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New Evidence on the Quality of Public Investment Management in the EU

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European Commission
Directorate-General for Economic and Financial Affairs

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Cristiana Belu Manescu

Abstract

This paper discusses a number of good practices across the public investment lifecycle, drawing on recent survey evidence from all EU Member States. It points to examples of integrated strategic planning and appraisal/selection models that effectively guide budget allocation and use asset registers as input. It also features examples of independent external reviews, of binding multiannual commitment appropriations over the entire project lifecycle and of electronic monitoring systems. Overall, this paper finds that more significant projects traditionally in the transportation sector are subject to stricter scrutiny. Similarly, EU-financed investments tend to follow stricter rules throughout the project cycle than nationally financed ones. Finally, evidence also points to wide-ranging reforms of public investment management systems in several Member States, while room for improvement is evident across many Member States, for example, with respect to the coverage of strategic planning and its link with the budget as well as some elements of budgeting and asset registers.

JEL Classification: H54, H82, H41, H3, E2.

Keywords: public investment management, quality of institutions, cohesion policy, investment life cycle planning, appraisal, budgeting, ex-post reviews, monitoring, and asset registers.

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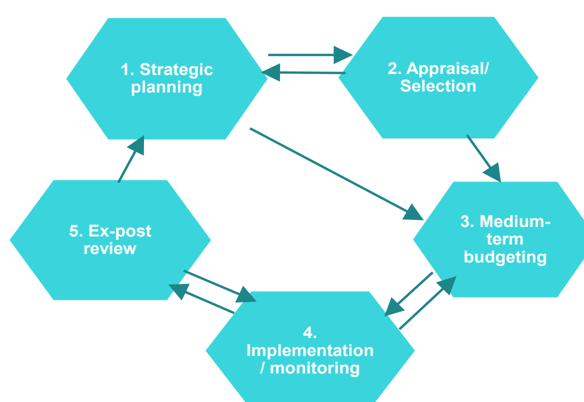
1. INTRODUCTION

The EU economy faces high public and private investment needs going forward. Investment needs are significant due to the twin digital and green transition, in addition to the need to recover a sufficient level of investment following the Covid pandemic, the Great Recession and its aftermath. Part of these investments can only be funded by public money.

Better managemet of public investment can significantly improve the efficiency of public capital spending. Recent estimates suggest that about one fifth of resources spent on public infrastructure in Europe are lost to inefficiencies (Baum et al. 2020). There are many reasons why governments display relatively high inefficiency in undertaking public investments and they reflect the particular character of a typical public investment project. Rajaram et al. (2014) point out that because many public investment projects involve multi-annual processes and significant planning, coordination, financing, procurement, and contract implementation challenges, it is not unusual for costs and completion dates to overrun even well-planned estimates. Nevertheless, evidence suggests that about half of the inefficiency gap can be closed by improving public investment practices (Baum et al. 2020). Moreover, beyond efficiency, improving public investment practices can also contribute to higher growth, fiscal sustainability and macroeconomic stability, particularly in high-debt countries (IMF 2019).

Public investment management practices include regulations, guidelines and procedures which define the governance of public investment expenditure. Public investment management practices are concerned with the quality and efficiency of investments (Where to invest? How to get most return out of each euro spent?).[1] While national institutions, procedures and documents for managing public investment vary widely from country to country, a number of core functions are typically fulfilled. The investment cycle covers planning, appraisal and selection, budgeting, implementation and ex-post review. It is important to regard public investment management as a system where the different stages are interlinked (see Chart 1). Across all stages, transparency and information flows are crucial.

Chart 1. **An illustration of the investment cycle stages and the interlinkages between them**



Source: Own concept.

This paper discusses and provides new evidence on public investment practices in the EU. The original conceptual work underlying this paper is laid out in Belu Manescu (2021), which builds on extensive work by the OECD (2017), IMF (2018) and World Bank (e.g. Kim et al., 2020). The new evidence presented draws on recent Commission work, including (i) in-depth interviews with representatives of selected countries,[2] (ii) exchanges with a group of experts from Member States on national public investment and (iii) a survey covering all EU Member States.[3]

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[1] In national accounts, public investment is measured as general government gross fixed capital formation and reflects the total value of general government acquisitions, less disposals, of fixed assets (tangible and intangible) during the accounting period, plus additions to the value of non-produced assets (e.g. land improvements) (see Belu Manescu, 2021). According to ESA 2010, categories of capital expenditure include dwellings, other buildings and structures; machinery and equipment (e.g. cars, ships, computers); intangible fixed assets; and weapons systems (European Commission, 2013).

[2] Four interviews with senior public investment management officials in Spain, Romania, Greece and Italy were carried out between July 2021 and January 2022.

[3] The survey was launched in April 2022 and received replies from all EU Member States.

The paper is organised as follows. Section 2 provides background on the survey content, including key parameters such as sector coverage of the replies. Section 3 describes the key concepts governing public investment management across its five stages (planning, appraisal and selection, budgeting, implementation, ex post review), including new evidence from the Member States. Section 4 concludes.

2. SURVEY METADATA

The survey included 25 questions on all stages of the investment cycle, and was complemented with a glossary.[4] Specifically, questions about planning, appraisal and selection, budgetary allocation, implementation/monitoring and ex-post reviews were asked, based on the methodology in Belu Manescu (2021) and surveys by other institutions. The interlinkages between the different stages received particular attention. While questions were aked in closed-form to enable reporting and classification, the possibility to provide additional information was available to almost all questions. Annex 1 presents the survey questions, while Annex 2 shows detailed data on key survey questions.

All Member States participated in the survey. With only very limited exceptions, all countries responded to all questions. Often, the information provided in the free text fields and the follow-up exchanges were crucial to understanding how the system works.

While rich in information, the survey information is subject to some limitations. First, as was made clear from the outset, the scope of reporting could vary between respondents. Some respondents chose to focus on key sectors while others reported on the whole economy, thereby reducing the comparability across answers. Second, the additional information in the free text fields usually provided key clarifying information to confirm the ticked answer; yet such information could not always be provided in detail thereby limiting the possibility to verify internal consistency.

The survey focused on public investment at the central level of government. In federal countries, this refers to spending by the federal government, while in unitary countries it refers to spending by the central level. Investment spending at the subnational level – while economically very significant– was not addressed in the survey.[5] As arrangements tend to differ by the level of government, finding the right counterpart with the right knowledge for the survey proved difficult. Still, public investment at subnational level would clearly deserve scrutiny. Belgium is a valid example in that regard, as public investment is highly delegated to the three regions (see Box 1). Accordingly, a survey reply has been provided by the federal level and two of the regions. However, implementing a similar approach in all Member States is not feasible.

[4] Five additional open questions were asked about general issues such as ongoing reforms of the public investment management system, capacity constraints in implementing public investment projects, differences in the management of national vs. EU co-funded investments and tangible vs. intangible assets, and finally investments by state-owned enterprises.

[5] In the EU, the share of investment by the local government (regional and municipal) fluctuates around 40 to 50 percent of total investment (European Commission, 2018a).

Box 1. **PUBLIC INVESTMENT MANAGEMENT PRACTICES IN A FEDERAL CONTEXT: THE CASE OF BELGIUM**

Belgium has a unique set-up for public investment which is managed mainly at the level of the communities, regions and the local authorities, with limited involvement of the federal government. This box presents this set-up as reported in dedicated surveys for the federal level, Brussels Capital region and the region of Flanders.

Federal level

Until recently, selection and monitoring of investment projects have largely been governed by procedures similar to those applying to other budgetary spending items. However, further to the Recovery and Resilience Facility and other investment packages at the federal government, the system is being reformed, including through the introduction of a multi-year investment plan, detailed monitoring and the set-up of a high council for public investments.*

Brussels-Capital region

Investment planning is done at the sectoral and sub-sectoral levels and covers general public services, housing and community amenities and economic affairs. It is done in cooperation with line ministries. Standardised appraisal procedures are used for the transportation system (Brussels Inter-communal transport company-STIB-MVIB), which accounts for 70% of the strategic investments (i.e. investments that foster growth) and 30% of all investments in the Brussels-Capital Region.

