Cost Management Basics
Video Companion Document

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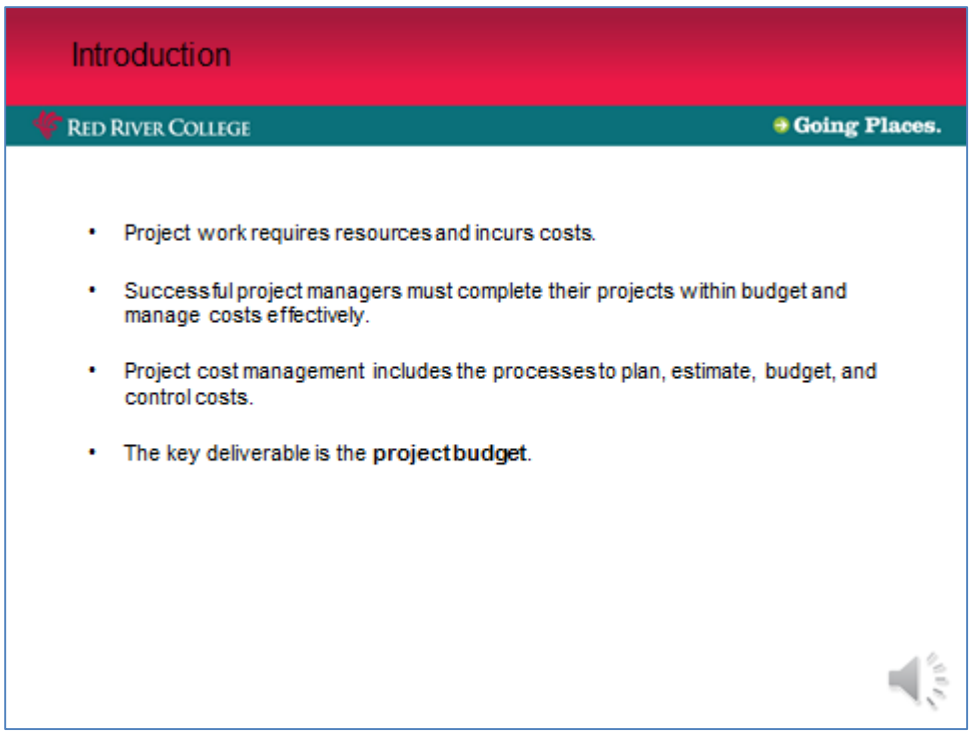

A key element of every project is cost management.

Successful project managers must plan the costs associated with the project, estimate what those costs will be, and use the information to build a budget to manage and control the costs effectively.

The key deliverable is the **project budget**.

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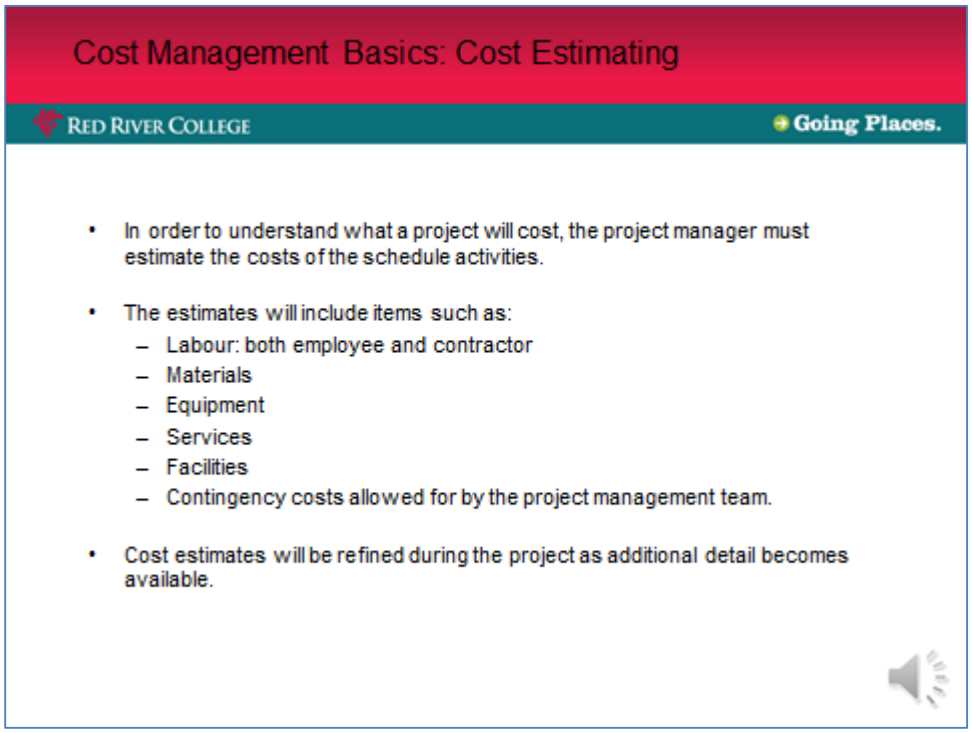

In order to understand what a project will cost, the project manager must estimate the costs of the schedule activities.

