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Cost Management

Project Eclat d'Etoile

S2B1 Group 9

TEAM CHARTREUSE

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Table of content

1. Introduction

1.1 Purpose of the document

The document aims to analyze the planned values, earned values, and actual costs associated with a particular project. Through this analysis, we gain insights into the project's performance metrics, identify discrepancies among planned values, earned values, and actual costs, and pinpoint areas requiring corrective actions.

Furthermore, the document includes an S-Curve analysis to evaluate the project's progress over time. By scrutinizing these metrics, we can detect potential issues and devise a strategy to mitigate or rectify them, thereby enhancing the overall project performance.

1.2 Overview of the excel document

The Excel document is structured with tables that offer a detailed breakdown of the project's planned values, earned values, and actual costs on a monthly basis throughout the project duration. These tables are organized into different phases of the project, encompassing Needs Analysis, Planning/Conception, Development, Testing, Users Training/Documentation/Deployment, and Closure.

The planned values represent the original project plan, outlining the scheduled timeline and budget. Earned values reflect the project's actual progress and achievements. Actual costs denote the cumulative expenses incurred up to the present time. These tables facilitate straightforward comparisons among planned values, earned values, and actual costs for each month, providing a comprehensive snapshot of the project's performance metrics.

In addition to the tables, the Excel document incorporates an S-Curve analysis, presenting a graphical depiction of the project's progression over time. This S-Curve is generated using the project's planned and earned values, offering a visual aid to assess the project's pace against the planned schedule. Furthermore, the S-Curve analysis offers valuable insights into performance metrics like the anticipated project completion date and the expected total cost upon completion.

In summary, the Excel document offers a thorough and detailed overview of the project's performance and advancement. Through the analysis of planned values, earned values, and actual costs across each phase of the project, we can pinpoint discrepancies and implement necessary corrective measures. The S-Curve analysis further allows us to monitor the project's trajectory over time, empowering us to make informed decisions to ensure the project stays on course and meets its objectives. This comprehensive analysis fosters proactive management and enhances the project's overall effectiveness and success.

2. Planned values

2.1 Definition of planned values

Planned values refer to the original plan for the project, including the planned schedule and budget. They are the values that are set at the beginning of the project to serve as a benchmark for measuring progress and performance.

2.2 Explanation of how planned valyes are determined

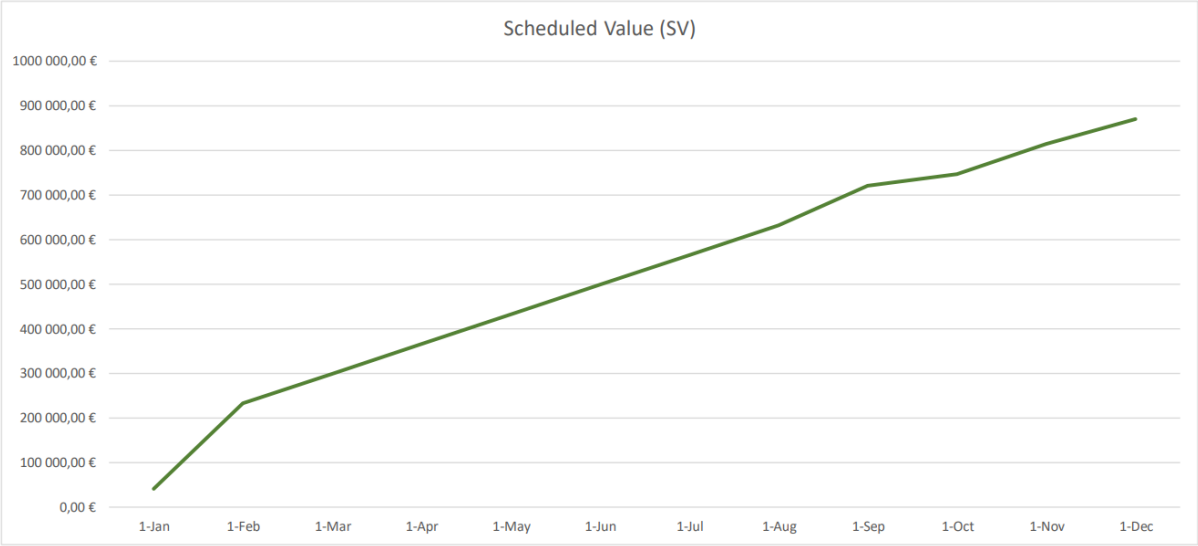
The planned values are typically determined by analyzing the scope of the project, the expected deliverables, and the required resources. This analysis helps to establish the planned schedule, which outlines the timeline for completing the project, and the planned budget, which outlines the costs associated with completing the project.