Forward capital estimates for several years are provided for the largest investment expenditures (transportation, social housing), which are closely monitored and adjusted where necessary (delays in permits, for example). While capital and current expenditures follow distinct approval processes, the appropriate amounts for standard maintenance are generally allocated to the budget.

Implementation of the STIB-MVIB projects is monitored by a joint committee involving the representatives of the Ministry-President, the Ministry for the Budget and the Ministry for Mobility, Brussels Mobility and the STIB. Implementation reports are published monthly and quarterly.

Flanders Region

Investment planning is in place at the sectoral level, and covers economic affairs, education and environmental protection. Since 2019, all major projects (min. 100 million euro, excl. VAT) and programs (min. 200 million euro, excl. VAT) must undergo pre-appraisal as well as standardised appraisal. Central support for appraisal is conducted by the Department of Finance and Budget. Appraisal results of projects of a certain size/sector are subject to independent reviews for quality and objectivity by the Interfederal Corps of the Inspectorate of Finance.** Projects with a negative review cannot proceed, without an agreement from the Flemish Budget Minister.

Indicative forward multi-annual estimates are in place at the programme level. Capital and current expenditures are submitted and considered in an integrated way, while the appropriate amounts for standard maintenance are systematically identified in the budget or other documentation.

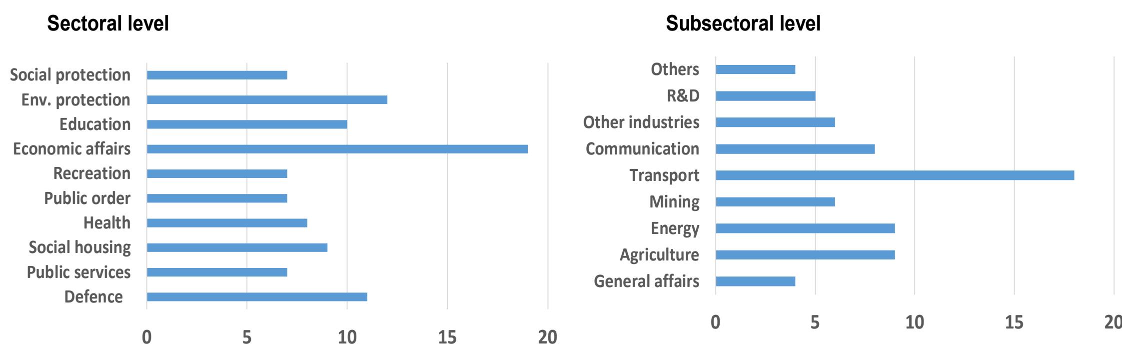
Monitoring is in place at the level of the line ministry, while a reform of project adjustment procedures is underway, including technical support from DG REFORM. Finally, a joint asset management strategy is being developed and implemented for the transportation and policy works area in order to optimally maintain and manage the infrastructure and gain insight into the total cost of ownership of infrastructure.

* To this end, technical support from DG REFORM has been requested jointly by the federal level and the Brussels Capital region to “enhance public investment management in Belgium at federal and regional (Brussels) level”.

** This is a public service body responsible for administrative and budgetary inspection solely with regards to the legality, regularity, budgetary feasibility and expediency of public expenditure from a point of view of efficiency, effectiveness and economy. The Inspectorate of Finance is a relatively small structure of 61 finance inspectors.

In the survey, data on practices of public investment management most often refers to the economic and financial affairs sector, in particular the transportation sub-sector (according to the COFOG classification). In a few cases, transportation is the only sub-sector for which information is provided. Other sectors include defence[6] and environmental protection, while a few respondents provided a comprehensive overview across most sectors (Chart 2).

Chart 2. **Sectoral coverage of investment planning (in number of Member States) according to the classification of the functions of government (COFOG)**



Source: Commission's public investment management survey, 21 responses (Six respondents did not answer this question).

Public investment management rules reported in the survey tend to vary with the project's size, sector and source of financing. In general, more significant projects – traditionally in the transportation sector – are subject to stricter scrutiny. Similarly, EU-financed investments tend to follow stricter procedures than nationally-financed ones. About half of the Member States reported significant differences in the management of EU-funded investments vs. nationally-financed investments. Key differences are reported across the full investment cycle, particularly with respect to rules for project appraisal and selection as well as for budgeting. Concerning budgeting, EU-funded investments, unlike nationally-financed investments in most cases, are managed via the seven-year programming framework which ensures that capital is available in a more timely manner throughout the project lifetime. By contrast, no significant differences are generally reported in the management of tangible vs. intangible investments, according to about half of the respondents who provided such information.

The quality of public investment management is a priority for many Member States. The survey revealed that many Member States are either currently implementing or have recently implemented ample reforms of their public investment management system (e.g. Bulgaria, Belgium, Croatia, Cyprus, France, Ireland, Italy, Estonia, Lithuania, Spain, Slovakia, and Greece). Most of these reforms tend to take an integrated approach to public investment management and address all stages of the investment cycle. Some are using the recovery and resilience facility to accelerate reforms, while others may also rely on technical support from DG REFORM (e.g. Greece, Bulgaria, Belgium) via the Technical Support Instrument (TSI). Many use international expertise (IMF, OECD) for diagnosis and reform recommendations. See Annex 3 for a comprehensive overview of ongoing reforms on public investment management practices in the Member States, based on the survey.

[6] Within defence, ESA 2010 classifies as capital expenditure the acquisition of military weapon systems, comprising vehicles and other equipment such as warships, submarines, military aircrafts, tanks, missile carriers and launchers which are used continuously in the production of defence services (European Commission, 2013).

3. NEW EVIDENCE ON KEY ELEMENTS ACROSS THE INVESTMENT CYCLE

3.1 INVESTMENT PLANNING

According to the literature, efficient investment planning requires a long-term broad strategic vision anchored to country- or sector-specific goals.[7] To be useful, such a strategy is complemented with operational plans that include deliverables and appropriate costs and is based on reliable estimates of current capital stock and capital needs. Operational plans contain detailed information about costings, outcomes and outputs which helps to keep track of how (strategic) policy objectives are met and how fiscally sustainable they are. Accurate estimates of capital stock and capital needs facilitate appropriate funding for maintenance, renewal of assets at the end of their life and creation of new assets. Integrated planning, appraisal/selection and budgeting are key for effective investment management (Kim et al. 2020).

The strategic component typically includes a few key objectives and priorities for country development over the long term.[8] While usually set in general terms (e.g. decarbonising the economy;[9] access to quality childcare, education and health services;[10] gender equality,[11] etc.), these priorities are accompanied by rough estimates of the available financial envelope (e.g. EUR 7 bn to decarbonise the economy and become a leader in green hydrogen)[12]. In addition to ensuring fiscal sustainability, the rough estimate provides an order of magnitude of the relative importance of the priorities, which should guide budgetary allocation (see Section 5.3). For this reason, where possible, economy-wide guidance may be preferable to a sectoral approach that only sets priorities within that/those sectors. Likewise, it appears useful that strategic documents are revised only at long intervals (every 5 to 10 years) after an extensive process of consultation with relevant stakeholders to ensure stability throughout changes in government.

Such broad, strategic documents are most helpful when they are further detailed in operational plans at sectoral/sub-sectoral level with information on clear deliverables and realistic costings. Detailed information about costings, outputs and outcomes cannot be included in the broad strategic documents. At the same time, the link to the strategic documents, both in terms of priorities and broad financial envelope, makes it more likely that operational investment plans are both relevant and affordable. Where operational plans lack the strategic element and are simply a collection of ("bottom-up") projects, investment decisions may be largely driven by temporary needs and political influence instead of the most productive uses.