The estimates will include items such as:

- Labour: both employee and contractor
- Materials
- Equipment
- Services
- Facilities
- Contingency costs allowed for by the project management team.

Cost estimates will be refined during the project as additional detail becomes available.

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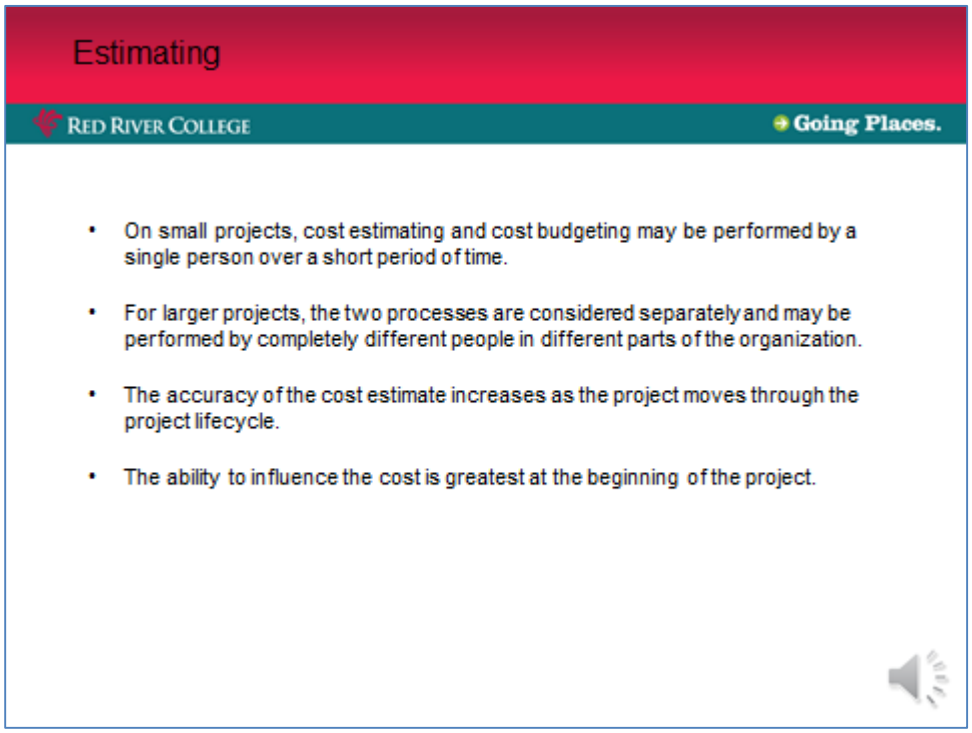

On small projects, cost estimating and cost budgeting may be performed by a single person over a short period of time.

For larger projects, the two processes are considered separately and may be performed by completely different people in different parts of the organization. In subcontracting situations, you may even find that separate organizations are involved.

The accuracy of the cost estimate increases as the project moves through the project lifecycle.

The ability to influence the cost is greatest at the beginning of the project. It decreases as you get closer and closer to the end.

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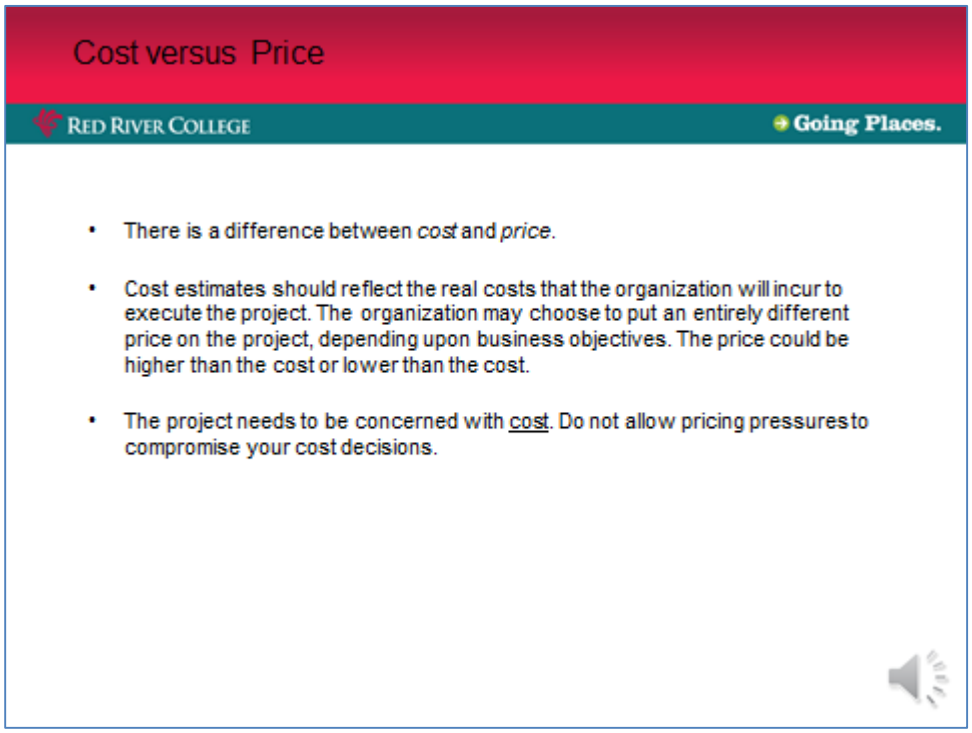