2.3 Examples of planned values in the excell document

The Excel document features tables presenting planned values for each month of the project, spanning from January 2024 to December 2024. These tables offer a comprehensive breakdown of the planned values on a monthly basis, detailing the planned costs for individual tasks within each month and summarizing the overall planned values for the entire project.

Each month's planned values encompass the projected costs associated with specific tasks. Additionally, the document includes a project-wide summary of planned values, providing an overarching view of the scheduled timeline and budget for the entirety of the project.

The planned values documented in Excel are derived from the initial project plan, which considers the project's scope, expected deliverables, and resource requirements. The planned schedule is established by sequencing the necessary tasks and estimating the duration of each task. Simultaneously, the planned budget is determined by estimating the costs linked with each task, covering labor expenses, materials, and any other project-related expenditures. This meticulous planning process lays the groundwork for monitoring and controlling project progress against predefined objectives and resource allocations.



Scheduled Value (SV) :

Task name	Planned budget for the task	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24
Needs	92 850,00 €	29 750,00 €	63 100,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
Planning/Design	172 996,00 €	11 333,00 €	128 333,00 €	3 333,00 €	3 333,00 €	3 333,00 €	3 333,00 €	3 333,00 €	3 333,00 €	3 333,00 €	3 333,00 €	3 333,00 €	3 333,00 €
Developments	442 603,00 €	0,00 €	0,00 €	63 229,00 €	63 229,00 €	63 229,00 €	63 229,00 €	63 229,00 €	63 229,00 €	63 229,00 €	0,00 €	0,00 €	0,00 €
Tests	67 200,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	22 400,00 €	22 400,00 €	22 400,00 €	0,00 €
Training/Doc/Deployment	83 700,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	41 850,00 €	41 850,00 €
End of the project	10 800,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	10 800,00 €

3. Earned values

3.1 Definition of earned values

Earned Value (EV) represents the cumulative value of work completed on a project, measured in terms of budget. It signifies the progress made towards project goals, considering both time and cost. Unlike traditional project tracking methods that focus solely on task completion percentages, EV takes into account the amount of budget spent on completed tasks, providing a more accurate picture of project progress from a financial perspective.

3.2 Explanation of how earned values are determined

Earned Value (EV) is calculated using the following formula: EV = Percentage complete * Task Budget

Percentage complete reflects the actual percentage of work finished for a specific task or the entire project and Task Budget refers to the budgeted amount allocated for that particular task.

For Instance:

Task budget = 10.000 €

Percentage Complete = 70%

EV = Task Budget * Percentage Complete

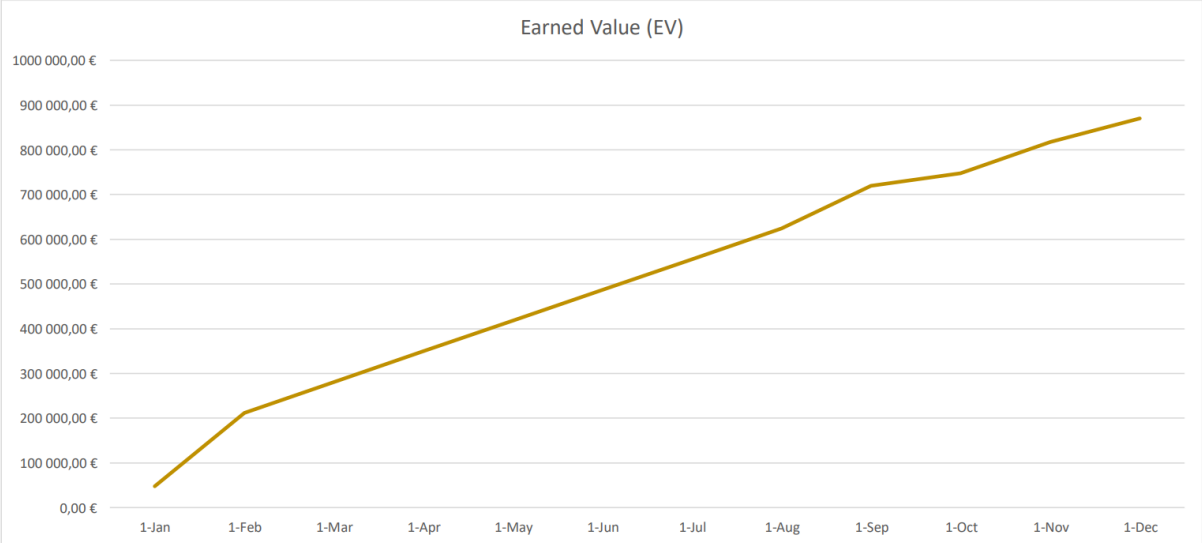
= 10.000 € * 70%

= 70.00 €

Therefore, the Earned Value (EV) for this task is $7,000. This indicates that based on the 70% completion, $7,000 worth of work has been accomplished, and that value has been "earned" towards the project's budget.

By comparing the Earned Value (EV) with other project metrics like Actual Costs (AC) and Budget At Completion (BAC), project managers can gain valuable insights into project performance, identify potential deviations from the plan, and take corrective actions if necessary.

3.3 Examples of earned values in the excel document



Earned Value (EV) :

Task name	Planned budget for the task	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	1-Jul	1-Aug	1-Sep	1-Oct	1-Nov	1-Dec
Needs	92 850,00 €	35%	65%										
Planning/Design	172 996,00 €	8,78%	60,00%	3,20%	3,20%	3,20%	3,20%	3,20%	3,20%	3,20%	3,20%	3,20%	3,20%
Developments	442 603,00 €			14,28%	14,28%	14,28%	14,28%	14,28%	14,28%	15,28%			
Tests	67 200,00 €									33,30%	33,30%	33,30%	
Training/Doc/Deployment	83 700,00 €											50%	50%
End of the project	10 800,00 €												100%
Total	870 149,00 €												

In February 2024, conception was at 68,78% on 172.996€, so EV was 68,78% * 172.996 = 118.986,65€.

4. Actual costs

4.1 Definition of actual costs

Actual Costs (AC) represent the total money spent on a project up to a specific point in time. They encompass all expenses incurred, including labor, materials, and any other project-related costs. Unlike Earned Value (EV), which focuses on the value of completed work, Actual Costs (AC) focus on the financial resources consumed, regardless of project progress.

4.2 Explanation of how actual costs are determined

Actual Costs (AC) represent the cumulative financial outlays incurred for a project up to a specific point in time. To calculate AC, gather expense documentation, establish expense categories, extract expense data, utilize project management software, calculate AC by category, and calculate total AC. Regularly calculate and report AC to maintain visibility into project finances and make informed decisions that drive project success.

A project incurs these expenses:

- $2,000 for salaries (Labor Costs)
- $1,500 for materials (Material Costs)
- $400 for office supplies (Material Costs)
- $700 for consultant fees (Service Costs)

Calculating AC:

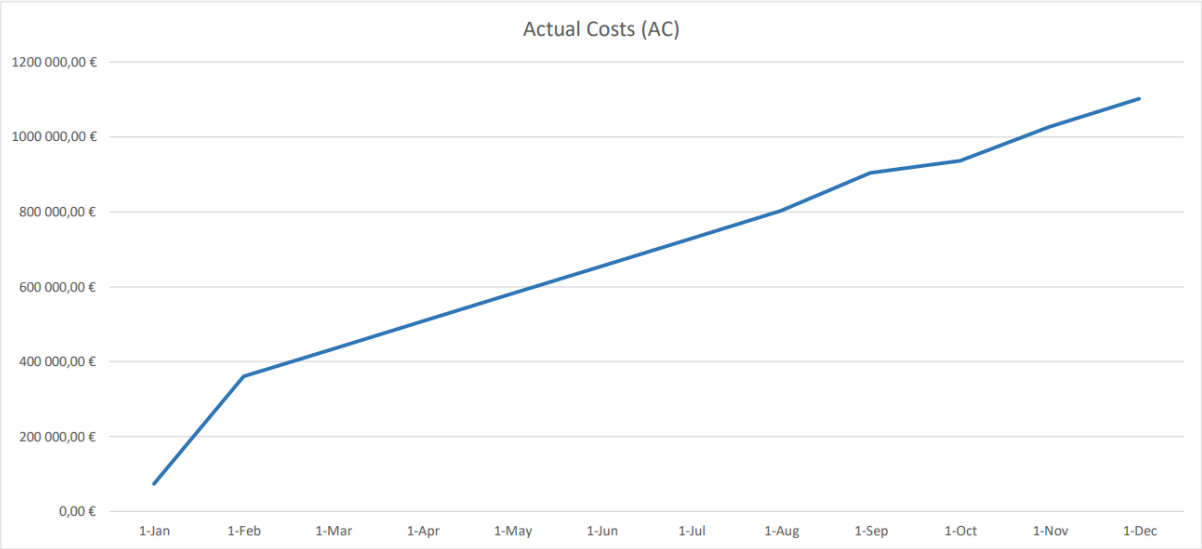
Material Costs: $1,500 + $400 = $1,900

Total AC:

$2,000 (Labor) + $1,900 (Material) + $700 (Service) = $4,600

Therefore, the project's Actual Costs (AC) up to this point are $4,600.

4.3 Examples of actuel costs in the excel document



Actual costs (AC):

Task name	Planned budget for the task	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	1-Jul	1-Aug	1-Sep	1-Oct	1-Nov	1-Dec
Needs	185 700,00 €	59 500,00 €	126 200,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
Planning/Design	216 245,00 €	14 166,25 €	160 416,25 €	4 166,25 €	4 166,25 €	4 166,25 €	4 166,25 €	4 166,25 €	4 166,25 €	4 166,25 €	4 166,25 €	4 166,25 €	4 166,25 €
Developments	486 863,30 €	0,00 €	0,00 €	69 551,90 €	69 551,90 €	69 551,90 €	69 551,90 €	69 551,90 €	69 551,90 €	69 551,90 €	0,00 €	0,00 €	0,00 €
Tests	84 000,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	28 000,00 €	28 000,00 €	28 000,00 €	0,00 €
Training/Doc/Deployment	117 180,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	58 590,00 €	58 590,00 €
End of the project	11 880,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	11 880,00 €

In February 2024, AC was composed of the need and the conception so AC = 160.416,25€ + 126.200,00€ = 376.616,25€.

5. S-Curve analysis

5.1 Explanation of the S-Curve and its purpose

The S-Curve is a graphical representation of the project's progress over time, and it's an important tool for monitoring and analysing project performance. The S-Curve is created using the project's planned values and earned values, and it plots the project's progress against the planned schedule.

The S-Curve typically shows a gradual increase in the amount of work completed in the early stages of the project, followed by a more rapid increase as the project progresses. The curve then begins to flatten out as the project nears completion, indicating that the remaining work is becoming more difficult or complex to complete.

The S-Curve also enables us to male informed decisions about resource allocation, budgeting and scheduling. For example, if the S-Curve indicates that the project is behind schedule, we can adjust the project schedule or allocate additional resources to get the project back on track.

Overall, the S-Curve is an essential tool for project managers and stakeholders, as it enables them to monitor and analyse project performance, identify potential issues, and make informed decisions to keep the project on track.