According to the survey, strategic and operational plans are usually distinct documents, prepared by different entities. Strategic plans may be set at the national level or cover key sectors (infrastructure or transport). Comprehensive strategic plans are usually prepared by either a central (coordinating) body often reporting directly to the Prime Minister or by the Ministry of Planning/Development, at times in cooperation with line ministries and other bodies.[13] For example, in

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[7] See OECD (2017) and Belu Manescu (2021).

[8] According to OECD (2017) data, most long-term strategies cover about 10 years.

[9] "France 2030" available at https://www.gouvernement.fr/upload/media/default/0001/01/2022_02_dossier_de_presse_-_comite_france_2030_01022022_v_4.pdf

[10] "Ireland 2040" available at https://www.gov.ie/en/campaigns/09022006-project-ireland-2040/.

[11] "National Strategy for Sustainable Development in Romania 2030" available at http://dezvoltaredurabila.gov.ro/web/wp-content/uploads/2019/03/Romanias-Sustainable-Development-Strategy-2030.pdf.

[12] France 2030.

[13] Other bodies involved in planning may include forecasting bodies or subnational authorities (Ireland).

Ireland, the national planning framework is prepared by the Ministry for Housing, Planning and Local Government, while in France, the Secretary General for Public Investment, placed directly under the authority of the Prime Minister, prepares and manages the implementation of the long-term strategy. In Poland, Lithuania and Latvia, the long-term strategy is prepared by the Council of Ministers or an equivalent body with inputs by all ministries.[14] By contrast, when the strategy is limited to selected sectors, the line ministry for infrastructure or transportation tends to be the main institution in charge, often in collaboration with the Ministry of Finance, whose involvement is key to ensure the fiscal sustainability of the plans. This is also the case for example in Italy, the Netherlands, Germany, Austria, Sweden, Denmark and Finland. Finally, where EU-funding is a significant share of public investment, the Ministry of (Regional) Development and of EU funds tends to play a key role in the planning and management of public investment (e.g. Croatia, Czechia, Poland, Greece, Hungary).

Operational plans/programmes tend to be the prerogative of line ministries and may be detailed at the sectoral and/or sub-sectoral level, sometimes based on a bottom-up approach. In several countries (e.g. Italy, the Netherlands, Ireland, Latvia), operational planning involves a well-established process of consultation with all relevant stakeholders, including local and regional levels. For example, in the Netherlands, the multi-year programme for infrastructure, public space and transport (MIRT) contains regulations on the cooperation in decision making as well as requirements to receive funding for infrastructure or water projects. In a few cases, operational investment plans in key sectors (e.g. infrastructure, defence) are managed by an independent authority under the coordination of the Ministry for infrastructure (e.g. the Swedish Transport Administration or the MIRT Committee in the Netherlands).[15] Such plans tend to have a long-term horizon (more than 10 years) and be based on strategic documents elaborated by the government or Infrastructure Ministry. Given their level of details, operational plans, rather than *strategic* plans, feed into project appraisal and selection.

In few systems and key sectors, the planning documents also serve as a pre-filter for projects (e.g. Italy) or include full guidelines for project appraisal and selection (e.g. Sweden, the Netherlands), effectively implying a strong integration of the planning and appraisal and selection phases. For example, in Italy, according to a new process for planning and selection, strategic planning will be based on an advanced general equilibrium model assessing real transportation needs. This model is complemented with a scoring model that provides a ranking of projects along four criteria (economic and financial, environmental, social, institutions and governance). Such level of high integration between planning and appraisal/selection is usually encountered in the transportation sector given the size and significance of projects.

Where a large share of public investment is co-financed by EU funds, investment planning is effectively guided by the Partnership Agreements, produced in cooperation with the European Commission. These agreements define the strategy and investment priorities chosen by the relevant Member State and presents a list of national and regional operational programmes to be implemented, as well as an indicative annual financial allocation for each operational programme. In some cases, partnership agreements can be linked to longer-term national strategies (e.g. Greece). Once the priorities are set at the beginning of the seven-year period, the allocation of funds is based on project progress and the risk of unjustified deviations from the programme is reduced, which contributes to effective budgeting.

Effective investment planning benefits from taking effective stock of the existing capital stock and its condition. This helps to plan not only new developments but also major improvements and maintenance needs. In several Member States (Estonia, Finland, Greece, Sweden, Italy, Denmark, the Netherlands, Germany) investment planning is, at least in key sectors such as energy and transport, guided by asset registers (see Section 4.5).

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[14] In Poland, the Council of Ministries coordinates it, in Lithuania it is the Office of the Government of the Republic of Lithuania, while in Latvia it is the Cross-Sectoral Coordination Centre.

[15] In these countries, information on investments in other sectors of the economy is not available (Italy, Sweden, the Netherlands).

3.2 APPRAISAL AND PROJECT SELECTION, INCLUDING BUDGETARY ALLOCATION

Countries with advanced systems have standardised procedures for appraisal and selection, which tend to be centrally developed - at each level of government - and whose results are published. The appraisal and selection stage focuses on a detailed assessment of a project's implications from all angles, where appraisal refers to methodologies and procedures to assess a project along all relevant dimensions (financial, social, environmental, sustainability), while selection refers to criteria and methods to compare findings across these dimensions. Major project appraisals tend to be independently reviewed prior to the selection decision, and for all projects proposed for funding there is usually a check carried out centrally - at each level of government - that the appraisal criteria are met. Whereas the planning stage is typically concerned with setting the direction and broad envelope for investment, the appraisal and selection stage tends to focus on detailed assessment of project's implications from all angles and on selecting those that meet the criteria.

The literature emphasises that good integration at the planning, appraisal/selection and budgeting phase is key for effective investing. Such integration would ensure that money goes to the right investment at the right time and at the right price. This process, however, is not straightforward given that these stages have different timing and implementation horizons.

Standardised procedures for project appraisal and selection at the suitable level (programme/sector) ensure a level-playing field among projects that have already been included in the operational planning phase.[16] Central support and development of guidelines at each level of government facilitate dissemination of best practices, while publication of appraisal results fosters transparency and accountability. According to the survey, project appraisal/selection requirements tend to follow the principle of proportionality, with more stringent assessments for larger projects. A vast majority of Member States use a standard methodology for appraisal, at least in some sectors. Central support and development for appraisal/selection guidelines is available in about half of the Member States, especially in relation to EU-financed investments. Such bodies tend to be placed under the authority of the Ministry of Finance (e.g. Cyprus), Ministry of development (e.g. Czechia, Greece), Ministry of Transport (e.g. Finland) or directly under the responsibility of the government (e.g. Lithuania). Furthermore, in some Member States there are dedicated bodies in charge of carrying out appraisals for significant projects (e.g. Italy, Slovak Republic).[17]

External independent reviews of the appraisal findings are helpful in avoiding underestimation of costs. Maintaining a list of (new) eligible projects, ideally with few projects and an order of priority, exclusively assessed on technical grounds, can be a helpful input to the budgeting decision. Independent reviews of appraisal results are reported to be in place in some Member States, often for projects of certain size and/or certain sectors. Such reviews are carried out by international experts (e.g. Portugal for research projects in tertiary education), consulting companies (e.g. Denmark for all infrastructure projects), independent agencies (e.g. Finland and Austria mostly for transportation projects), or by dedicated units under the Ministry of Finance (e.g. Cyprus, Romania, Slovak Republic for all projects above certain size). Ireland reports a specific system of independent expert reviews at two stages in the project lifecycle (approval in principle and prior to tendering), supported by two networks of experts. One network assists all departments with independent reviews, while the other assists the department of public expenditure and reform in assimilating the outputs from these reviews, informed by the perspective of those who have successfully delivered major public infrastructure. Several Member States indicate that independent reviews are mandatory for certain EU-financed projects. Most Member States maintain a short-list of projects at the ministry level.