There is a difference between *cost* and *price*.

Cost is a measure of the 'real' costs that an organization will incur to complete the work that has been identified in the project.

Price is a business decision. The organization may choose to put an entirely different price on the project, depending upon business objectives. The price could be higher than the cost or lower than the cost.

The project manager needs to be concerned with cost. Do not allow pricing pressures to compromise your cost decisions.

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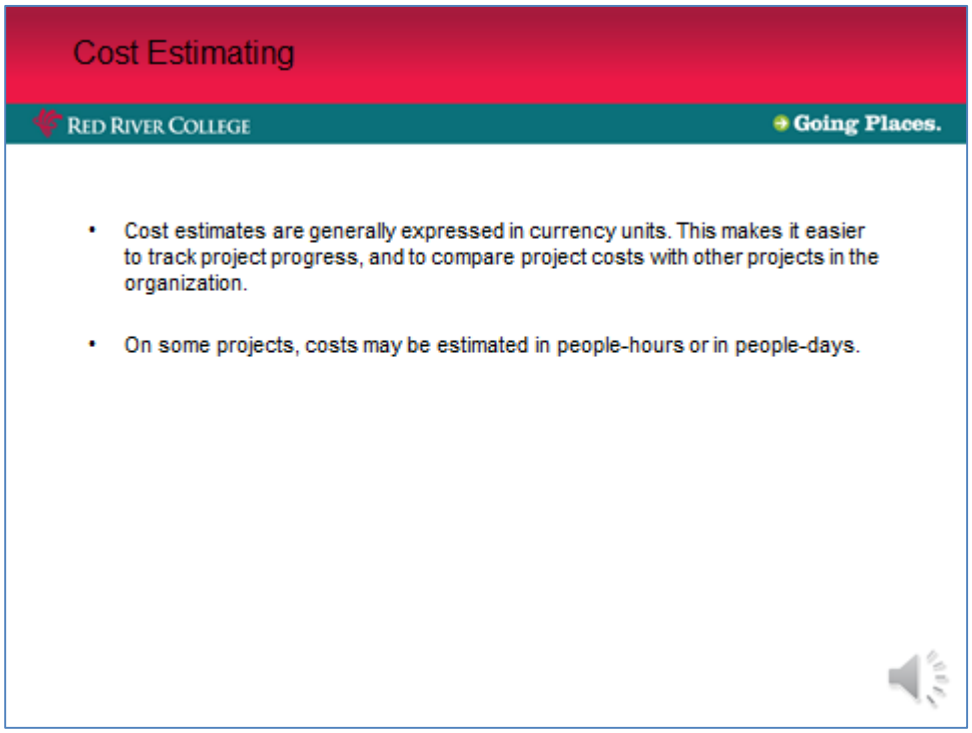

Cost estimates are generally expressed in money (currency units). This makes it easier to track project progress, and to compare project costs with other projects in the organization.

On some projects, costs may be estimated in people-hours or in people-days. It depends on the nature of the project.

You want to achieve a common unit that can be used to manage the project and compare the project performance to what is expected as the project moves through its lifecycle.

