU, as opposed to individual Member States separately.

272. EIOPA believes it is justified to limit the reporting on pensions data to the overall pension business without distinguishing the Member States. The extent to which financial institutions engage in cross-border pension provision is limited: not only for IORPs[27], but also for other providers.[28] High-level information on cross-border pension business could be requested – similar to the cross-border template for IORPs – to monitor the continued appropriateness of this simplification.

5.4. GOVERNANCE OPTIONS

273. The introduction of a pension dashboard at European level means that consideration should be given as to how the additional data collection will be centralised, recognising that the gathering of the data and the production and management of the dashboard may be performed by different EU entities.

274. There are a number ways to shape the governance for the collection of the additional data in terms of the EU institutions involved. This is true for both the gathering of existing pensions data available at national level as well as the collection of additional data from pension providers. In all governance options, the pensions information is gathered at national level and subsequently passed on to the EU entity.

275. Below discusses the different governance options for the collection of pensions data, focussing on synergies with existing activities. A detailed cost-benefit analysis is presented in the separate impact assessment document.

EIOPA

276. EIOPA already:

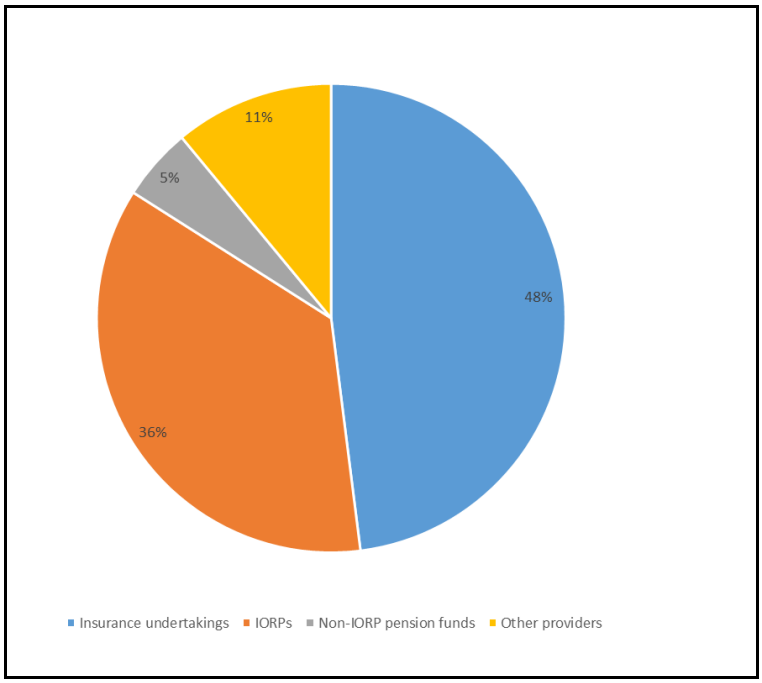
- maintains the Database on pension plans products to provide a comprehensive overview of all privately provided pensions in Member States;

[27] See EIOPA, 2017 Market development report on occupational pensions and cross-border IORPs, EIOPA-BoS-18/013, 30 January 2018: https://www.eiopa.europa.eu/sites/default/files/publications/pdfs/repporteiopa-bos-18-013-2017_market_development_report.pdf.

[28] According to a survey conducted by EIOPA in 13 Member States, only 4% of assets under management relating to personal pension products results from cross-border business. See Annex 5 of EIOPA's advice on the development of an EU Single Market for personal pension products (PPP), EIOPA-16/457, 4 July 2016: https://www.eiopa.europa.eu/sites/default/files/publications/submissions/eiopas_advice_on_the_development_of_an_eu_single_market_for_personal_pension_products.pdf

- regularly receives supervisory data from insurance undertakings and IORPs, the predominant pension providers in Europe (see Figure 5.1 below);
- as from 2022, EIOPA will receive data on Pan-European Personal Pension Products (PEPPs) from the relevant NCAs, also covering non-IORP / non-insurance PEPP providers.

FIGURE 5.1: PRIVATE PENSION PROVISION IN EUROPE BY TYPE OF PROVIDER, % ASSETS



Source: FSB RCG-E Working Group on Private Pension Scheme Resilience, Report on European Private Pension Schemes: functioning, vulnerabilities and future challenges, 17 October 2017: https://www.fsb.org/wp-content/uploads/P171017.pdf

277. As such, there would be important synergies – also in terms of cost efficiency – with existing work:

- the database on pension plans and products is already gathering existing data on occupational and personal pensions, which could be extended by adding more quantitative information;
- the collection of additional pension information from insurance undertakings and IORPs can be implemented by extending the existing reporting detail.