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[16] Project appraisal refers to the methodologies and procedures to assess a project along all relevant dimensions (financial, social, environmental, sustainability), while selection is rather concerned with the criteria and methods to compare findings across these dimensions, thereby reducing the number of eligible projects.

[17] In Italy, the Superior Council of Public Works must assess projects financed by the state by at least EUR 50 million, while in the Slovak Republic all investment projects of the central government above EUR 1 million must be assessed by a unit within the Ministry of Finance.

The funding decision made at the budgetary phase is a crucial decision for the project to go ahead. The budgetary allocation decision remains prerogative of the government and is the outcome of negotiations, resulting in allocations by line ministries. Within the ministerial envelope, safeguards play a role in avoiding that ongoing viable projects are stopped/delayed to make room for new projects. While political preferences may lay behind the budgeting decision, clear, transparent and comparable assessments help to achieve the right balance between political and technical inputs. A medium-term budgetary framework with clear investment priorities (see next section) and a short-list of eligible projects are considered valuable to guide this process. Furthermore, a review that all projects proposed for funding have respected the appraisal and selection procedures (also called "gatekeeping") prevents projects to side-line the official selection track. Such a review is in place in about half of the Member States.

EU-cofinanced projects follow clear procedures for appraisal and selection. Appraisal and selection rely on very well specified criteria and methodology designed at the sector level, and they also entail independent reviews. By contrast, selection procedures for nationally-only financed investments tend to be weaker in some countries, although many Member States are taking active steps to align requirements with those of EU-funded investments (e.g. Greece and Lithuania).

3.3 MULTI-ANNUAL BUDGETING OF CAPITAL EXPENDITURE

A medium-term budgetary framework, including multi-annual ceilings on capital expenditure, can ensure consistency between annual budgetary decisions and the multiannual lifetime of most projects.[18] It can also facilitate that annual budgetary decisions are anchored in the strategic plans. In countries with advanced systems, capital and maintenance costs are estimated at the project/programme level over the lifecycle of the project and available in annual/multiannual budgetary documents. When applicable, this increases transparency on capital spending in budgetary documents. This might cover information on capital costs of central and subnational governments, capital transfers to state-owned enterprises, including fiscal risks stemming from contingent and implicit liabilities (e.g. public private partnerships) and off-balance sheet items.

A medium-term budgetary framework is considered helpful for capital budgeting for two main reasons. First, it requires multi-annual capital estimates at the programme/project level (based on implementation plans and updated every year), which help keep track of capital needs over the medium-term. Second, when accompanied by expenditure ceilings, it can provide an indication of the fiscal space to become available in the medium-term for new projects, which can help prioritise new projects at the government/ministerial level. Expenditure ceilings thus can play a crucial role in ensuring that the number of started projects stay within what is affordable, thereby avoiding the unwanted scenario of uncompleted projects because of lack of funding. Moreover, the medium-term orientation of the framework also fosters a stronger integration with strategic planning. Such a system relies on accurate and timely monitoring of project implementation.

A medium-term budgetary framework for capital spending is in place in less than half of the Member States. Medium-term budgetary frameworks have different horizons and are binding at different degrees. Usually, changes to the ceilings are permitted, even within the year, but require a vote in Parliament in the more binding systems (e.g. France, Greece). Some frameworks are exclusively dedicated to infrastructure investments or public investment more broadly,[19] cover a long horizon of ten years or more, and may include financing categories by components (development, maintenance, renewals, etc.).

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[18] Capital projects typically span several years and require capital expenditure to be available in a timely manner as they advance. As capital expenditure can only be allocated annually through the budgetary decision, projects are partially funded in the first year and an amount is made available and distributed yearly.

[19] For example, the financial framework for the infrastructure plan in Sweden, the MIRT financing plan in the Netherlands, the 10-year national development plans in Ireland and Lithuania, the seven-year operational plans in Greece and the "Road fund" in Luxembourg.

Capital expenditure estimates are usually available for the next two or three years. Estimates for longer horizons tend to be available when they are part of a medium-term framework for capital expenditure. As said, however, these are in place in less than half the Member States. As a result, in many countries, only the forward-looking estimates of capital expenditure are reported, presented as an annex to the budget. However, the absence of expenditure ceilings makes it difficult to judge affordability or determine expenditure overruns. Finally, EU-financed investments tend to enjoy a high level of protection over the years and take priority over other investments.

A certain budgetary flexibility for business cycle fluctuations appears desirable as far as capital expenditure ceilings are concerned. Too rigid multiannual capital expenditure ceilings come with the drawback that they cannot be adjusted in tune with the economic situation as justified. For this reason, where capital expenditure ceilings are in place, they tend to be indicative rather than binding. For example, in Denmark, the financial framework (or “upper limit”) for capital investment is outside the binding expenditure ceilings set by the budget law. In fact, only few Member States (e.g. the Netherlands) report binding capital expenditure ceilings.

Other restrictions can ensure that approved projects do not exceed the available fiscal space. Essentially, such restrictions help lock-in funds to specific projects, thereby limiting the possibility to divert funds from existing projects to new projects. In very advanced systems, multiannual commitment appropriations, which are a formal set of legal restrictions and part of the legislative process for budgeting, help in this way. This is in fact a dual system of cash and commitment appropriations, under which, each line ministry receives two types of appropriations per year in the annual budget. The first is an appropriation for payments for the next budget year, and the second is an appropriation for commitments for each year for the entire duration of the projects. By controlling the full cost of ongoing projects over their lifetime, ministers can keep the stock of approved projects at an affordable level. Only few Member States have such a system in place (e.g. France, the Netherlands, Sweden, Denmark), usually for larger projects in key sectors. Parliamentary approval is required for both annual budget and multi-annual commitments. For smaller projects, funding is provided as part of the annual budget bill, which the line ministries can prioritise without need of further parliamentary approval.

About half of the Member States report the use of commitment appropriations for shorter horizons (three or four years) to guide capital allocation, usually within some predefined limits (which may be increased under certain conditions). For example, in Spain, for every programme it is possible to commit 70% of the current budget to next year, 60% to the following year, and then 50% for years three and four. Commitments only go up to four years ahead. These limits can easily be increased with an agreement of the Council of ministries in terms of both amount and time.

An integrated capital and current account budgeting of projects has two main benefits. On the one hand, the full benefits of an investment projects can materialise by avoiding its life being prematurely ended due to lack of funding for maintenance (which may occur in weaker systems). On the other hand, deciding jointly for capital and current expenditure can allow for an optimal decision making between capital and recurrent costs (Kim et al., 2020). Most Member States enjoy an integrated capital and recurrent budgeting process, with more than half reporting an integrated process both at the preparation and decision-making levels, while a fifth reports an independent decision-making process with joint preparation phase. In the Netherlands, the decision of how much to allocate between maintenance and capital investment is taken over the life-time of projects (thanks to the multiannual commitment appropriations). In less than half the Member States, the appropriate amounts for maintenance are allocated to the budget and/or they can be systematically identified in the budget.

Budgetary transparency with respect to capital spending across all government entities is key. All capital expenditure of public funds should be included in the scope of public investment management. This includes expenditure by budgetary authorities at all levels of government, including

state-owned enterprises' and public-private partnerships.[20] The key issue is that independently of how public funds are spent, either via extra-budgetary bodies or government guarantees, they should all undergo the same level of scrutiny as that of the central budget. In 15 Member States, state-owned enterprises are reported to represent a meaningful share of the economy, while nine Member States report that investments by state-owned enterprises generally follow different rules than centrally managed investments.

