**Script: Module 7 - Project Cost Management**

**SLIDE 1**

**Speaker:** "Welcome to Module 7: Project Cost Management in IT Project Management. Today, we’ll explore how to estimate, budget, and control project costs effectively. Managing costs ensures projects stay on budget and deliver value.

**Objectives:**

1. Understand the importance of cost management.
2. Learn cost estimation, budgeting, and control processes.
3. Apply practical tools and techniques.

Cost management is critical to avoid overruns and optimize resources. By the end, you’ll confidently handle project finances. Feel free to ask questions or share insights. Let’s start with Cost Estimation!"

**SLIDE 2**

"Welcome to our discussion on Cost and Project Cost Management.

Let's start by understanding the term 'Cost.' Cost refers to a resource that is sacrificed or foregone to achieve a specific objective or to acquire something in return. For example, time, effort, or money spent to achieve a goal qualifies as a cost. Typically, costs are measured in monetary units, such as dollars, which makes it easier to evaluate and manage resources.

Now, let's talk about Project Cost Management. This is a critical process that ensures projects are completed within their approved budget. It involves planning, estimating, budgeting, funding, managing, and controlling costs throughout the project lifecycle.

By effectively managing costs, organizations can avoid overspending and ensure that resources are used efficiently to achieve desired outcomes. Ultimately, good cost management contributes to the success and sustainability of projects.

Remember, every dollar spent must contribute value to the project. Keep this in mind as you plan and execute your initiatives!"

**SLIDE 3**

**Project Cost Management Processes**

Project cost management is a crucial aspect of ensuring project success by managing the financial resources effectively. It involves three key processes: cost estimating, cost budgeting, and cost control.

1. **Cost Estimating**: This step involves developing an approximate calculation of the costs required to complete a project. It includes identifying all necessary resources—such as materials, labor, equipment, and other expenses—and predicting their associated costs. Accurate cost estimates are vital for effective planning and decision-making.
2. **Cost Budgeting**: Once estimates are established, the next step is allocating these costs to individual work items or tasks. This creates a detailed financial framework, known as the cost baseline, which acts as a benchmark for measuring project performance. A well-prepared budget helps ensure that resources are allocated efficiently and project goals are met within financial constraints.
3. **Cost Control**: This ongoing process focuses on monitoring and regulating expenses throughout the project lifecycle. By tracking costs and comparing them to the baseline, project managers can identify deviations, implement corrective actions, and ensure the project stays within the approved budget.

By mastering these processes, organizations can effectively manage their project costs and deliver successful outcomes.

**SLIDE 4**

Here’s a short script summarizing the contents of the image within 200 words:

**Title: Project Cost Management Summary**

Project cost management ensures effective planning, budgeting, and controlling of project costs throughout the project lifecycle.

**1. Planning Stage:**

* **Process: Cost Estimating**
  + Outputs include activity cost estimates and supporting details, requested changes, and updates to the cost management plan.
* **Process: Cost Budgeting**
  + Outputs include the cost baseline, project funding requirements, requested changes, and updates to the cost management plan.

**2. Monitoring and Controlling Stage:**

* **Process: Cost Control**
  + Outputs include performance measurements, forecasted completion information, requested changes, recommended corrective actions, and updates to various components such as:
    - The project management plan
    - Cost estimates
    - Cost baseline
    - Organizational process assets

The process flow moves linearly from project start to project finish, ensuring all financial aspects are properly estimated, allocated, and monitored for successful project completion.

**SLIDE 5**

**Basic Principles of Cost Management**

In cost management, it is essential for project managers to communicate effectively with the executive board, which often prioritizes financial metrics. Key principles include:

1. **Profits**:
   * Calculated as **Revenue - Expenditures**.
   * This metric determines the financial gains of a project.
2. **Profit Margin**:
   * The ratio of profits to revenue, expressed as a percentage:  
     **Profit Margin = (Profits / Revenue) × 100**.
   * A critical measure of efficiency and profitability.
3. **Life Cycle Costing**:
   * Accounts for the **total cost of ownership** over a project’s lifecycle, including development and support expenses.
   * Helps assess long-term financial impact.
4. **Cash Flow Analysis**:
   * Evaluates annual costs versus benefits to determine a project’s net cash flow.
   * Vital for ensuring financial viability and decision-making.

