

Lesson 4: Project Monitoring and Control

Keywords

- Financial Management
- Cost control tools
- EU funding schemes (RIA, IA, CSA, ERC, MSCA)
- Direct/Indirect costs
- Forms of costs (actual, unit, flat-rate, lump sum)
- Financial distribution setup and templates
- Financial monitoring
- Expenditure justifications
- Expenditure monitoring tools
- Time management
- Schedule management plan
- Work Breakdown Structure (WBS)
- Project reporting
- Project audits

Learning Objectives

5 9 11 12



Scan for complete LOs

Go to the exercise

<https://learningapps.org/watch?v=pub6xm8b222>

Go to video

<https://www.youtube.com/watch?v=WLVttRWcD2g&t=3s>

Financial Management

Financial management takes place from the very beginning of the project lifecycle but in different forms, depending on the stage of the project. During the initiation and planning phase, financial management is related to the preparation of the project's budget, based on **estimated costs**. This estimation of costs is defined according to the project's needs in terms of human resources, procurement acquisitions and other types of acquisitions. During the executing phase, financial management is focused on **cost control**, which is essentially the process of monitoring the project's incurred costs and managing the **changes to the cost baseline**, defined in the project's budget (PMI, 2017).

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To be able to update the project's budget, the RMA needs to constantly monitor and revise the actual costs incurred during the execution phase of the project. The RMA must also engage in analysing the relation between the costs incurred and the work being accomplished through the expenditure. Otherwise, the RMA would only be considering the **outflow of project funds** without matching it with valuable information coming from the project's **accomplishment of activities**. (PMI, 2017).

According to the Project Management Institute, Inc. (2017), the **project cost control** includes:

- influencing the **factors that create changes** to the authorized cost baseline;
- ensuring all **cost change requests** are acted on promptly;
- **managing the actual changes** when and as they occur;
- ensuring cost expenditures **do not exceed** the authorized funding by period, by activity, and in total for the project;
- **monitoring cost performance** to isolate and understand deviances from the approved cost baseline;
- **monitoring work performance** against funds consumed;
- **preventing unapproved changes** from being included in the reported costs or resource usage;
- **informing relevant stakeholders** of all approved changes and associated costs;
- keeping expected **cost overruns** within acceptable limits.

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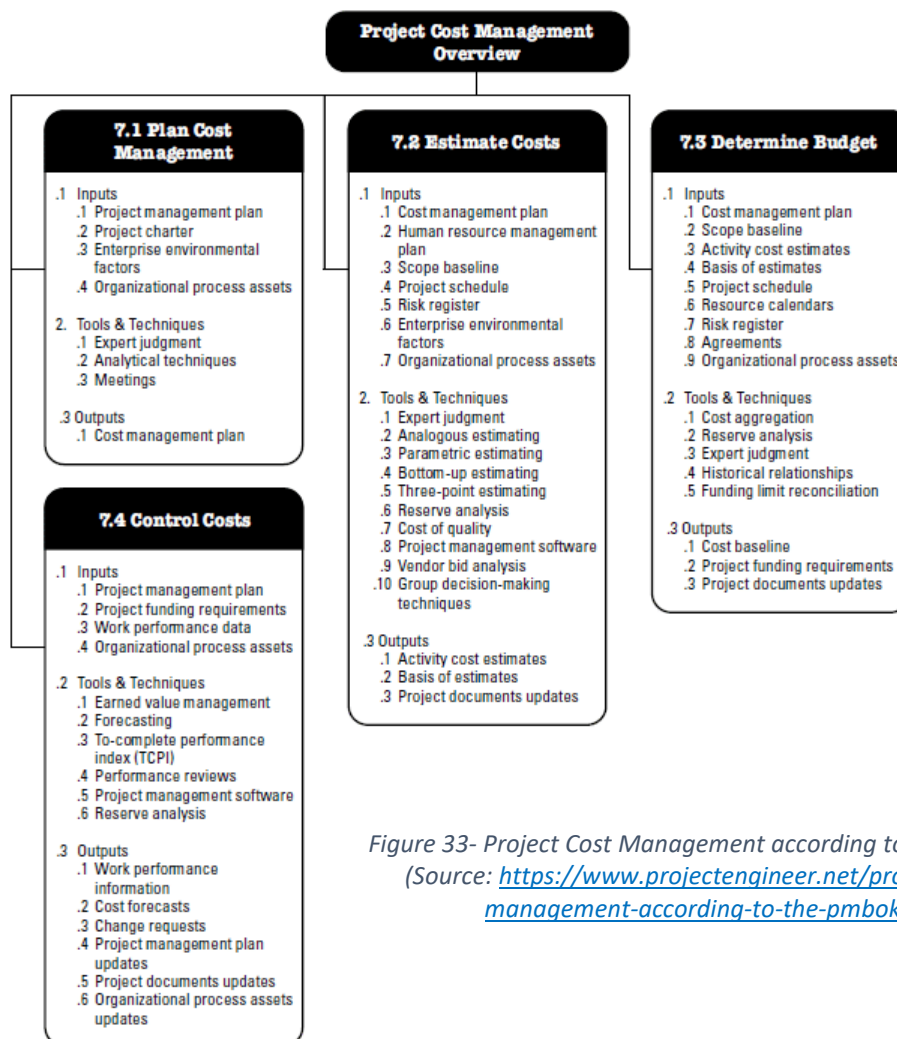