3.4 MONITORING AND IMPLEMENTATION

Timely and transparent monitoring on the basis of pre-defined implementation plans, including by the body deciding on the budgetary allocation at each level of government, supports efficient implementation. Monitoring reports tend to be public. In countries with advanced systems, a reappraisal of the project tends to be required when projects exceed tolerance levels with respect to budget, timeline or deliverables, including the possibility to terminate the project. [21]

Monitoring serves at least two related purposes. First, it can facilitate efficient capital allocation and, second, it can identify potential problems early on and solicit remedial action. Different types of monitoring are needed, in terms of objectives and frequency (Kim et al. 2020). The "daily" monitoring function of financial and physical progress is at the level of the implementing agency/managing authority. These implementing agencies are then reporting up to the line ministries, which are responsible for monitoring the aggregate investment portfolio in terms of achieving objectives and can take difficult decisions regarding adjustments of projects. Finally, line ministries would typically report to the Finance Ministry who needs only essential and timely information on project/programme development to have financial control over capital spending and to perform designated tasks, such as setting realistic expenditure ceilings.

All Member States report monitoring at the level of the implementing agency and line ministry, while additional monitoring is reported to take place also centrally in about half of the Member States. In some countries, the Ministry of Finance appears to have a more prominent monitoring role than in others (e.g. Bulgaria, Portugal, Romania, Lithuania, Hungary), on the basis of reporting by the line ministries. Also in Italy, the Ministry for Economy and Finance carries out real-time monitoring on the basis of a joint project and programme management IT system connected to the contract system (more below), which operates at the level of the line ministry.

For certain projects, usually more complex or sensitive projects, specific monitoring may be in place. For example, in France, major projects related to the national strategic investment plan (France 2030) are monitored by the "Secrétariat Général pour l'Investissement" a body placed directly under the Prime Minister, while all sectoral projects are monitored by line ministries. Also in Latvia, the Council of Ministers may follow the implementation of certain significant projects, while in Poland a dedicated "Government Project Management Office" was established in the Chancellery of the Prime Minister's Office to monitor strategic projects. Similarly, the Netherlands also reports additional monitoring depending on the level of political sensitivity. Finally, all EU-funded projects above a certain threshold are subject to specific monitoring (auditing) during the implementation process.[22]

Transparency would also entail the publication of financial implementation monitoring reports, complemented by data from the implementing agency, where possible. Compared to the

[20] According to ESA 2010, SOEs are included in the general government accounts if they are non-market producers and controlled by the government (European Commission, 2013). Similarly, PPPs are included in the government accounts and their assets/imputed debt are thereby recorded as governments assets/debt if there is strong evidence that the government bears simultaneously most of the risks and rewards attached to the assets (directly and linked to its use) involved in the specific partnership.

[21] Public procurement and contract management are not dealt with here.

[22] In Latvia, the monitoring function is for certain projects in education ensured by a monitoring board established for each measure or project, with representation from line ministries, NGOs, higher education institutions, etc.

information presented in the budgetary documents, information in financial implementation reports tends to be more detailed. For example, in Germany, the progress of all ongoing transport infrastructure projects is documented in a report (“Verkehrsinvestitionsbericht”). This report is published annually by the Federal Ministry for Digital and Transport, on the basis of reporting of the distinct units within the ministry responsible for the supervision of each mode of transport. Also in Luxembourg, every six months the line ministry presents a financial review for infrastructure projects with a cost exceeding EUR 10 million to the Chamber of Deputies.

Monitoring is found to be more effective when based on implementation plans including key cost information, timelines, milestones and key deliverables, which are available prior to budgetary decisions. Being pre-determined with respect to the budget ensures key information is available to policymakers before making capital allocation decisions.

A modern electronic system allows to collect the necessary information at all levels while automatically converting it in the required format for the different monitoring functions. For example, Italy has introduced such a comprehensive system in 2014: under the coordination of the Ministry of the Economy and Finance. This system pools together data automatically generated within the administrative process (i.e. cash flows and electronic bills), while presenting it in the format required for different monitoring purposes (e.g. auditors, EU funds monitoring). As a result, it contains extensive project information, such as a description of the project, the sector of intervention, the financial plan and information on financial sources, payments and total cost, as well as procurement tools, procedural steps, work progress and physical indicators. Importantly, such a system allows unique identification of projects (through a “Unified Project Code”), which allows tracking of projects from conception until after completion and could facilitate the establishment of an asset register. In countries with a large share of EU-funded investments, advanced electronic systems tend to be in place for EU-funded investments (e.g. Greece, Czechia).

When monitoring reports suggest a risk for projects going off-track, different actions are possible depending on the severity of the deviation. Some project adjustment actions are common across Member States, and tend to be sector specific. Some basic project adjustment actions, such as a reassessment of the costs and benefits of projects or an adjustment in the project scope, appear to be in place in most Member States when costs exceed certain thresholds relative to the original cost (e.g. 10% in Austria). Options for more drastic actions such as the termination of the project if, on balance, benefits do not justify the costs (including incurred costs), tend to be rare (e.g. Ireland, France, the Netherlands, Lithuania). Most often, once commitments for a project have been put in place, there are legal impediments to remove it (e.g. Italy, Poland). Generally, in most EU countries and for most projects, there is a certain tolerance level for cost increases, up to which project plans can be easily adjusted by the government. In some countries, however, when costs exceed certain thresholds for larger projects (e.g. 5% higher than initial costs in Luxembourg) parliamentary approval is required. Parliamentary approval is also required in countries with multiannual commitment appropriations, as costs of projects are reassessed over the medium-term or over their entire lifecycle each year. EU-funded investments follow EU rules for project adjustment, which do not allow a change in scope of the project but allow termination in case of, for example, unjustified delays.

3.5 EX-POST REVIEWS AND ASSET REGISTERS

Good practice suggests that a number of steps taken after completion of a project can support effective asset management. First, basic completion reports immediately after project completion help identifying lessons on project implementation. Such reports are more helpful when centrally reviewed and published, at each level of government. Furthermore, comprehensive ex-post reviews focusing on how the project delivered on its objectives and assessing all stages of the investment cycle can be helpful especially when published. Finally, comprehensive and up-to-date asset registers are crucial for effective asset management, including for effective planning of investment projects that duly reflects the maintenance needs of current capital stock as well as the need for further developments.

A basic completion review carried out immediately (e.g. after six months) after completion assesses to what extent the project was delivered on time, within budget, and to the specified design. Major departures from the initial implementation plan can here be identified and any reason for departure explained. Such review is usually carried out by the implementing agency or managing authority, by a part of the organisation not involved in the implementation. Such reports are usually submitted to the line ministry, and where relevant a central ministry such as the finance or planning ministry, which publishes the main findings and lessons learned in an annual report. Information on the success factors behind delivering projects as planned could be used for the planning and project selection phase for new projects.

After sufficient time since a project started delivering (e.g. three to five years), a comprehensive ex-post review can be carried out to assess strategic performance. As they require careful planning and are resource intensive, systematic ex-post reviews are rarely performed for all completed projects above a threshold. In almost all EU Member States, national audit offices carry out ex-post reviews (also called performance evaluations) on a sampling basis. By contrast, in Ireland, the Public Spending Code requires all large capital projects and a proportion of the other capital projects to undergo ex-post review, while in France a similar requirement is in place for the investments in the France 2030 plan.

In few Member States, in addition to outcomes, the ex-post reviews also assess the functioning of the public investment management system. In particular, they assess the extent to which the interaction between institutions, guidelines and methodologies helped deliver intended results. Importantly, the lessons learnt from such reviews could improve governance throughout the investment cycle. A subset of Member States have such systems in place. For example, in Austria, the line ministries evaluate the regulatory impact assessments after implementation. Subsequently, the Federal Performance Management Office checks the fulfilment of formal criteria (so-called "quality assurance") and reports to Parliament. In Italy, ex-post reviews are conducted to reformulate programme contract updates and for better parametric estimation for future projects. In Spain, the review of the public investment system was carried out by the independent fiscal institution, Aire. Finally, for EU-funded investments, systematic requirements are in place for ex-post reviews at priority axis level within each operational programme and have a feedback loop into planning.