Understanding these principles helps project managers align their project goals with organizational financial objectives.

**SLIDE 6**

**Basic Principles of Cost Management**

Cost management involves understanding and managing the different types of costs associated with a project or organization. There are several key principles:

1. **Tangible Costs or Benefits**: These are measurable in monetary terms, such as expenses or revenues that can easily be quantified in dollars.
2. **Intangible Costs or Benefits**: These are difficult to quantify in monetary terms, such as employee morale or brand reputation.
3. **Direct Costs**: Costs directly associated with producing a product or service, like raw materials or labor specifically tied to a project.
4. **Indirect Costs**: Costs that support the project but are not directly linked to it, such as utilities, administrative expenses, or overhead.
5. **Sunk Costs**: These are past expenses that have already been incurred and cannot be recovered. When deciding on future investments or project continuations, sunk costs should not influence the decision.

Understanding these principles helps organizations make informed financial decisions, optimize resource allocation, and ensure project profitability. Always separate costs that are recoverable or impactful from those that are not to achieve effective cost management.

**SLIDE 7**

**Cost Estimating: A Key Skill for Project Managers**

Project managers must take cost estimating seriously to ensure projects stay within budget and are completed successfully. Understanding three critical aspects is essential:

1. **Types of Estimates**: Familiarize yourself with different estimates like rough, budgetary, and definitive, which are used at various project stages.
2. **Preparation**: Accurately calculate costs by considering all factors such as labor, materials, and risks, using tools or expert insights.
3. **Challenges**: Address common issues like scope creep, underestimated complexity, and changing technology.

Mastering cost estimating ensures better planning, resource allocation, and successful project delivery within budget constraints.

**SLIDE 8**

Cost estimation is a critical part of project planning, providing the foundation for budget allocation and resource management. Three primary techniques commonly used for cost estimation include analogous estimates, bottom-up estimates, and parametric modeling.

**Analogous Estimates**, also known as top-down estimates, leverage the costs of previous, similar projects to forecast the expenses of a current project. This technique is efficient and provides a quick estimate but can be less accurate if significant differences exist between projects.

**Bottom-Up Estimates** focus on granularity by estimating the costs of individual work items or activities. These smaller components are then aggregated to determine the overall project cost. This method is detailed and highly accurate but requires substantial effort and time.

**Parametric Modeling** uses mathematical formulas to estimate project costs based on key parameters or characteristics. For instance, the cost of building construction might be estimated using factors like square footage and materials. This technique is useful for standardized projects with reliable historical data.

By understanding and applying these tools, project managers can align their budgets with project goals, minimize risks, and improve decision-making efficiency.

**SLIDE 9**

"Estimating IT costs is a complex process often plagued by common challenges. First, estimates are frequently rushed, leaving little room for thorough analysis. Second, a lack of experience in estimating leads to inaccurate projections. Third, human bias tends to skew estimates toward underestimation, creating unrealistic expectations. Lastly, management's demand for precision adds pressure, making it challenging to balance speed and accuracy. To address these issues, we must prioritize comprehensive planning, invest in training for estimation techniques, leverage historical data, and manage stakeholder expectations to achieve realistic and reliable cost estimates."

**SLIDE 10**

Creating a detailed cost estimate is a critical step in project planning. This script will guide you through an example of estimating costs for the Surveyor Pro project.

1. **Understand the Purpose**: Start by clarifying what the estimate will be used for. Gather all relevant information about the project scope, objectives, and requirements. This ensures accuracy and relevance.
2. **Ground Rules and Assumptions**: Clearly define the rules and assumptions underlying the estimate. This helps maintain consistency and ensures all stakeholders have a shared understanding.
3. **Break Down Costs by WBS Categories**: Where possible, estimate costs by major Work Breakdown Structure (WBS) categories. This approach organizes expenses systematically, making it easier to track and manage.
4. **Develop a Cost Model**: Create a flexible cost model to accommodate changes and updates throughout the project lifecycle. Proper documentation of the estimate is key to effective communication and review.

By following these steps, you'll ensure a reliable and adaptable cost estimate that supports successful project execution.