Figure 33- Project Cost Management according to the PMBOK
(Source: <https://www.projectengineer.net/project-cost-management-according-to-the-pmbok/>)

To perform a successful financial monitoring and control the RMA should adapt and make use of the best tools for each type of activity, also depending on the type of project in question, since certain projects have different **cost categories** and different **funding forms** (actual, lump sum, flat-rate and unit costs). Apart from the adjustments required by each funding scheme, the RMA's financial control will be strongly linked to the organisation's internal practices and to the reporting activities required by the EC/Funding Agency. In terms of organisational processes assets, the PMI (2017) observes the following aspects as **potential influencing factors in the process of financial control**:

- existence of formal and/or informal cost **control-related policies**, procedures, and guidelines;
- cost control **tools**;
- monitoring and **reporting methods** used.

When working on a large project, with several partners, it's useful to unify the strategy and to instruct all partners to use the **same financial control tools**. This will allow the RMA to aggregate the information sent from all partners with a smaller risk of misinterpretation and error and reduce the amount of time spent preparing the financial report that should be submitted to the EC/Funding Agency. The RMA should **implement financial reporting practices within the consortium**, but sometimes this is not possible due to restrictions in the partners' organisations. Some organisations might have strict policies and procedures in place that won't allow them to accommodate a certain system or reporting methodology.

Depending on the available project costs (e.g.: human resources), a certain type of **control document** should be used by all partners (e.g.: timesheets). The coordinator should, when possible, implement in the consortium **specific templates** to be used by all beneficiaries in order to comply with the EC/Funding Agency obligations.

Financial rules in relevant research EC funding schemes

To support and promote the project partners' efficient financial management the RMA should be **up to date with the financial rules and obligations** associated with each type of project for which he/she is responsible. The RMA must know what the **eligibility criteria** are and the **evidence** that each type of cost needs to have for it to be reported to the EC/Funding agency.

Under the scope of the H2020 framework, the EC has in place different types of **funding schemes** and **actions** directed to the HEI and research institutions.

Research and Innovation Actions (RIA) - Actions to fund R&I activities that aim to establish new knowledge and/or explore the feasibility and application of **new or improved technologies**.

Funding rate: **100%**.

Innovation Actions (IA) - Actions to fund activities that directly aim to produce plans or designs for **new or altered products, processes or services**.

Funding rate: **70%**; except for **non-profit organisations**, for which the funding rate is **100%**.

Coordination & Support Actions (CSA) - Actions to fund, primarily, **accompanying measures** such as standardisation, dissemination, awareness-raising, communication and networking of R&I projects. These actions don't fund the R&I activities *per se*, but the **dissemination and networking activities** linked to them.