A key final step once a project is completed is registering the asset in an official record of the assets owned by the state and its institutions. Some of the main functions of an asset register are to provide information on (1) the condition of the asset with a view to determine maintenance needs for existing assets and (2) inform the decision on new assets development by providing an overview of existing assets. To ensure comparability between sectors and/or levels of government, common guidelines for the development of asset registers would be helpful. Such guidelines could specify information on *inter alia* identification of the asset (e.g. description, unique identification number, manufacturer), accountability (e.g. location, programme, custodian), performance (e.g. capacity, condition, useful life, residual life), accounting (e.g. historic cost, replacement value, depreciation rate) and frequency of the update.[23]

An asset register for non-financial assets contains different data from the more common financial reporting on state (financial) participations. Unlike the latter, which are common in the EU, proper asset registers tend to be rare. Indeed, a study by KPMG and Bocconi University (European Commission, 2018b) confirmed the widespread lack of data and information regarding non-financial public assets across the EU Member States, in part also due to underdeveloped or non harmonised valuation methodologies.

Full asset registers appear to be in place in several Member States at least in key sectors (e.g. energy or transport) or government entities and are used for planning. These include Estonia, Finland, Greece, Sweden, Italy, Denmark, the Netherlands, Germany. In Estonia and Sweden, asset registers are used especially for maintenance planning, while in Denmark, in the road and rail sectors,

[23] Examples stem from the South African asset management framework, as listed in Kim et al. (2020).

asset condition monitoring is considered very important as regards both safety and economic optimisation. Most often, such asset registers are not public. Other Member States are in the process of developing or extending existing ones (Cyprus, Greece).[24]

4. CONCLUSIONS

This paper presents new evidence on key elements of public investment management in the EU and important clarifications on the concepts identified in previous work. An EU-wide survey, together with in-depth discussions with senior officials in four Member States and three exchanges with a group of national experts on public investment management at the central level of government were instrumental in this respect. Not only was this data collection effort helpful in learning about different practices across the Member States, but it also brought important clarifications to the previously identified concepts at each stage of the cycle.

This analysis suggests that there are advantages from public investment being managed in an integrated way, based on transparent, timely and accurate information. Clearly defined responsibilities on the basis of agreed guidelines, supported by appropriate control mechanisms and applied transparently appear to be desirable features of public investment management systems.

Overall, the data from the survey and other exchanges helped identify a number of good practices across the investment cycle. Guided by the conceptual work in Belu Manescu (2021), the new collected data highlights a number of elements that an ideal public system would feature in the different stages and illustrates this with evidence from the Member States. These elements include:

Planning

- A sound investment **planning** that is based on a long-term and comprehensive strategy and includes deliverables, reliable estimates of the costs, the existing capital stock and needs. Such planning is framed in a strategy that effectively guides the budgetary process and reflects consultation with stakeholders.
- While almost all Member States have in place some form of strategic investment planning, its coverage and link to budgetary allocation can vary substantially.

Appraisal and Selection

- Efficient **appraisal and selection** is based on standardised and public procedures, that have been centrally developed for each level of government, and includes inputs from independent reviewers. The publication of the appraisal and selection results and a review ensuring that at least major projects proposed for funding have undergone appraisal would enhance the transparency of the process.
- In the EU, standardised procedures for project appraisal and selection appear common, while independent external reviews before budget allocation tend to be rare. Centralised reviews (at a given level of government) of projects presented in budget documents to ensure compliance with appraisal and selection requirements are in place in less than half of the Member States.

[24] In Cyprus, a new reform is planned for the creation of a more accurate, centrally audited/continuously updated asset register, available at the Ministry/ Department level. All assets will be recorded in the system at the time of purchase (planned to be implemented in 2023 by the Government Treasury). In Greece, as part of the wider Public Finance Management reform, a fixed asset register of the central administration should become operational by 2025, complementing the existing registries at the subnational level.

Budgeting

- Reliable **budgeting** of public investment happens within a stable medium-term budgetary framework. This strengthens the link to the strategic plans and the consistency between annual budgetary decisions and the multi-annual lifetime of investment projects. Such consistency can be ensured for instance via multi-annual expenditure ceilings and appropriate allocation of maintenance costs over the lifetime of the project. Public information on all public capital spending is an essential part of transparent budgeting.
- In the EU, while forward capital estimates are common, capital ceilings are in place in only about half the Member States. Maintenance costs are often not systematically allocated or identified in the budget.

Monitoring and Implementation

- Timely and effective monitoring relies on **implementation plans** developed prior to the budgetary phase, to ensure their timely monitoring, including by the body in charge of budgetary allocation at each level of government. Publication of monitoring reports as well as options for reappraisal and possible termination of those projects that deviate significantly from planning further improve project implementation and resource allocation.
- In the EU, monitoring is sometimes conducted at the central level, in which case it tends to rely on electronic monitoring systems. When projects do not develop according to plans, options for project adjustment appear common, where those for project termination are rare.

Ex-post reviews

- Regular completion reports and comprehensive **ex-post reviews** including on the functioning of the whole public investment system. Comprehensive and up-to-date asset registers based on common guidelines to provide input to investment planning.
- In the EU, ex-post reviews, albeit common, are only conducted for sub-sets of projects. Proper asset registers tend to be rare and limited to certain sectors such as transport or energy.

Overall, the evidence gathered reveals that public investment management practices at the central level tend to vary with the country's institutional set-up, project's size, sector and source of financing. In general, more significant projects - traditionally in the transportation sector - are subject to stricter scrutiny. Similarly, EU-financed investments tend to follow stricter rules throughout the project cycle than nationally-financed ones, particularly with respect to project appraisal/selection and budgeting.

Evidence also shows that wide-ranging reforms of public investment management systems are either ongoing or have been recently completed in several Member States. Most of these reforms tend to take an integrated approach to public investment management and address all stages of the investment cycle.

This analysis can provide a platform for Member States to exchange on good practices and to improve their systems. The analysis shows that public investment management tends to vary widely within and across Member States. Notwithstanding the diversity of practices, there is commonality with respect to key functions. Given that Member States are regularly undertaking efforts to improve their public investment management practices, this analysis can be helpful in assisting those engaged in reform and in providing a platform and a guide for exchanges on lessons learnt.

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ANNEX 1: THE SURVEY QUESTIONS

The background information and list of questions of the survey can be found here. The individual country data was obtained on a confidential basis and cannot be published.

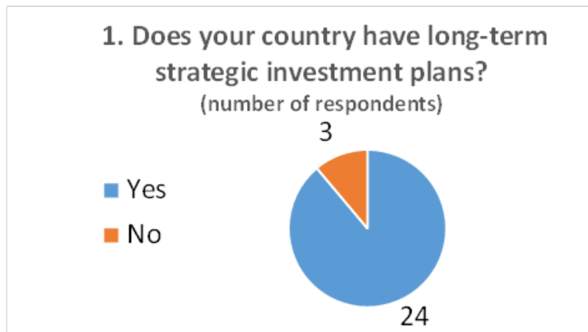
In addition, the glossary of terms which clarified the main terms of the survey is available here.

ANNEX 2: DATA FOR KEY SURVEY QUESTIONS

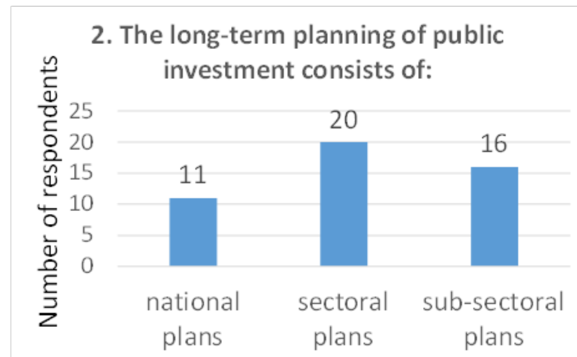
This annex presents the answers to key survey questions.[25]

Part I. Investment planning

All but three Member States reported to have a strategic investment plan in place, ...