**SLIDE 11**

Work Breakdown Structure (WBS) serves as the foundational framework for project planning and management. It provides essential data for creating final schedules, developing project budgets, controlling costs, tracking progress, and implementing status reporting procedures. WBS also facilitates network development, performance measurement, and resource assignment and control.

WBS can be organized based on project deliverables, phases, or management process groups. By structuring tasks into manageable components, WBS ensures clarity and efficiency, aligning all project activities with objectives while streamlining resource allocation and performance monitoring. It is indispensable for successful project execution and control.

**SLIDE 12**

The Surveyor Pro Project Cost Estimate outlines the budget distribution across six key categories. Project Management accounts for 20% of the total, costing $306,300, with primary expenses for team salaries. Hardware costs are $76,000, contributing 5%, including handheld devices and servers. Software development takes the largest share, 40%, at $614,000. Testing expenses are 5%, calculated as 10% of hardware and software costs, totaling $69,000. Training and support, including trainee and team costs, add 13% at $202,400. Finally, reserves comprise 17%, ensuring $253,540 for contingencies. The total project estimate is $1,521,240, ensuring comprehensive allocation for successful execution.

**SLIDE 13**

The "Surveyor Pro Software Development Estimate" outlines two key components: labor and function points. Labor costs include contractor estimates (3,000 hours at $150/hour, totaling $450,000) and project team hours (1,920 at $75/hour, totaling $144,000), resulting in $594,000. Function points are calculated across five metrics (e.g., external inputs, outputs), summing to 175. Using Java 2 equivalency and productivity data, total labor hours are estimated at 4,725, costing $120/hour. The function point estimate totals $567,000. Combined, these calculations provide a clear, cost-driven overview of the project.

**SLIDE 14**

"Cost budgeting is essential in project management. It involves distributing the project cost estimate to individual work items over time. The Work Breakdown Structure (WBS) is crucial for cost budgeting, as it outlines the project tasks and work items. A key objective of cost budgeting is to develop a cost baseline—a time-phased budget that enables project managers to measure and monitor cost performance effectively. By aligning resources with tasks, project teams can ensure efficient cost control and adherence to project goals."

**SLIDE 15**

The *Surveyor Pro Project Cost Baseline*, prepared on October 10, outlines the detailed breakdown of project costs across twelve months. The costs are grouped under six major categories: **Project Management**, **Hardware**, **Software**, **Testing**, **Training and Support**, and **Reserves**.

1. **Project Management** includes costs for project managers, team members, and contractors, totaling $306,240 annually.
2. **Hardware** accounts for handheld devices and servers, costing $76,000.
3. **Software** has significant expenditures, particularly for software development ($594,000), bringing the total to $614,000.
4. **Testing** involves $69,000 distributed across the year.
5. **Training and Support** encompasses trainee costs, travel, and team support, adding up to $253,540.
6. **Reserves** allocate $30,000 for contingency planning.

The overall project cost is $1,521,240, with monthly fluctuations reflecting the project's phased activities. Notably, software development and training peak in mid-project months. This budget provides a structured financial plan, ensuring resources align with project objectives.

*Note: Figures are rounded, leading to minor discrepancies in totals.*

**SLIDE 16**

**Script on Cost Control:**

"Cost control is a crucial aspect of project management. It involves three key activities: first, monitoring cost performance to ensure the project stays within the approved budget. Second, making sure that any project changes are justified and properly reflected in the revised cost baseline. Finally, it includes keeping stakeholders informed about authorized changes that may affect the project's financials.

Despite its importance, many organizations worldwide face challenges in maintaining effective cost control. Issues such as unforeseen changes, poor cost estimation, or inadequate communication can lead to budget overruns.

To address these challenges, organizations must adopt structured approaches, such as using reliable cost management tools, implementing a clear change control process, and fostering regular stakeholder engagement. By doing so, they can ensure better financial outcomes and project success."

**SLIDE 17**

**Earned Value Management (EVM) Script**

Earned Value Management, or EVM, is a critical project performance measurement technique that integrates three key project elements: scope, time, and cost. It provides a comprehensive way to assess how well a project is meeting its objectives by comparing the actual progress against the planned baseline.

The baseline represents the original project plan, including any approved changes. By using this baseline as a reference, EVM enables project managers to measure whether a project is on track in terms of budget and schedule.