Frontier Research Grants – European Research Council (ERC) - Grants assigned to researchers to fund projects, in any field of research, that seek to establish/consolidate research teams or programmes and that aim to pursue **ground-breaking research**.

Funding rate: **100%**.

Marie Skłodowska-Curie Actions (MSCA) - Actions to fund **research training and career development**, international and intersectoral mobility, partnerships between academic and non-academic organisations, doctoral programmes, staff exchanges and outreach activities.

Funding rate: **100%**.

Types of costs

All EC funded projects must comply with a **set of financial rules to report eligible expenses**. Additionally, each beneficiary must comply with the financial rules and abide by all applicable **national laws** in his/her own country.

The standard financial budget of an H2020-funded project is constituted by **direct costs** and **indirect costs**, which can be funded in different forms (e.g.: actual costs, unit costs, flat-rate costs and lump sum costs) (EU Grants: H2020 AGA).

- **Direct costs** are all costs directly **related to the research activities** carried out during the project's development. These may be broken up in the following costs categories:
 - **personnel costs** - costs tied to employees (or equivalent), natural persons working under a direct contract;
 - **subcontracting costs** - costs related to the subcontracting of tasks that are part of the project and that were categorised in the Description of action (Annex 1 of the GA);
 - costs tied to financial support to **third parties**;
 - **other direct costs** - costs related to travel expenses and associated subsistence allowances, equipment costs, and costs for other goods and services.
- **Indirect costs** are costs that are not directly related to project activities but are **linked to the organisation's functioning** (e.g.: utilities and rents, infrastructure maintenance, including water, gas and electricity bills).



Figure 34 – Direct Costs and Indirect Costs: classifications
(short video: <https://www.youtube.com/watch?v=V6JqOzyuaF0>)

- **Actual costs** are the **real costs** incurred by the beneficiary.
Eligibility criteria:
 - effectively **incurred** by the beneficiary who is declaring the costs;
 - incurred **during the project's duration** period;
 - **foreseen** as eligible costs in the estimated budget of the project;
 - **directly connected** to the project's objectives;
 - **identifiable and verifiable** (paid directly by the beneficiary's account and supported with legal documentation);
 - in **compliance** with applicable national laws on taxes, labour and social security;
 - reasonable, **justified** and must comply with the principles of sound financial management, regarding economy and efficiency (best value for money).
- **Unit costs** - are amounts defined per unit. For example, the MSCA project RISES declares a **unit amount per month** of secondment = temporary transfer of a staff member (project team member) from organisation A (academic partner) to organisation B (industrial partner).
Eligibility criteria:
 - calculated by multiplying the number of actual units used to carry out the work (e.g.: **number of hours** or **secondment months** worked on the project) by the amount per unit;
 - the number of units must be essential for the project;

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- the units must be used or produced during the project's duration;
- beneficiaries must be able to show the link between the number of units declared and the actual work produced on the project; through the presentation of **records and supporting evidence**, beneficiaries must prove how the number of units declared was used for the project.
- **Flat-rate costs** - are an amount defined by the application of a **fixed percentage** regarding other types of eligible costs (e.g.: indirect costs are calculated based on a flat-rate of 25% of the total eligible costs, except for subcontracting costs).

Eligibility criteria:

- calculated by applying a flat rate to certain costs (actual, unit or lump sum costs);
- beneficiaries must be able to show, through the presentation of **records and supporting evidence**, that the costs to which the flat rate is applied are eligible. The actual costs are not relevant.
- **Lump sum costs** - are a **global amount** deemed to cover all costs of the project or a specific category of costs.

Eligibility criteria:

- the lump sum costs must correspond to the amount of lump sum costs set out in **financial guidelines** (Annex II of the GA);
- the work must have been carried out following the Description of the action (Annex I of the GA);
- beneficiaries must be able to show, through the presentation of records and supporting evidence, that the action tasks have been carried out as described in the **Description of the action** (Annex 1). The actual costs are not relevant.

Within the same grant, **different forms of costs can be implemented**. For example, a budget category (e.g.: personnel costs) may be calculated by unit costs, while another category (e.g.: equipment, travel and subsistence allowance) may be calculated by actual costs.