278. EIOPA has a strong working relationship with NCAs that collect the data at national level and established methods for data transfer and validation, in particular NCAs for IORPs and insurers but soon also for PEPP providers, including banks and investment funds. However, this is generally not the case for all non-insurance and non-IORP pension providers, even though NCAs of EU regulated pension providers may also be responsible for non-EU regulated pension providers. In consequence, for such non-insurance and non-IORP arrangements substantial changes in

supervisory practice would be needed, i.e. change of the regulatory perimeter and additional resources to ensure the quality of the data.

279. Some data may not be directly relevant for NCAs to fulfil their supervisory objectives, or indeed not be within their powers to collect. The primary aim of collecting the data is to facilitate economic and social policy, rather than conduct/prudential supervision of pension providers, even though some of the additional data will also be relevant for supervisory purposes and may already be collected. In the legal frameworks of some Member States, the data reported to NCAs will not be automatically subject to supervisory confidentiality without a proper mandate.

ECB

280. As set out in section 2.1.2 the ECB collects similar data as EIOPA in the regular reporting from insurance companies and IORPs. The ECB has a wider scope and gathers data from all types of pension funds, while EIOPA collects from IORPs only, and also collects additional (although limited) pension's data from insurance undertakings. The ECB collects data via the national central banks for the conduct of monetary policy and macro-prudential supervision of the financial system. The ECB data cover the euro area plus a limited number of non-euro Member States, while the pension dashboards aim to cover the entire EU.

EUROSTAT

281. Eurostat collects pension-related information in three of its databases, as set out in section 2.1.3. Local national statistics offices would collect the data and then transfer it to Eurostat to process. Eurostat data provides statistics on public pensions as well as (although limited) statistics on private pension schemes:

- National account data provide information on pension entitlements in private schemes, including distinction DB and DC, which are part of social insurance, excluding personal pensions;
- The ESSPROS and EU-SILC databases contain information on income and contributions relating to pensions from social insurance, not distinguishing occupational pensions separately, as well as individual private pensions.

282. Eurostat has a proven record of collecting diverse data from many differing data sources and presenting it to the public. Eurostat would also be able to match additional data collected from pension providers with the results of households surveys, e.g. to produce supplementary pensions coverage rates which are adjusted for individuals/households disposing of multiple pension schemes.

283. National statistics offices would have to collect the data at national level from pension providers. Still, depending on national processes, NCAs may have to support their local national statics office in compiling and understanding the data needed.

EUROPEAN COMMISSION

284. To develop the Ageing Report and the Pensions Adequacy report, there are currently transmission channels between the Commission, together with the EPC and SPC, and the national authorities for collecting certain pensions data, including the results of pension projections. In addition, these reports draw on pension statistics collected and published by Eurostat. Data from both sources are also part of the indicators envisaged by EIOPA for the pension dashboard.

285. To maximise the use of currently available pension data at national level, the existing channel between the Commission, together with the EPC and SPC, and national authorities could be used. The Commission's activities do not tend to include the compilation and publication of statistics. As such, centralising the collection of additional data from pension providers at the Commission would be less obvious.

5.5. EFFICIENCY AND PROPORTIONALITY

286. Gathering pensions data that is already available at national level will not lead to any additional reporting requirements for pension providers. Still, it is likely to require more effort from national authorities to identify and combine the available data from different sources.

287. Collecting new data will be accompanied with extra (largely one-off) reporting costs for pension providers. As such, it is essential that the data reporting is efficient using consistent and international recognised definitions to avoid that pension providers have to report similar data using different concepts. Moreover, the costs of data reporting are to a large extent fixed costs which weigh more heavily on smaller providers. Supplementary pensions provided by smaller institutions will by definition contribute less to overall retirement income in the Member States, but exempting many small pension providers from the reporting may have a material impact. As such, a balance has to be found between ensuring a proportionate approach to the reporting of additional pension data and obtaining a representative view of the contribution of supplementary pensions to the adequacy and sustainability of pension systems at national level.

ADVICE TO THE EUROPEAN COMMISSION

EIOPA advises that additional pensions data are collected from private pension providers.

Confining the pensions information for pension projections and pension dashboards to data that is already available will result in substantial data gaps, in particular in relation to non-IORP pension providers. In consequence, this will hinder the preparation of pension projections and the development of a comprehensive set of high-quality dashboard indicators.

The already available pensions data at national and international level should be used to start developing and publishing the pension dashboards in the short term, considering that the collection of additional pensions information to fill data gaps will take some time. The pension dashboards and national pension projection can subsequently be enhanced in the medium term with newly collected data, facilitating a gradual approach.

There are a number of options for centralising the collection of additional pensions data at EU level. The use of pensions data already available at national level could be optimised – as a first step to developing the dashboard – through channels between the Commission (together with EPC and SPC) and national authorities or EIOPA and national competent authorities. Similarly, the collection of additional data from pension providers could be centralised at Eurostat, via national statistics offices, or EIOPA via national competent authorities.