To effectively utilize EVM, you must periodically input accurate and updated information about the project's progress. This includes capturing actual costs, completion percentages, and time usage.

Organizations worldwide are increasingly adopting EVM because of its effectiveness in controlling project costs, improving accountability, and identifying potential risks early. By leveraging this technique, teams can enhance decision-making and ensure the project stays aligned with its goals.

In essence, EVM is a vital tool for achieving project success through disciplined monitoring and analysis.

**SLIDE 18**

Earned Value Management, or EVM, is a critical tool for project management, integrating cost, schedule, and performance. Key terms in EVM include Planned Value (PV), Actual Cost (AC), and Earned Value (EV).

**Planned Value (PV)**, also known as Budgeted Cost of Work Scheduled (BCWS), represents the approved budget allocated for specific activities during a given time frame. It answers, "How much work should be completed by now?"

**Actual Cost (AC)**, formerly referred to as Actual Cost of Work Performed (ACWP), is the total cost incurred—both direct and indirect—while performing work during the same period. It reflects the true expenditure.

**Earned Value (EV)**, previously known as Budgeted Cost of Work Performed (BCWP), estimates the value of the work actually completed. It indicates progress in terms of both cost and schedule.

EV is derived from planned costs and measures the efficiency of the team's performance. By comparing these metrics—PV, AC, and EV—project managers can analyze performance trends, forecast future outcomes, and make informed decisions to keep projects on track.

EVM ensures projects are executed within budget, on time, and to the desired scope, enhancing overall efficiency and accountability.

**SLIDE 19**

Earned Value Management (EVM) is a project management technique using formulas to evaluate project performance. Key metrics include:

1. **Cost Variance (CV)**: Measures budget efficiency as CV=EV−ACCV = EV - AC.
2. **Schedule Variance (SV)**: Tracks time performance, SV=EV−PVSV = EV - PV.
3. **Cost Performance Index (CPI)**: Indicates cost efficiency, CPI=EV/ACCPI = EV / AC.
4. **Schedule Performance Index (SPI)**: Assesses schedule adherence, SPI=EV/PVSPI = EV / PV.
5. **Estimate at Completion (EAC)**: Predicts total project cost, EAC=BAC/CPIEAC = BAC / CPI.
6. **Estimated Time to Complete**: Calculates time remaining, Original Time Estimate/SPIOriginal\ Time\ Estimate / SPI.

These metrics provide insights into project progress and future performance.

**SLIDE 20**

Suppose a consultant is hired for a project costing RM40K over 4 months, involving 20 evenly divided tasks. Each task costs RM2000, referred to as the Planned Value (PV), which represents the budgeted cost for scheduled work. The contract requires RM10,000 monthly payments for four months. The total planned cost of RM40,000 is termed the Budget at Completion (BAC). PV helps in tracking progress against the planned schedule, while BAC provides the overall project budget. This structure ensures clear cost management, aligning scheduled payments with the project timeline.

**SLIDE 21**

**Script for Presentation**:

"Let's take a look at an example of a planned budget. The table on the left breaks down the tasks and their associated costs across four months. Each task is allocated RM 2,000 per month, summing up to RM 10,000 for each month. This consistent expenditure pattern ensures a stable cash flow throughout the project.

At the bottom, you'll notice the totals align with the planned budget, resulting in a cumulative RM 40,000 for the project.

The chart on the right illustrates the budgeted cost at completion (BAC) and the planned value (PV). The straight upward trajectory indicates a linear budget distribution, which simplifies tracking and ensures the project remains aligned with financial forecasts.

This planned budget serves as a foundational tool for monitoring project costs and managing financial performance. With this structure, we can assess deviations and take corrective actions proactively. Are there any questions regarding this example or the budgeting methodology?"

**SLIDE 22**

"An invoice has been received from ABC for the work completed in Month 1. Task 1 amounts to 2,000, Task 2 to 3,000, and Task 3 to 3,000. The total is expected to reflect these individual contributions accurately. This serves as an example of task-based invoicing for clarity and recordkeeping."

**SLIDE 23**

"In this slide, we analyze the Planned Value (PV), Actual Cost (AC), and Earned Value (EV) for Month 1.