One important aspect to consider when preparing, and later managing, a H2020 project budget is **defining the work packages (WPs)** of the project. The WPs are the primary justification for the budget requested. A well-linked relationship between the WPs and the budget requested is useful both for the **proposal evaluators** to properly assess if the requested budget is reasonable, and for the coordinator and partners to keep track of activities during the execution phase of the project. The figure below exemplifies the

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information that H2020 RIA applicants must fulfil to justify each of the WPs defined for the project's development.

SUM OF ALL BENEFICIARIES AND ALL PARTNERS FOR ALL THE WORK PACKAGES							
COST CATEGORY	ALL BENEFICIARIES (without 3rd parties)		ALL 3rd PARTIES		ALL BENEFICIARIES (with 3rd parties)		BE+TP TOTAL COSTS
	UNITS	BE TOTAL COSTS	UNITS	TP TOTAL COSTS	UNITS (TOTAL)	AVERAGE COST PER UNIT	
COSTS WORK PACKAGE: 1 Work Package 1							
A. DIRECT PERSONNEL COSTS							
A1: Employees (or equivalent)							
SENIOR SCIENTISTS	0.00	0.00			0.00		0.00
JUNIOR SCIENTISTS	0.00	0.00			0.00		0.00
TECHNICAL PERSONNEL	0.00	0.00			0.00		0.00
ADMINISTRATIVE PERSONNEL	0.00	0.00			0.00		0.00
OTHERS (Specify)	0.00	0.00			0.00		0.00
A2. Natural Persons under direct contract	0.00	0.00			0.00		0.00
A3. Seconded Persons	0.00	0.00			0.00		0.00
A4. SME Owners without salary	0.00	0.00			0.00		0.00
A5. Beneficiaries that are natural persons without salary	0.00	0.00			0.00		0.00
A6. Personnel for providing access to research infrastructure	0.00	0.00			0.00		0.00
B. OTHER DIRECT COSTS							
B1. Travel	0.00	0.00			0.00		0.00
B2. Depreciation costs * (complete equipment sheet)							
Equipment	0.00	0.00			0.00		0.00
Infrastructure	0.00	0.00			0.00		0.00
Other assets	0.00	0.00			0.00		0.00
B3. Other Goods and Services							
Consumables	0.00	0.00			0.00		0.00
Services for Meetings, Seminars	0.00	0.00			0.00		0.00
Services for Dissemination Activities	0.00	0.00			0.00		0.00
Website	0.00	0.00			0.00		0.00
Publication Fees	0.00	0.00			0.00		0.00
Other (shipment, insurance, translation, etc.)	0.00	0.00			0.00		0.00
B4. Costs of Large Research infrastructure	0.00	0.00			0.00		0.00
B5. Costs of internally invoiced goods and services	0.00	0.00			0.00		0.00
C. DIRECT COSTS OF SUBCONTRACTING							
	0.00	0.00			0.00		0.00
D. DIRECT COSTS OF PROVIDING FINANCIAL SUPPORT TO THIRD PARTIES							
	0.00	0.00			0.00		0.00
E. COST OF IN-KIND CONTRIBUTION							

Figure 35 – Example of a budget justification per WP

Project Financial Monitoring setup

At the beginning of the execution phase, the RMA should set up the relevant communication line, with the European Commission (EC) and the project partners, to start preparation of the documents needed for the **1st instalment payment**.

The RMA should prepare (and send to the EC) the **bank account information** for the 1st instalment payment using the EC-specific template ([Financial Identification form](#)). This form is mandatory to launch the awarding procedures for a contract (GA).

To simplify and standardise the form used to collect all partners' bank account details, the RMA can **use the EC Financial Identification form or introduce a template**, to be used by all consortium partners, that is already utilised at his/her organisation.

When sending this information request (bank account details), the RMA can additionally send over to partners templates for the project's financial monitoring (e.g.: timesheets, internal reporting template). The **uniformization of the templates** used by the consortium will aid the

RMA in aggregating all beneficiaries' information in preparation for the report and simplify the regular monitoring of the project's financial execution.