The advice in Chapters 3 and 4 specifies the (minimum) data that need to be collected to enable pension projections and to develop the dashboards as well as other data that would be beneficial, i.e. cash flow data or sensitivity analyses for DB liabilities with respect to interest rate and life expectancy changes. To keep the collection of additional pensions data manageable, the data should be restricted to distinguishing occupational and personal pensions as well as DB and DC at EU level, instead of all pension plans and products in each Member State.

An efficient and proportionate approach to the additional data collection is essential. The data reporting should use consistent and international recognised definitions and balance the need to minimise the costs for pension providers, in particular smaller ones, and achieving the objectives of the pension projections and dashboards to enhance transparency of the contribution of supplementary pensions to the adequacy and sustainability of pension systems in the Member States.

Lastly, EIOPA advises that more detailed proposals for additional reporting requirements are subjected to a cost-benefit analysis.

ANNEX I: AVAILABILITY OF BASIC DATA BY PROVIDER AND OF MORE GRANULAR DATA

This annex assesses the availability of the basic pension data at by provider type. It also assesses the availability of more granular data such as data by age cohorts and gender. The figures show all products included in EIOPA's Database on pension plans and products by the reported number of products or weighted by assets. It indicates for which percentage data is available or is missing by provider type. Products which are not provided by IORPs or insurance undertakings have been included in the category 'other'. All products together account for 100 percent[29].

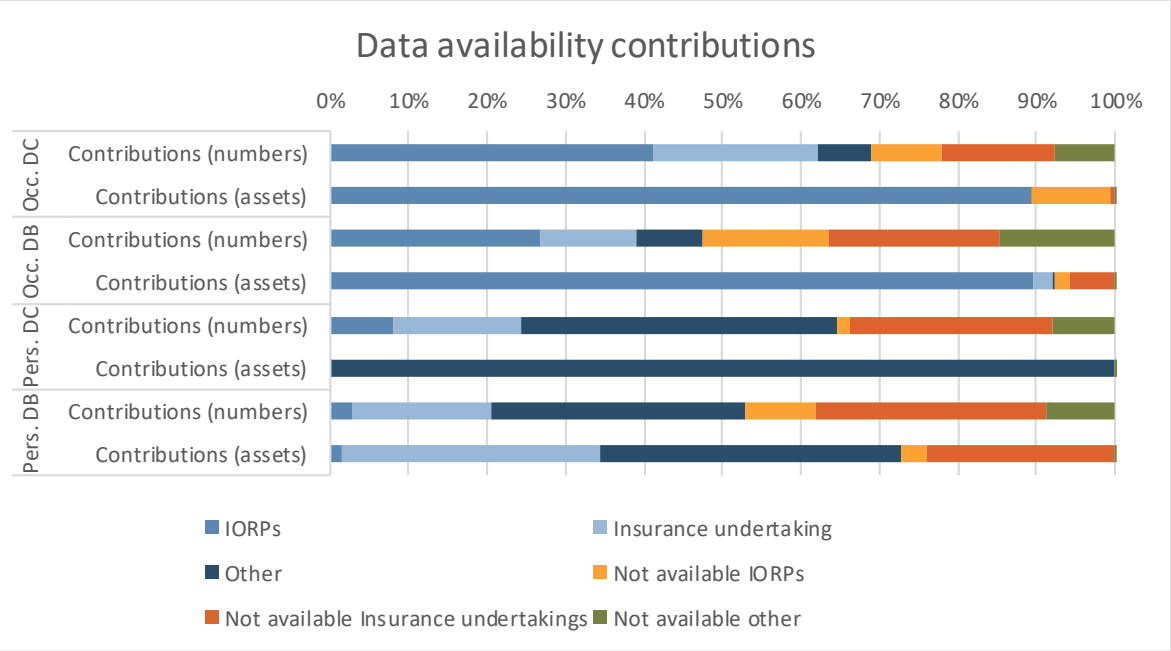
CONTRIBUTIONS

Figure A1.1 below shows which percentage of the contribution data is available or missing by provider type. It shows that if data is mainly missing, it mainly stems from insurance undertakings and entities other than IORPs and insurance undertakings.

The results for the overall availability drop significantly - for almost all categories and providers – if more granular information would be requested such as information by age groups or type of employment. Only in case of the information weighted by assets relating to DC schemes provided by the IORPs, the availability reaches 70 percent (see also the statistical annex). However, this also only covers a small amount of the number of products in the database but with significant assets. Such granular information is mainly relevant for DC schemes considering projections of future pension's adequacy. Furthermore, the level of contributions for DB schemes is predominately relevant to assess the future sustainability of the pension provider or scheme. This might explain why granular information on contributions is to lesser extend collected from DB schemes as the age group or employment type have no impact on these results.