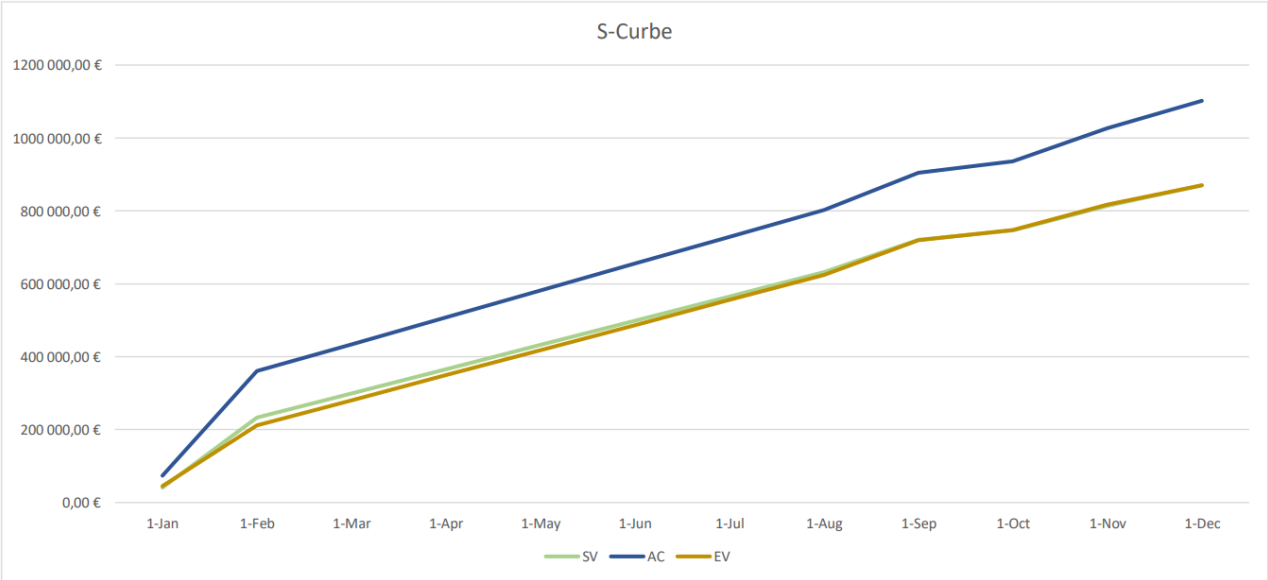
5.2 Description of how the S-Curve was created

The S-Curve was created using the cumulative actual costs (CAC), cumulative earned value (CEV), and cumulative planned value (CPV) for each month of the project. The cumulative actual costs refer to the total costs incurred for the project up to that point in time, while the cumulative earned value represents the value of the work completed to date. The cumulative planned value is the value of the work that was planned to be completed up to that point in time.

To create the S-Curve, the cumulative actual costs, cumulative earned value, and cumulative planned value were plotted on a graph, with the x-axis representing time (in Months) and the y-axis representing the project value (in Euros), and another y-axis, this time on the right, representing the project's completion (in percentages). The S-Curve was then generated by connecting the points on the graph.

The budget at completion (which is the sum of all planned budgets) was also added for analysing purposes.

5.3 Analysis of the S-Curve results



Several key observations can be made. Firstly, the Cumulative Actual Costs consistently surpass both the Planned Value and Earned Value for each month. For example, in December 2024, actual costs reached €1,101,868.30, significantly higher than the planned value of €870,149.00.

Planned Value represents the budgeted cost of work that should be finished by a specific date. It steadily increases throughout the year, reaching €870,149.00 by December 2024. Earned Value reflects the value of the work actually completed by a specific time. It follows a similar trend to the Planned Value, reaching €870,148.96 in December 2024.

Interpreting these observations, the consistently higher Cumulative Actual Costs compared to Planned Value and Earned Value indicate that the project is exceeding its budget. This means more money has been spent than originally planned for the completed work in each month.

However, the close alignment between Planned Value and Earned Value throughout the months suggests the project is roughly on schedule. The project team appears to be completing the planned amount of work.

6. Analysis of resuslts

6.1 Overview of project

COST TRACKING

	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	1-Jul	1-Aug	1-Sep	1-Oct	1-Nov	1-Dec
Cost variance	-28 374,25 €	-148 441,18 €	-153 419,75 €	-158 398,32 €	-163 376,89 €	-168 355,46 €	-173 334,03 €	-178 312,60 €	-184 487,54 €	-188 740,32 €	-209 733,09 €	-231 719,34 €
Time difference	4209,00	-20 674,68 €	-18 497,10 €	-16 319,52 €	-14 141,94 €	-11 964,36 €	-9 786,78 €	-7 609,20 €	-1 027,99 €	1152,48	3332,96	-0,04 €
Cost Performance Indicator	0,61	0,59	0,65	0,69	0,72	0,74	0,76	0,78	0,80	0,80	0,80	0,79
Time Performance Indicator	1,10	0,91	0,94	0,96	0,97	0,98	0,98	0,99	1,00	1,00	1,00	1,00
Estimated Final Cost	1 415 274,52 €	1 479 878,70 €	1 345 940,62 €	1 264 715,44 €	1 210 201,18 €	1 171 082,53 €	1 141 644,56 €	1 118 689,44 €	1 093 164,75 €	1 089 788,43 €	1 093 389,70 €	1 101 868,36 €