Details regarding the instalment payments to the partners (**periodicity and budget execution targets**) are already defined in the Consortium Agreement (CA), but it is important to repeat these procedures and make sure all partners are fully aware of when the payments are to be made and/or which scientific or financial information is needed to process the payment.

The coordinator can establish that the **financial distribution** should comply with a set of internal rules (defined in the CA). For example, the EC normally transfers around 60% of the global funding as the 1st instalment payment. The coordinator can specify, on the CA, that partners receive a smaller percentage of the 1st instalment and that remaining payments (to reach the total 60%) will be made following the **delivery of an internal report** justifying the work produced and the expenses incurred. All these **internal consortium practices** must have been **negotiated with the partners** beforehand and included in the signed CA.

Financial Monitoring

As previously mentioned, the RMA should constantly update the financial execution of the project and **assess the relationship between the expenditures incurred and the work produced**. To perform the financial monitoring, the RMA must compare the actual project financial execution with the budget and work plan defined on the proposal and verify that the following aspects are met:

- the actual project expenditure **per cost category** is within the cost limits defined in the budget distribution;
- the actual project expenditure corresponds to the activity's execution timeline (**costs per WP**).

Using the instruments and practices detailed in the CA and shared during the setup phase of the financial monitoring, the RMA should regularly verify the global financial execution. This practice will allow to notice which partners are **under or overspending** and promptly initiate the needed measures to rectify the situation. To make this observation and analysis easier, the RMA can prepare a **checklist** (or another type of document) allowing to perform a check of the percentage of financial execution expected in a determined moment of the project (e.g.: in a 36-month project, on month 12th, the expectation was to already have a global financial execution of 33,33% but the actual financial execution is only 18%...).

By accessing this information on a timely basis, the RMA can promptly anticipate the **for-project reallocation** and even **foresee prorogation periods** for the development of different tasks.

Expenditure Framework

Another RMA task related to financial monitoring is gathering the **expenditure justifications** and support documents. All **project expenses** must be directly linked to the development of project activities and objectives and the RMA is responsible for collecting this framework of expenditure and for attaching the **supporting documents** (e.g.: deliverables' development outputs, timesheets, boarding passes, conference participation certificates, open access publications links, copies of printing material, etc.).

Supporting documentation can be requested by the EC as official proof that:

- declared working hours or **human resources' costs** were effectively spent on developing the project deliverables;
- working **hours declared** match the actual **hours worked** by the project team members;
- travel, subsistence allowance and conference registration costs declared did occur and the named participants attended the **conferences as declared**;
- **publications** and other forms of project dissemination, including printing materials, follow the **EC rules** (open access and funding scheme publicization, including logos and acknowledgements as requested).

Accounting– Connecting the financial department and the project

It is not expected for the RMA is to master accounting terms and financial procedures undertaken by the financial department. Nonetheless, the RMA should always have close **contact with the financial department** since financial monitoring activities are extremely dependent on the information provided by this department.

The acquisition requests of the project should be validated and analysed by the RMA, to ensure that the goods or services requested are related to project activities, correspond to what was defined on the foreseen expenses and are within the limit of the budget. As mentioned above, it is not required for the RMA to have a deep knowledge of national laws and of the organisation's financial practices, but some basic notions (e.g.: knowledge of the limitation of the amount of the acquisition through which a certain procedure of procurement can be applied) to facilitate the **analysis validation of the expenses requests** are necessary to carry out the tasks and forward the expense requests to the financial and/or acquisition and procurement departments along with all the information they need to initiate the acquisition procedure.

Measures to maximise project control

To facilitate operations, the RMA should use **tools** that will assist him/her with the **control and monitoring of all project management aspects** (e.g.: tasks development, working hours fulfilled, budget execution).

There are several tools available for this purpose, namely:

- Asana;
- Slack;
- Podia.