[29] The percentages of assets provided by IORPs (provided and not available) are often 90 percent or more. This is not because the share of IORPs expressed by assets is that high but rather because information available on assets from products provided by insurers and other entities is often missing. Equally on personal DC schemes, assets are almost solely available from a limited set of products provided by other entities and lacking for most of the other products, thereby skewing the results.

FIGURE A1.1: DATA AVAILABILITY: CONTRIBUTIONS



ASSETS AND ASSET ALLOCATION

For assets, the findings are similar to those for contributions. There is an average coverage, especially when the information is expressed in assets, with information lacking mainly from the insurance sector as well as 'other' providers.

Equally, more granular data, such as assets split by age groups, is far less available. Weighted by number of products included in the database, there is insufficient information available for any combination of product categories and providers. The assessment using assets as weights, on the other hand, much more positive results in available, mainly due to the availability in a few products dominating the EU market. Remarkable is also that occupational DC products lack information on age groups whereas this is information on life cycle investments in the case of personal DC.

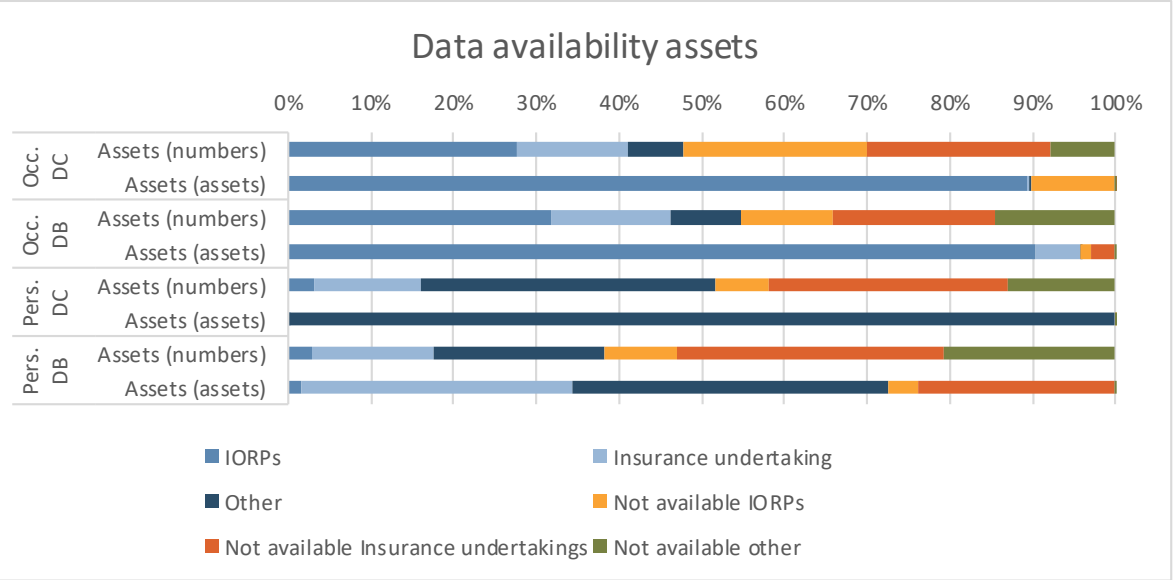
Information availability on asset allocation is very reliant on the product category and on the provider type when it comes to the assessment by assets:

- For occupational DC products, information is available from all entities in terms of assets. By number of products there is more availability with IORPs and 'other' pension providers.

- For occupational DB products, information is mainly available from IORPs and 'other' entities for the information both expressed by numbers and by assets;
- For personal DC products, information is mainly available from 'other' pension providers;
- For personal DB products, information is mainly available from 'other' entities;

However, considering asset allocation weighted by number of products included in the database shows that the degree of availability is generally low.

FIGURE A1.2: DATA AVAILABILITY: ASSETS



MEMBERS AND BENEFICIARIES

As shown in the graph below, information availability on members and beneficiaries is mainly absent for data on products provided by insurance undertakings. However, the general coverage is better (also by number of products) compared to contributions or assets.