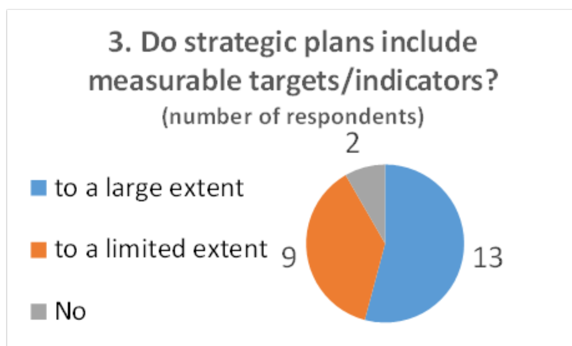


... which is most often at the sectoral and sub-sectoral level.



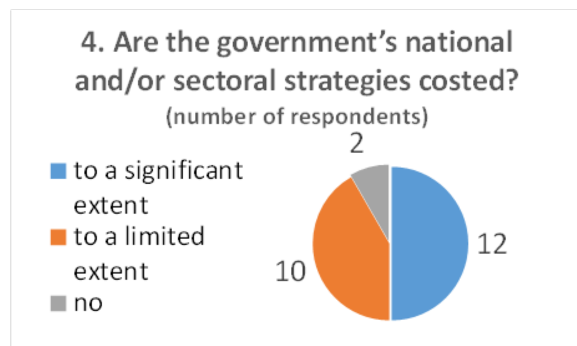
Note: Multiple choices allowed for this question

Measurable targets for outputs or outcomes are in place to a significant degree in about half of the Member States, ...



Note: For the 24 respondents with long-term strategic planning in place.

... and, similarly, national or sectoral strategies are costed to a significant degree in about half of the Member States.

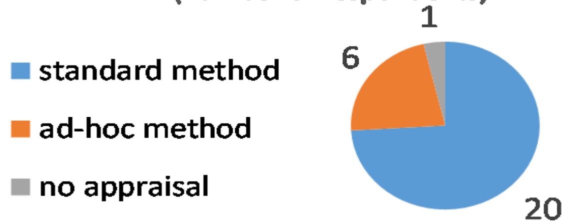


Note: For the 24 respondents with long-term strategic planning in place.

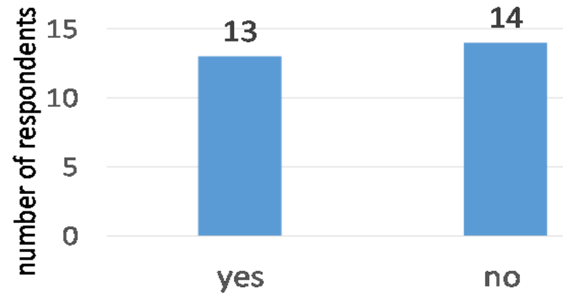
[25] Questions left out include less salient questions, or questions for which internal consistency could not be ensured, or lacking sufficient clarity. For Belgium, the charts reflect the federal level of government.

Part II. Appraisal and project selection

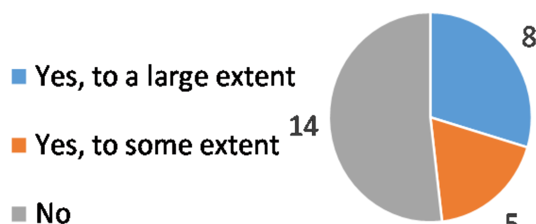
Most Member States report standardised procedures for project appraisal in at least some sectors…



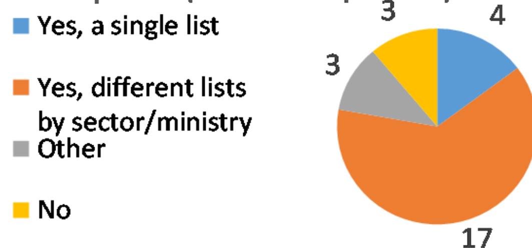
… while about half report having central support/development for appraisal in place.



A check on projects presented in budget requests to ensure compliance with requirements for appraisal or selection (i.e. "gatekeeping") is in place in about half of the Member States.



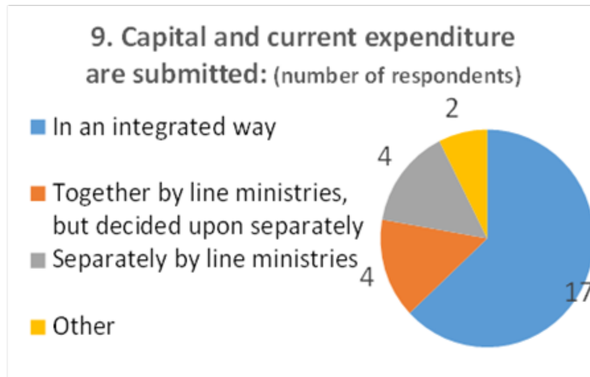
Most Member States maintain a short-list of appraised projects at ministerial level.

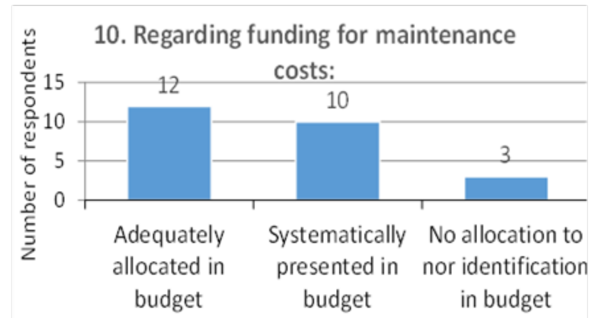


Part III. Multi-annual budgeting

While an integrated process for preparing the capital and current budget allocation is used in most Member States, ...

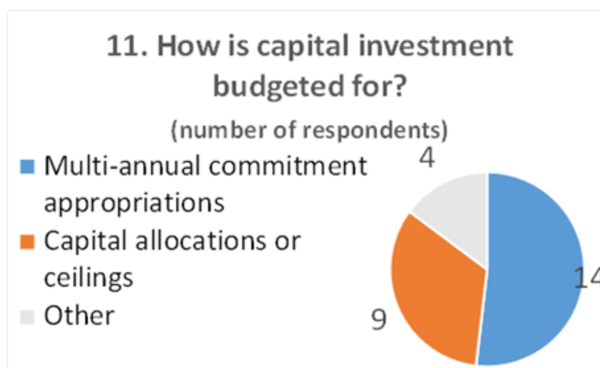
... maintenance funding does not always appear to be systematically identified in the budget documentation.





Note: Multiple choices allowed for this question. There were two other answer options not shown in the chart, namely "estimated in a standardised way" (17 answers) and "no estimation methodology" (10 answers).

Less than half of the Member States report using specific capital allocations or ceilings.

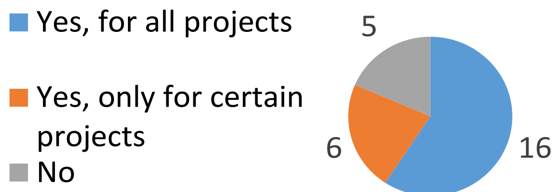


Note: The category "multi-annual commitment appropriations" includes both the indicative and binding type.

Part IV. Implementation and monitoring

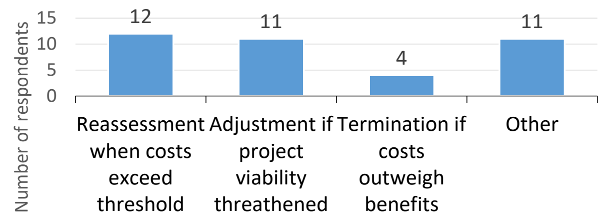
While rules for project adjustment are in place for at least some projects in almost all Member States, …

12. Are there rules, procedures or guidelines for project adjustment?
(number of respondents)



…the option to terminate a project after it has started if no longer justified is rarely in place.