Asana

The **online tool Asana** allows you to create **project plans** and **Gantt charts**, coordinate your tasks, establish milestones and monitor the projects' progress. With Asana you can create a **set of project tasks** in four different layouts (task list, task board, task chronogram, task calendar), assign a **responsible person** for each tasks, add a **deadline date** and even **define the priority of the task** (low, medium or high). Another important feature of Asana is the **Portfolio**. Through this option you can control and monitor the **project's progress**, consult the project updates, the number of tasks pending and keep track of how many tasks were completed, uncompleted or delayed.



Slack

Slack offers an **internet relay chat type of resource**, allowing you to create chat channels with your team and **share files** in an easier and faster way. The slack app enables the **creation of workflows** and is compatible with other apps like Google Drive and Office 365.



Podio

Podio is an online tool, like Slack, that allows you to **create communication channels with the project team** and share files, being compatible with several more commonly used apps (e.g.: Dropbox, Google Drive). This tool also allows you to manage tasks' development by breaking down workflows into smaller, more manageable, tasks.



Time management

According to PMI, time management *includes the processes required to **manage the timely completion of the project*** and is a crucial aspect for the successful completion of the project (PMI, 2013; Dinsmore, P.C. & Cabanis-Brewin, J. 2011).

Time management can be broken up into the **seven processes** listed below:

- 1) **schedule management plan**: includes the establishment of policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule;
- 2) **activities definition**: includes the identification and documentation of the activities to be developed to achieve the project's deliverables and outcomes;
- 3) **activities sequencing**: includes the identification and documentation of the relation between project activities;
- 4) **activities resources estimation**: includes the estimation of the type and quantities of resources (e.g.: materials, human resources, equipment), or supplies needed to develop the project activities;
- 5) **activities duration estimation**: includes the estimation of the number of workdays or hours necessary for the completion of the project activities with the estimated resources;
- 6) **project schedule development**: elaborated following an analysis of the project activities sequence, duration, and resource requirements;
- 7) **project's schedule control**: includes the monitoring of the project activities' status to update the project's progress and manage the necessary changes to the schedule baseline for the project to be completed as planned.

Schedule Management Plan

Time management processes and associated tools are established in the schedule management plan, that is, in turn, integrated into the project management plan. The schedule management plan identifies and **details the scheduling method and tools**. This plan also determines the **format** and identifies the **criteria** of the project schedule development and control. The scheduling method chosen for the schedule management plan will define the framework and algorithms necessary to elaborate the project schedule model, which is a representation of the plan to execute the project's activities, including time intervals, dependencies, and other planning information.

Some of the more commonly known scheduling methods are the **critical path method (CPM)**, the **critical chain method (CCM)** and the **work breakdown structure (WBS)** (PMI, 2013; Ray, S. 2020; Mrsic, M. 2017; Heagney, J. 2016, Kourounakis, N. & Maraslis, A. 2016).

The **CPM** is an **algorithm** for scheduling a set of project activities and is based on the identification of the longest stretch of dependent activities and the measurement of the time required to complete the activities from start to finish. This algorithm is based on the assumption that all resources will be available at any given time of the project and that, if one activity is delayed, all the delay will carry over to the next activity, delaying the whole project. The **CCM** is a **schedule network analysis technique** that contemplates the activities' dependencies, the availability of limited resources (e.g.: human resources, equipment, materials and work rooms), and buffers necessary to successfully complete project deliverables (PMI, 2013; Ray, S. 2020; Mrcsic, M. 2017).

Work Breakdown Structure (WBS)

WBS is the **most 'popular' time management tool**, essentially based on a **hierarchical division** of project activities and tasks into smaller and more manageable tasks. The basic idea behind the WBS is the **deconstruction of a task** into smaller tasks - **work packages** - until they can't be partitioned any further. This deconstruction process allows to make a better estimation of the task execution timing and costs, making task development management easier (Heagney, J. 2016; Kourounakis, N. & Maraslis, A. 2016, Project Manager, 2020).