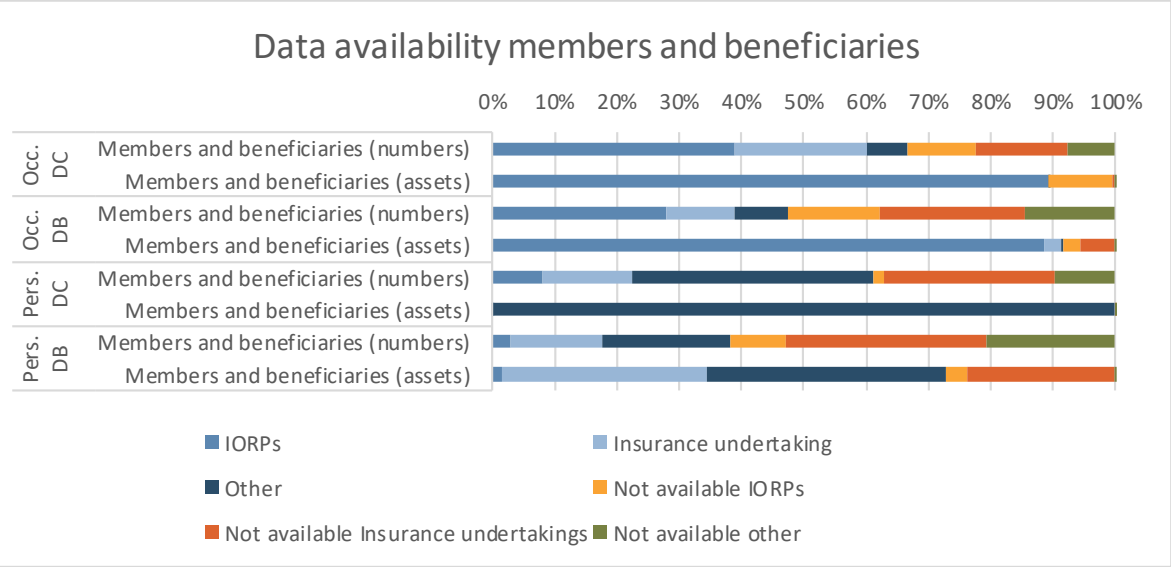
Assessing the data availability for members and beneficiaries split between active and deferred members shows that data coverage is substantial when weighted by assets except for IORPs) and is strongly correlated to the provider and the product category.

More granular data availability on members and beneficiaries by age groups, by gender or by type of employment is generally less available compared to the split between active and deferred members.

Please also remark that only three countries of the 24 that responded to the survey take into account that persons may dispose of multiple products and schemes. This might lead to double

counting in those other countries when calculating indicators related to the number of members and beneficiaries.

FIGURE A1.3: DATA AVAILABILITY: MEMBERS AND BENEFICIARIES



DB SPECIFIC DATA

The availability of data such as accruals, liabilities and cash flows, linked specifically to DB products generally not available for pension products. The main reason is that pensions are often just one product that the entity provides and those data are only produced at the company level for prudential use rather than at product level.

ANNEX II: EXAMPLES OF MODELLING APPROACHES AND THE DATA AND ASSUMPTIONS THAT ARE NEEDED

Potential variables to be projected (with reference to the outcomes foreseen in the EPC-AWG Ageing projections)	**Modelling approach**	**Dependencies with the other projected variables**	**Data** (depending on the purpose, most recent data or historical data series)	**Assumptions** (demographic, economic, financial and /or pensions related)
Pension expenditure				
	Approach 1) Multiplying the projected number of pensioners by an average pension per pensioner	Projected number of pensioners	Amount of benefits paid and the number of beneficiaries (latest data available), to calculate the average pension	- Annuity rates to convert lump sums into a stream of payments, where applicable - Indexation assumption (e.g. inflation rate), where applicable
	Approach 2) Similar to approach 1) but making a distinction between the average pension for existing pensioners and the average pension for the new pensioners, where it is possible to separately determine the value of new pensions (please refer to line 'New pensions')	Projected number of pensioners	Amount of benefits paid and the number of beneficiaries (latest data available), to calculate the average pension	- Annuity rates to convert lump sums into a stream of payments, where applicable - Indexation assumption (e.g. inflation rate), where applicable

	Approach 3) Using cash flow data on future benefits		Cash flow data on future benefits and/or interest rate/longevity sensitivities to ensure consistency of DB liabilities with the common interest rate and life expectancy assumptions in the ageing projections	
New pensions				
	Approach 1) Multiplying the number of new pensioners by average accumulation period x average accrual rate x average salary	- Projected number of members that will become beneficiaries in each future year (please refer to line 'Number of contributors') - Macroeconomic projections on salaries and salaries increases		- Average accumulation period - Average accrual rate
	Approach 2) For DC type of schemes, proportion of accumulated assets belonging to new pensioners		Breakdown of assets by age or age group	Annuity rates to convert lump sums into a stream of payments, where applicable
Tax revenues				
	Using information on tax rate(s)	Projected pension expenditure	Qualitative information on tax rules	Tax rate(s)
Number of pensions				
	As a simplification, it could be assumed that the number of pensions is equal to the number of pensioners			