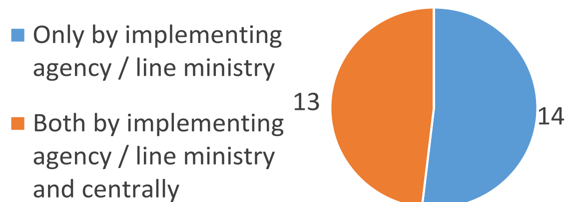
13. Regarding project adjustment:



Note: Multiple choices allowed for this question.

Central monitoring for at least certain projects is in place in about half of the Member States, in addition to monitoring at the implementing agency/line ministry level.

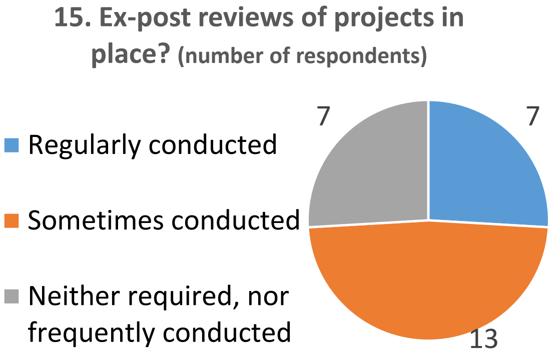
14. Monitoring of implementation takes place: **(number of respondents)**



Note: Central monitoring refers to monitoring carried out outside the line ministry, namely by e.g. the Ministry of Development/Ministry of Finance/Council of Ministers.

Part V. Ex-post reviews

Ex-post reviews of projects' costs and deliverables are common in most Member States.



ANNEX 3: OVERVIEW OF PUBLIC INVESTMENT MANAGEMENT REFORMS IN THE EU, BASED ON THE SURVEY

Almost half of the Member States reported recent or ongoing reforms of their public investment management system. Most of these reforms tend to take an integrated approach to public investment management and address all stages of the investment cycle. Some Member States (e.g. Romania and Cyprus) are implementing a wider reform of public policy making by implementing strategic planning and multiyear budgeting based on objectives at the ministerial level. Finally, many of these Member States have requested technical support from DG REFORM through the Technical Support Instrument (TSI), sometimes combined with a thorough assessment of their public investment management system on the basis of the IMF PIMA methodology.[26]

Belgium envisages developing further the multi-annual capital budgeting at the federal level, monitoring implementation more closely and setting up a high council on public investment (joint project with the Brussels region, with technical supported from DG REFORM).

Bulgaria aims to improve the efficiency and effectiveness of public investment management practices, including by setting out requirements for appraisal and selection of state-funded investments at the municipal level (with technical support from DG REFORM).

Croatia is to adopt a new regulation regarding the methodology for project appraisal and selection by end 2022.

Cyprus is implementing a wide-ranging reform, including on strategic planning globally and at the level of the ministries and developing a central asset register by line ministry.

Estonia is undertaking a spending review of the public management system with deadline 2022, following a thorough IMF PIMA review in 2018.

Greece focuses its reform on the legal framework for nationally financed investments especially with regards to strategic planning and multi-annual budgeting, especially for maintenance (with technical support from DG REFORM), as well as developing a central asset register to be effectively used in planning by 2025.

In *France*, a 2013 reform introduced, *inter alia*, standardised procedures for appraisal and selection, including independent reviews.

Ireland, which recently reformed its system with input by the IMF PIMA, is currently expanding and digitalising its investment programmes and project trackers.

Since 2015, *Italy* has been implementing new requirements throughout the full investment cycle. This includes planning with a focus on clearly identified priorities, the value added of new investments, pre-appraisal of projects to filter out projects not in line with strategy, a new scoring mechanism for project selection, monitoring and ex-post reviews.

In 2018, *Lithuania* launched a comprehensive strategic management and budget reform, including a unified system for national and EU-financed investments and a medium-term budgetary framework (by 2025) including separate capital expenditure ceilings and commitment appropriation limits.

[26] While many countries underwent an IMF PIMA assessment, a specific reference to PIMA is mentioned only for those three for which the PIMA report is public (Ireland, Estonia and Slovakia).

Romania is seeking to implement a multi-annual budgeting system for significant capital investments as well as introducing strategic planning and multiannual budgetary programming focused on objectives at the ministerial level. All shall be funded by the recovery and resilience facility.

Slovakia is implementing a wide-ranging reform, also supported by an IMF PIMA, focused on long-term strategies and prioritisation mechanisms at ministerial level, standardisation of appraisal processes and obligation to make feasibility studies public, as well as mandatory review of major projects appraisals prior to budgeting.

Spain is introducing wide-ranging reform in infrastructure, focused on integrated strategic planning (across means of transportation), standardised appraisal and ex-post impact evaluation requirements, as well as improved monitoring and governance, partly funded by the recovery and resilience facility.

ANNEX 3: OVERVIEW OF PUBLIC INVESTMENT MANAGEMENT REFORMS IN THE EU, BASED ON THE SURVEY

Almost half of the Member States reported recent or ongoing reforms of their public investment management system. Most of these reforms tend to take an integrated approach to public investment management and address all stages of the investment cycle. Some Member States (e.g. Romania and Cyprus) are implementing a wider reform of public policy making by implementing strategic planning and multiyear budgeting based on objectives at the ministerial level. Finally, many of these Member States have requested technical support from DG REFORM through the Technical Support Instrument (TSI), sometimes combined with a thorough assessment of their public investment management system on the basis of the IMF PIMA methodology.[26]

Belgium envisages developing further the multi-annual capital budgeting at the federal level, monitoring implementation more closely and setting up a high council on public investment (joint project with the Brussels region, with technical supported from DG REFORM).

Bulgaria aims to improve the efficiency and effectiveness of public investment management practices, including by setting out requirements for appraisal and selection of state-funded investments at the municipal level (with technical support from DG REFORM).

Croatia is to adopt a new regulation regarding the methodology for project appraisal and selection by end 2022.

Cyprus is implementing a wide-ranging reform, including on strategic planning globally and at the level of the ministries and developing a central asset register by line ministry.

Estonia is undertaking a spending review of the public management system with deadline 2022, following a thorough IMF PIMA review in 2018.

Greece focuses its reform on the legal framework for nationally financed investments especially with regards to strategic planning and multi-annual budgeting, especially for maintenance (with technical support from DG REFORM), as well as developing a central asset register to be effectively used in planning by 2025.

In *France*, a 2013 reform introduced, *inter alia*, standardised procedures for appraisal and selection, including independent reviews.

Ireland, which recently reformed its system with input by the IMF PIMA, is currently expanding and digitalising its investment programmes and project trackers.

Since 2015, *Italy* has been implementing new requirements throughout the full investment cycle. This includes planning with a focus on clearly identified priorities, the value added of new investments, pre-appraisal of projects to filter out projects not in line with strategy, a new scoring mechanism for project selection, monitoring and ex-post reviews.

In 2018, *Lithuania* launched a comprehensive strategic management and budget reform, including a unified system for national and EU-financed investments and a medium-term budgetary framework (by 2025) including separate capital expenditure ceilings and commitment appropriation limits.

[26] While many countries underwent an IMF PIMA assessment, a specific reference to PIMA is mentioned only for those three for which the PIMA report is public (Ireland, Estonia and Slovakia).

Romania is seeking to implement a multi-annual budgeting system for significant capital investments as well as introducing strategic planning and multiannual budgetary programming focused on objectives at the ministerial level. All shall be funded by the recovery and resilience facility.

Slovakia is implementing a wide-ranging reform, also supported by an IMF PIMA, focused on long-term strategies and prioritisation mechanisms at ministerial level, standardisation of appraisal processes and obligation to make feasibility studies public, as well as mandatory review of major projects appraisals prior to budgeting.

Spain is introducing wide-ranging reform in infrastructure, focused on integrated strategic planning (across means of transportation), standardised appraisal and ex-post impact evaluation requirements, as well as improved monitoring and governance, partly funded by the recovery and resilience facility.

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