WBS is based on the following components:

- **task number and description**;
- **task leader** - could be a team member or even a beneficiary institution; being the task leader doesn't mean being the only team member/institution t working exclusively on the referred task, but being the team member/institution **overseeing the task** and ensuring that it's successfully developed;
- **task dependency** - some tasks might directly depend on the start or conclusion of other task; it's convenient to have all the tasks dependencies **duly flagged** to ensure that the final deliverables are completed in time and successfully;
- **cost of the task**;
- **start and finish dates of the task**;
- **task status** - the task status should show to whom the task is assigned (task leader) and the **task's progress** (e.g.: in progress, late, completed).

Project reporting

Project reporting is a crucial part of the communication exchange with the EC/funding agency. Through the report, the project coordinator and partners **document and summarise the status of the project's progress**. In project reports it is relevant to present information

regarding scope, schedule, budget, quality of the work developed, risks issues, project modifications and management aspects. Additionally, in the report, it might also be relevant to include information regarding the **project's metrics and indicators**, so the progress of the project can be duly evaluated.

Reports are an important instrument for project controlling and decision making, and in H2020 projects there is a set of dates, defined in the GA, defining when a project report needs to be presented to the EC during the project execution phase (**progress report**) and during the closing phase (**final report**) (Kourounakis, N., & Maraslis, A. 2016).

The RMA of the coordinating organisation is responsible for gathering the information needed to present both the progress report and the final report. The RMA should make **early contact with all the partners** and inform them of the reports' submission dates, in order to agree on and establish a **set of deadlines** (already negotiated in the CA) when the partners should send the required information to the coordinator or via direct submission on the Participants Portal of the EC.

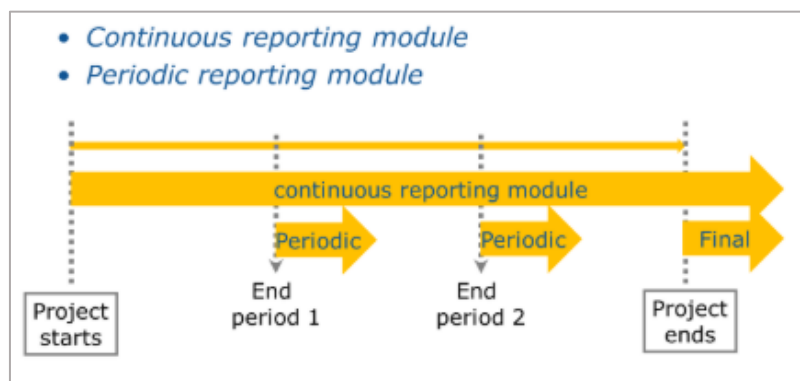


Figure 36 - The reporting process in an EC-funded project

Project audits

Audits of a research project can be carried out either by a specially designated audit department, the Project Management Office, an approved management committee or an external auditor. Audits are **formal reviews of the financial management of a project**, often aiming to assess the extent to which the project management standards and funding rules are being upheld.

The European Commission may request an audit of the funded projects either during the project or at any time **up to 2 years after the final payment**. These audits mainly concern the financial implementation of the action and can include technical and other aspects.

Within the framework of the H2020 programme, there are two levels of financial controls: ex-ante controls and ex-post controls.

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- **Ex-ante controls** refer to the Certificate on the Methodology used to calculate unit costs (CoMUC) and to ex-ante assessments on direct costing of Large Research Infrastructure (LRI).
- **Ex-post controls** occur on two levels: **first-level audit**, which is aimed at obtaining the Certificate on the Financial Statements (CFS) and **second-level audit**, which includes the **on-spot check** by the auditors appointed by the EC.

Audits can be conducted by the Commission's staff or outsourced to external persons or bodies appointed by the Commission. An on-the-spot visit and desk review is usually part of the audit.

The RMA responsible for the project's financial management is often called to prepare audits. In November 2017, the EC issued a document with detailed information on the [Indicative Audit Programme](#) which can be analysed to avoid errors in the financial management of H2020 projects. For each cost category, the document lists items that will be checked (a specific article of the GA) by the auditor, as well as the general procedure that will be performed.

After an audit, the EC prepares and sends an **audit report** and, if deemed necessary, the receiving institutions have 30 days to request a **contradictory audit procedure**.

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