Number of pensioners				
	Approach 1) Modelling entries and exits dynamics	Projected number of members that will become beneficiaries in each future year (please refer to line 'Number of contributors')	Number of pensioners (latest data available, if possible, considering age distribution)	- Age distribution (if data is not available) - Mortality rates
	Approach 2) Using projections on total population (with age distribution) and assuming a certain coverage rate	Eurostat's population projections (with age distribution)	Number of beneficiaries (latest data available, if possible considering age distribution), to determine the coverage rate	Coverage rate (current and how it will behave in the future)
Contributions				
	Approach 1) Multiplying the projected number of contributors by an average contribution per contributor	Projected number of contributors	Amount of contributions and the number of members (latest data available), to calculate the average contribution	
	Approach 2) Using projections on salaries, where contributions are linked to salaries	- Projected number of contributors - Macroeconomic projections on salaries and salaries increases	Amount of contributions and salaries, to determine contribution rates (where not directly available)	Contribution rate (current and how it will behave in the future)
	Approach 3) Determining the normal cost and / or the evolution of assets and liabilities, where contributions are dependent on the funding level	Projected amount of assets	Qualitative information on the rules for calculating benefits and / or benefits cash flow data, to determine the actuarial value of liabilities	
Number of contributors				

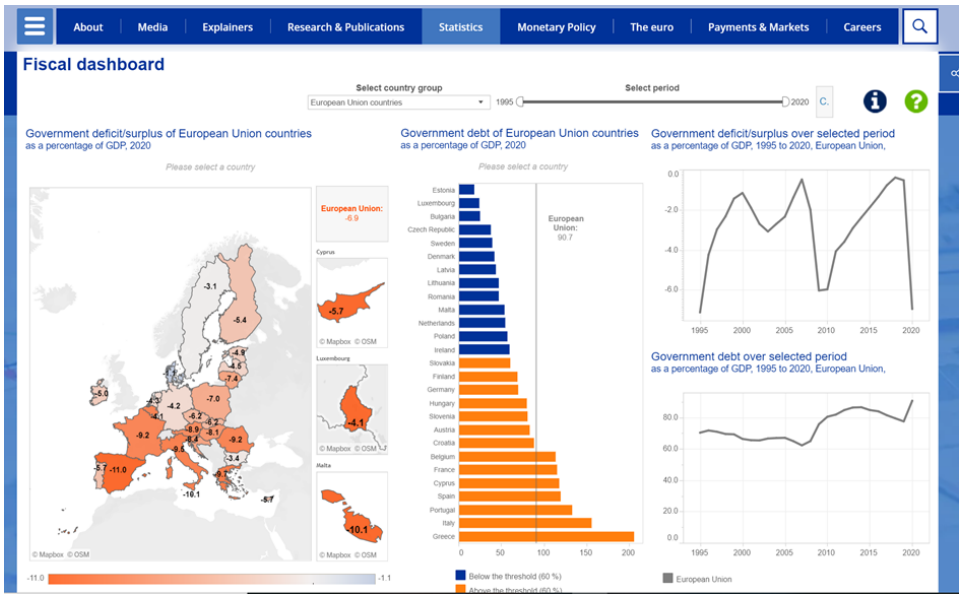
	Approach 1) Modelling entries and exits dynamics		- Number of members (latest data available, if possible, considering age distribution) - Historical data on the number of entries in each year, to derive assumptions to estimate the number of new members in each future year	- Age distribution (if data is not available) - Entry rates in each future year - Retirement age, to model the number of exits (i.e. members that will become beneficiaries) in each future year
	Approach 2) Using projections on total population (with age distribution) and assuming a certain coverage rate	Eurostat's population projections (with age distribution)	Number of members (latest data available, if possible considering age distribution), to determine the coverage rate	- Coverage rate (current and how it will behave in the future) - Retirement age, to model the number of exits (i.e. members that will become beneficiaries) in each future year
Assets and reserves				
	Considering cash in and out-flows and investment returns	- Projected amount of contributions - Projected amount of benefits paid	- Amount of assets (latest data available, if possible considering asset allocation) - Cost and charges, to derive assumptions on the net investment rate(s) of return	Investment rate(s) of return

ANNEX III: EXAMPLES OF DASHBOARDS

FIGURE A3.1: THE ECDC COVID-19 SITUATION DASHBOARD

© ECDC [2005-2021]