The project performance metrics provides an overview of the project's planned values, earned values, actual costs, and schedule and cost performance indicators (SPI and CPI) for the months of March to August 2024.
The Cost Variance (CV) measures the difference between the earned value (EV) and actual cost (AC), and it indicates whether the project is under or over budget. A negative CV value, as shown in the table, means that the project is over budget for that month.

The Schedule Variance (SV) measures the difference between the earned value (EV) and planned value (PV), and it indicates whether the project is ahead of or behind schedule. A negative SV, as shown in the table, means that the project is behind schedule for that month.

The Cost Performance Index (CPI) measures the efficiency of the project's spending, by comparing the earned value (CV) to the actual cost (AC). A CPI value of less than 1.0 indicates that the project is over budget, while a value greater than 1.0 indicates that the project is under budget, while a value greater than 1.0 indicates that the project is under budget. As seen in the table, the CPI values are all less than 1.0, indicating that the project is over budget.

The Schedule Performance Index (SPI) measures the efficiency of the project's progress, by comparing the earned value (EV) to the planned value (PV). AN SPI value of less than 1.0 indicates that the project is behind schedule. As shown in the table, the SPI values are all less than 1.0, indicating that the project is behind schedule for all months from February 2024 to August 2024.

Finally, the Estimate At Completion (EAC) is an estimate of the total cost of the project at completion, based on the current CPI. The EAC is calculated by dividing the Budget At Completion (BAC) by the CPI. As seen in the table, the EAC values fluctuate from month to month, indicating that the project's cost estimate at completion is changing based on the project's performance.

6.2 Explanation of any variances between planned, earned, and actual values

Cost Variance: The cost variance is negative in all months, indicating that the actual costs are higher than the earned values. In March 2024, for example, the cost variance is -153 419,75 €, meaning that the project has incurred costs that are 153 419,75 € higher than the value that the project has earned. This could be due to a number of factors, such as unexpected expenses or higher-than-planned resource costs.

Schedule Variance: The schedule variance is also negative in all months, indicating that the earned values are lower than the planned values. In March 2024, for example, the schedule variance is -18 319,52 €, meaning that the project is behind schedule by 18 319,52 € worth of work. This could be due to a variety of factors, such as unexpected delays or inefficient resource allocation.

Cost Performance Index: The cost performance index is less than 1 in all months, indicating that the project is over budget. For example, in March 2024, the CPI is 0.65, meaning that the project is only earning 65 cents for every euro spent. This could be due to a variety of factors, such as higher-than-planned resource costs or inefficient use of resources.

Schedule Performance Index: The schedule performance index is less than 1 in more than half of the months, indicating that the project is behind schedule. For example, in March 2024, the SPI is 0.94, meaning that the project is only earning 94 cents for every euro of planned value. This could be due to a variety of factors, such as unexpected delays or inefficient resource allocation.

Overall, the negative variances between planned, earned, and actual values indicate that the project is experiencing some difficulties in terms of cost and schedule performance. The project team should investigate the causes of these variances and take corrective action to bring the project back on track.

6.3 Discussion of any corrective actions

Based on the overall analysis of project performance metrics, it is clear that the project is facing significant cost and schedule overruns. The Cost Variance (CV) and Schedule Variance (SV) are both negative, indicating that the actual costs are higher than planned and the project is behind schedule. The Cost Performance Index (CPI) and Schedule Performance Index (SPI) are also below 1, indicating that the project is not performing as efficiently as planned.