The table breaks down the performance of five tasks, providing insight into planned versus actual spending and progress.

* For Task 1, all values—Planned, Actual, and Earned—are 2000 RM, indicating alignment with expectations.
* Task 2 shows a variance; while the Planned Value is 2000 RM, the Actual Cost exceeds it at 3000 RM, with the Earned Value staying at 2000 RM. This suggests overspending without equivalent earned progress.
* Task 3 mirrors Task 2, highlighting consistent inefficiency.
* For Tasks 4 and 5, Planned Value remains at 2000 RM each, but Actual Cost and Earned Value drop to 0, signaling no progress or spending occurred.

Cumulatively, the Planned Value sums to 10,000 RM, but the Actual Cost is lower at 8000 RM, and Earned Value falls further behind at 6000 RM.

The bar graph reinforces these discrepancies, with Planned Value outperforming Actual Cost and Earned Value. These metrics indicate potential delays and inefficiencies, requiring intervention to align costs with value earned."

**SLIDE 24**

This slide presents a performance summary of a project across five tasks using Earned Value Management (EVM) metrics.

* **Planned Value (PV)**, **Actual Cost (AC)**, and **Earned Value (EV)** are tracked cumulatively.
* **Cost Variance (CV = EV - AC)** and **Schedule Variance (SV = EV - PV)** indicate whether the project is on budget and on schedule.
* **Cost Performance Index (CPI = EV/AC)** and **Schedule Performance Index (SPI = EV/PV)** highlight efficiency.

Key insights from the data:

* Tasks 2 and 3 experienced a cost overrun of -1000 each.
* Tasks 4 and 5 show schedule delays of -2000 each.
* Cumulative metrics reveal:
  + **CV = -2000**, showing cost inefficiency.
  + **SV = -4000**, reflecting significant schedule delays.
  + **CPI = 0.75**, below 1, indicating cost inefficiency.
  + **SPI = 0.60**, below 1, showing the project is behind schedule.

Negative CV and SV values indicate problems, while CPI and SPI below 1.00 confirm the project's challenges.

**SLIDE 25 & 26**

**Understanding Rules of Thumb for Earned Value Numbers**

Earned Value Management (EVM) provides key indicators for assessing project performance and progress. Here are some essential guidelines:

1. **Recognizing Problems**:
   * Negative cost and schedule variances highlight performance issues.
   * Projects running over budget or behind schedule signal inefficiencies.
2. **CPI and SPI**:
   * The Cost Performance Index (CPI) and Schedule Performance Index (SPI) are critical measures.
   * Values less than 1.0 (or 100%) for CPI or SPI indicate cost overruns and scheduling delays.
3. **Impact of Variances**:
   * When CPI or SPI drops below acceptable thresholds, it signifies that the project is costing more or taking longer than planned.
4. **Estimate at Completion (EAC)**:
   * CPI is used to calculate the Estimate at Completion (EAC), providing an updated forecast of total project costs based on current performance.
   * The Budget at Completion (BAC) represents the initial project budget, serving as a baseline.

In summary, monitoring earned value indicators like CPI, SPI, and variances is essential for identifying issues early and making informed decisions to realign projects to their planned budget and schedule.

**SLIDE 27**

\*\*Using Software to Assist in Cost Management\*\*

Cost management in projects benefits greatly from the use of software tools. Spreadsheets are widely utilized for resource planning, cost estimating, budgeting, and controlling expenses due to their flexibility and accessibility. However, many organizations adopt more advanced, centralized financial applications for comprehensive and integrated cost information. Additionally, project management software—particularly enterprise solutions—offers specialized cost management features that streamline budget tracking, forecasting, and reporting. These tools enhance accuracy and efficiency, ensuring projects remain within budget and on schedule.

**SLIDE 28**

**Chapter Summary**

Project cost management is a critical yet traditionally weak area in IT projects. To ensure successful delivery within approved budgets, project managers must focus on strengthening their cost management capabilities. The three key processes in cost management include:

1. **Cost Estimating** – Determining the financial resources required for project activities.
2. **Cost Budgeting** – Allocating the overall budget to individual tasks or work packages.
3. **Cost Control** – Monitoring and managing variances to stay within the planned budget.

Improving these areas ensures better project outcomes and financial discipline.