FIGURE A3.2: THE ECB FISCAL DASHBOARD



© European Central Bank, Frankfurt am Main, Germany

FIGURE A3.3: THE EUROSTAT COVID 19 RECOVERY DASHBOARD

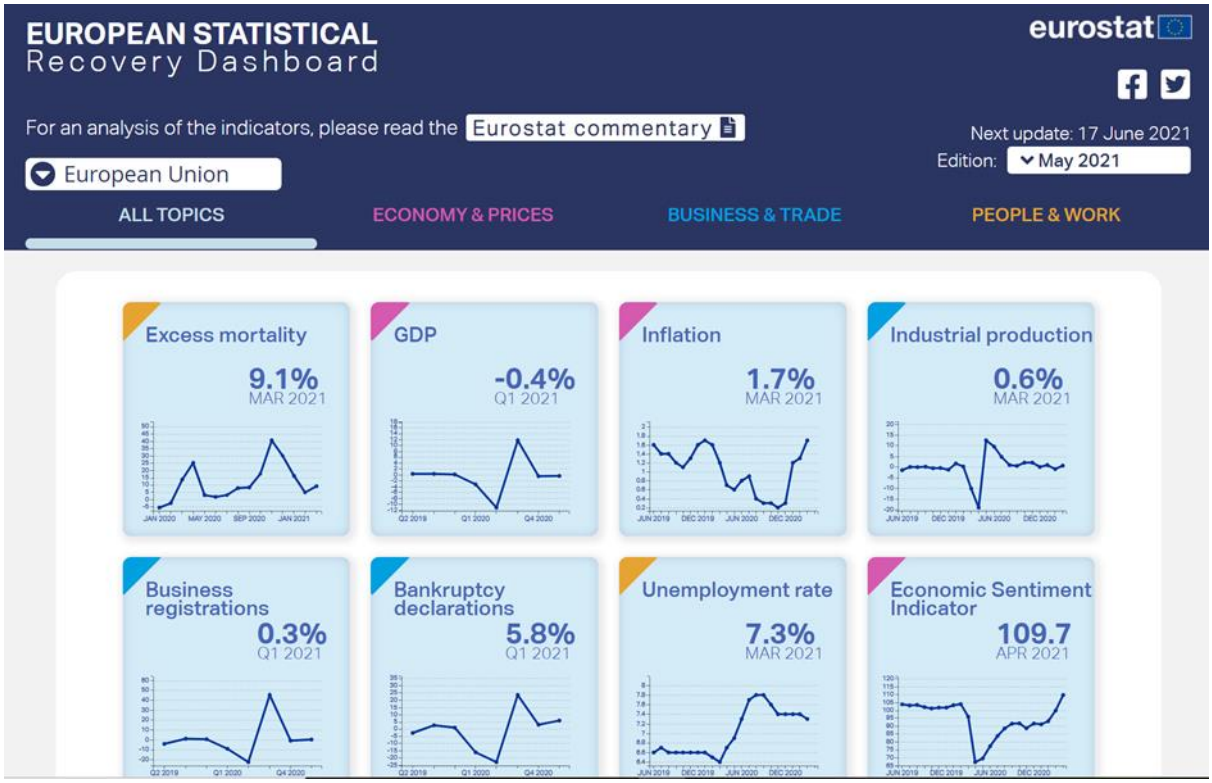


FIGURE A3.4: EIOPA RISK DASHBOARD

Risk Dashboard January 2021 (Q3-2021 Solvency II Data)

Risk Dashboard
January 2021

Risks	Level	Trend (past 3 months)	Outlook (next 12 months)
Macro risks	High	→	→
Credit risks	Medium	→	↗
Market risks	Medium	↘	↗
Liquidity and funding risks	Medium	→	→
Profitability and solvency	Medium	→	→
Interlinkages and imbalances	Medium	→	→
Insurance (underwriting) risks	Medium	→	↗
Market perceptions	Medium	↗	→

ANNEX IV: OVERVIEW OF INDICATORS FOR ADEQUACY AND SUSTAINABILITY DASHBOARDS

INDICATORS - 2021 PENSION ADEQUACY REPORT

1. Relative incomes	2019	change 2008-2019	
Relative median income ratio, 65+	total & breakdown gender	total & breakdown gender	Eurostat
Income quintile share ratio (S80/S20), 65+			Eurostat
Relative income quintile share ratio (S80/S20), 65+ - 0-64			Eurostat
Aggregate replacement ratio (ARR) %			Eurostat
2. Poverty and material deprivation	2019	change 2008-2019	
At-risk-of-poverty or social exclusion (AROPE), 65+ (%)	total & breakdown gender	total & breakdown gender	Eurostat
At-risk-of-poverty rate (AROP), 65+ (%)			Eurostat
Severe material deprivation (SMD), 65+ (%)			Eurostat
At-risk-of-poverty or social exclusion (AROPE), 75+ (%)			Eurostat
At-risk-of-poverty rate (AROP), 75+ (%)			Eurostat
Severe material deprivation (SMD), 75+ (%			Eurostat
Relative median at-risk-of-poverty gap, 65+ (%)			Eurostat

At-risk-of-poverty (AROP), 65+: 50% threshold (%)			Eurostat
At-risk-of-poverty (AROP), 65+: 70% threshold (%)			Eurostat
		change 2014-2019	
Material and social deprivation, age 65+ (%)	total & breakdown gender	total & breakdown gender	Eurostat
3. Gender differences	2019	change 2010-2019	
Gender gap in pension income (65-79) (%)	total	total	Eurostat
Gender gap in non-coverage rate (W-M in p.p.) (65-79)			Eurostat
4. Housing and health situation	2019	change 2008-2019	
Housing cost overburden rate, 65+ (%)	total & breakdown gender	total & breakdown gender	Eurostat
Self-reported unmet need for medical exam 65+ (%)			Eurostat
Healthy life years at age 65 (years)			Eurostat
Life expectancy at 65			Eurostat
5. Sustainability and context	2019	change 2016-2019	
Retirement duration from first pension (years)	total & breakdown gender	total & breakdown gender	Eurostat & AWG
	2019	2059	