To address these issues, the chartreuse team may need to take corrective actions such as:

- **Re-evaluating the project plan:** It may be necessary to go back to the drawing board and re-evaluate the entire project plan. This includes reviewing the scope of the project, the timeline, and the budget. It may also involve revisiting the project objectives and the deliverables to ensure that they are still aligned with the organization's goals.
- **Reducing scope:** If the project is significantly behind schedule or over budget, it may be necessary to reduce the scope of the project. This means removing some deliverables or features to get the project back on track. However, this should only be done after careful consideration and discussion with stakeholders to ensure that the most important aspects of the project are still being completed.
- **Adding resources**: If the project is behind schedule, adding additional resources such as personnel, equipment or technology may be necessary to get it back on track. However, this can also increase the project's cost, so it should be done with caution and after a thorough analysis of the impact on the budget.
- **Renegotiating contracts:** If the project is over budget, it may be necessary to renegotiate contracts with suppliers, contractors or vendors to reduce costs. This can include negotiating better rates or changing the scope of work.
- **Improving project management processes:** If the analysis reveals that the project is suffering from poor project management, it may be necessary to improve the project management processes. This can include enhancing communication, improving risk management, and better managing stakeholders.
- **Conducting a risk assessment:** If the analysis reveals that the project is suffering from high risks, it may be necessary to conduct a risk assessment. This can involve identifying the risks, assessing their impact and likelihood, and developing mitigation strategies to manage them.

6.4 Recommendations for future projects

Firstly, future projects should emphasize the importance of accurate project planning and scheduling. As seen in this project, deviations from the original plan can quickly lead to significant cost and schedule variances. To mitigate this risk, chartreuse teams should invest sufficient time and resources in developing a detailed project plan, including a realistic schedule and budget. The plan should be regularly reviewed and updated to reflect any changes in project scope, timelines, or budget.

Secondly, it is important to closely monitor project performance metrics throughout the project's lifecycle. This can be done using tools such as the S Curve, which provides a visual representation of planned versus actual project performance. By regularly monitoring project metrics, chartreuse teams can quickly identify any variances and take corrective actions to keep the project on track.

Thirdly, future projects should prioritize risk management throughout the project lifecycle. As seen in this project, unexpected events can quickly derail a project's progress. To mitigate this risk, project teams should conduct a thorough risk analysis at the outset of the project and develop contingency plans to address potential risks. Risk management should be an ongoing process, with risks regularly assessed and addressed throughout the project's lifecycle.

Finally, effective communication and collaboration among project team members are critical to project success. The chartreuse team should establish clear lines of communication and ensure that all team members are aware of project goals, timelines, and performance metrics. This includes regular project status updates and meetings to discuss progress and any challenges. By fostering a collaborative project culture, project teams can work together more effectively and proactively address any issues that arise.

In summary, future projects should prioritize accurate project planning and scheduling, regular monitoring of project performance metrics, risk management throughout the project lifecycle, and effective communication and collaboration among project team members. By incorporating these lessons learned from this project's analysis, future projects can be better positioned for success.

7. Conclusion

7.1 Sullary of key findings and recommendations

To address these challenges and improve future project outcomes, here are some actionable recommendations:

1. **Enhance** our methods for estimating costs and timelines by using more reliable techniques and drawing insights from past projects.
2. **Strengthen** our processes for identifying and managing risks to prevent potential disruptions to project schedules and budgets.
3. **Implement** more rigorous monitoring and control measures to promptly identify deviations from the project plan and take corrective actions as needed.
4. **Foster** an environment where open communication and collaboration are encouraged among all project stakeholders to facilitate problem-solving and decision-making.

By implementing these recommendations, we can increase the likelihood of achieving project objectives within the established constraints and ensuring satisfaction among all stakeholders.

7.2 Fnal thoughts on the Excel document

Looking back, the Excel document we utilized for project analysis proved to be an invaluable tool. It provided us with a clear understanding of the project's progress and highlighted areas requiring attention. The visual representations, such as the S-Curve and performance metrics tables, were particularly helpful in identifying deviations from the planned trajectory.

Moving forward, it's essential to learn from this project experience and apply these insights to future endeavors. This involves developing comprehensive project plans with detailed task breakdowns, budget allocations, and timelines. Additionally, maintaining a vigilant approach to monitoring project performance against established benchmarks will enable us to detect issues early and take corrective actions promptly. Moreover, fostering a culture of transparent communication and collaboration among team members is vital for promoting synergy and achieving project success.