Retirement duration from end employment	total & breakdown gender		Eurostat & AWG
6. Theoretical Replacement Rates (TRRs)	Net (%)	Gross (%)	
Average earnings (100%)	2019 and 2059	2019 and 2059	
Base case: 40 years up to the SPA	breakdown gender	breakdown gender	PAR
Increase SPA: from age 25 to SPA			PAR
AWG career length case			PAR
Old base case: 40 years up to age 65			PAR
Longer career: 42 years to SPA			PAR
Shorter career: 38 years to SPA			PAR
Deferred exit: 42 years to SPA +2			PAR
Earlier exit: 38 years to SPA -2			PAR
Career break - unemployment: 3 years			PAR
Career break due to child care: 3 years			PAR
Career break care to family dependent: 3 years			PAR
Short career (20-year career)			PAR
Work 35 years, disabled 5 years prior to SPA			PAR
Early entry in the LM: from age 20 to SPA			PAR

Index: 10 years after retirement at SPA			PAR
Extended part-time period for childcare			PAR
Survivor - full career			PAR
Survivor - short career			PAR
Survivor ratio 1*			PAR
Survivor ratio 2*			PAR
Low earnings (66%)	2019 and 2059	2019 and 2059	
Base case: 40 years up to the SPA	breakdown gender	breakdown gender	PAR
AWG career length case			PAR
Old base case: 40 years up to age 65			PAR
Career break - unemployment: 3 years			PAR
Career break due to children: 3 years			PAR
Short career (20-year career)			PAR
Early entry in the LM: from age 20 to SPA			PAR
High earnings (100=>200%)	2019 and 2059	2019 and 2059	
Base case: 40 years up to the SPA	breakdown gender	breakdown gender	
INDICATORS - 2021 AGEING REPORT			
All pensions	2019	2070	

Pension expenditure (% GDP)			AWG
Benefit ratio (average pension / average wage)			AWG
Replacement rate (average new pension / average wage at retirement)			AWG
Public pensions - pay-as-you-go			
Pension expenditure (% GDP)			AWG
Benefit ratio (average pension / average wage)			AWG
Replacement rate (average new pension / average wage at retirement)			AWG
Public pensions - privately provided funded part			
Pension expenditure (% GDP)			AWG
Benefit ratio (average pension / average wage)			AWG
Replacement rate (average new pension / average wage at retirement)			AWG
Occupational pensions			
Pension expenditure (% GDP)			AWG
Benefit ratio (average pension / average wage)			AWG
Replacement rate (average new pension / average wage at retirement)			AWG
Personal pensions			
Pension expenditure (% GDP)			AWG
Benefit ratio (average pension / average wage)			AWG
Replacement rate (average new pension / average wage at retirement)			AWG

INDICATOR - DEBT SUSTAINABILITY MONITOR 2020			
Long-term fiscal sustainability gap (S2)			DSM
PROPOSED ADDITIONAL INDICATORS			
Public pensions - privately provided funded part	DB - 2019	DC - 2019	
Coverage (% population 15-64)			
Liabilities (EUR million)	breakdown provider	breakdown provider	
Assets (EUR million)	breakdown provider	breakdown provider	
Asset allocation (% total assets)	breakdown provider	breakdown provider	
Investment return (%)	breakdown provider	breakdown provider	
Costs and charges (% assets)	breakdown provider	breakdown provider	
Contributions (EUR million)	breakdown provider	breakdown provider	
Benefits (EUR million)	breakdown provider	breakdown provider	
Occupational pensions			
Coverage (% population 15-64)			

Liabilities (EUR million)	breakdown provider	breakdown provider	
Assets (EUR million)	breakdown provider	breakdown provider	
Asset allocation (% total assets)	breakdown provider	breakdown provider	
Investment return (%)	breakdown provider	breakdown provider	
Costs and charges (% assets)	breakdown provider	breakdown provider	
Contributions (EUR million)	breakdown provider	breakdown provider	
Benefits (EUR million)	breakdown provider	breakdown provider	
Personal pensions			
Coverage (% population 15-64)			
Liabilities (EUR million)	breakdown provider	breakdown provider	
Assets (EUR million)	breakdown provider	breakdown provider	
Asset allocation (% total assets)	breakdown provider	breakdown provider	
Investment return (%)	breakdown provider	breakdown provider	

Costs and charges (% assets)	breakdown provider	breakdown provider	
Contributions (EUR million)	breakdown provider	breakdown provider	
Benefits (EUR million)	breakdown provider	breakdown provider	
Diversification between pay-as-you-go and funded			
Diversification indicator			

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