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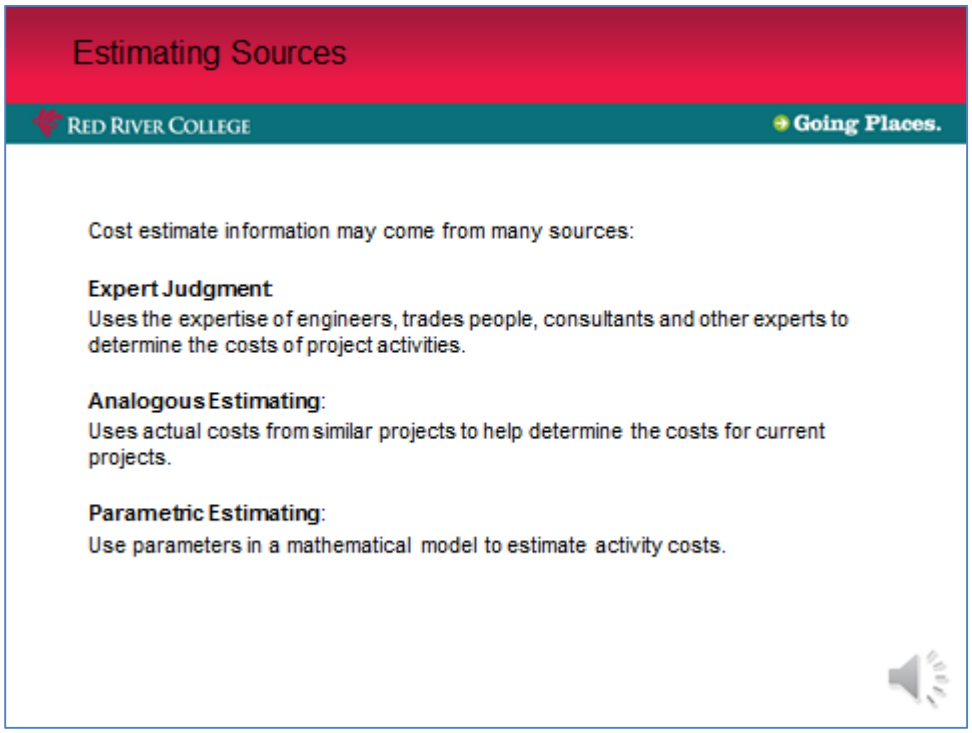

Cost estimate information may come from many sources:

Expert Judgment:

Expert judgment uses the expertise of engineers, trades people, consultants and other experts to determine the costs of project activities. If you do not know yourself then ask someone who does.

Analogous Estimating:

Analogous estimating uses actual costs from similar projects to help determine the costs for current projects. Compare against a previously completed piece of work.

Parametric Estimating:

Parametric estimating uses parameters in a mathematical model to estimate activity costs.

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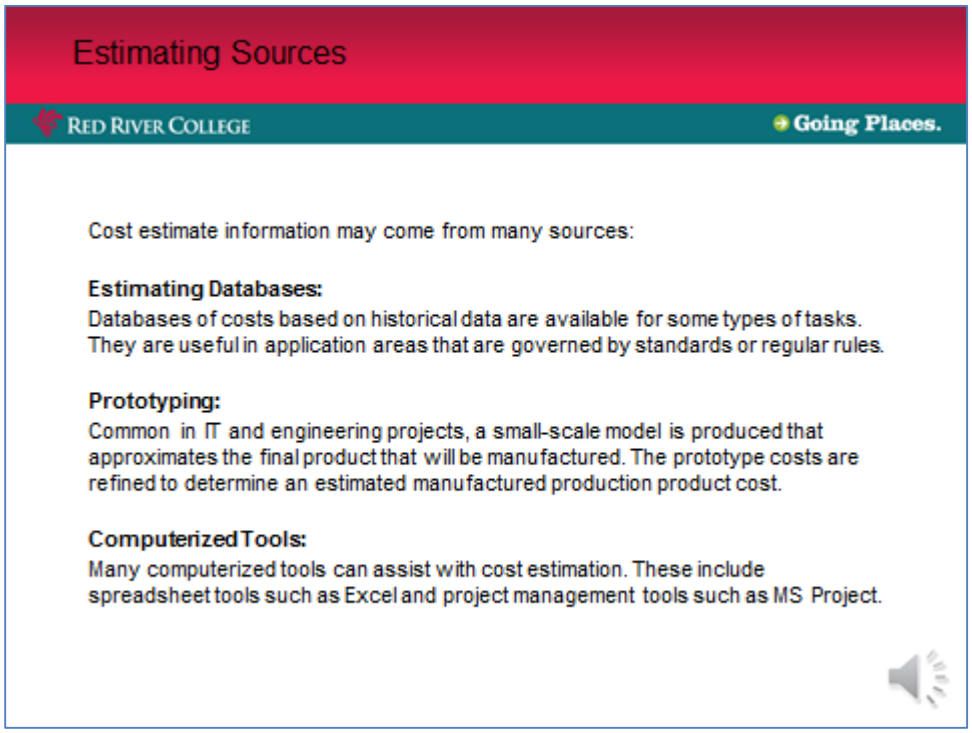

Estimating Databases:

Databases of costs based on historical data are available for some types of tasks. They are particularly useful in application areas that are governed by standards or regular rules. In this case, simply look up the relevant information to use for an estimate.

Prototyping:

This approach is common in IT and engineering projects. A small-scale model is produced that approximates the final product that will be manufactured. The prototype costs are refined to determine an estimated manufactured production product cost.

Computerized Tools:

There are many computerized tools available to assist with cost estimation. These include spreadsheet tools such as Excel and project management tools such as MS Project.

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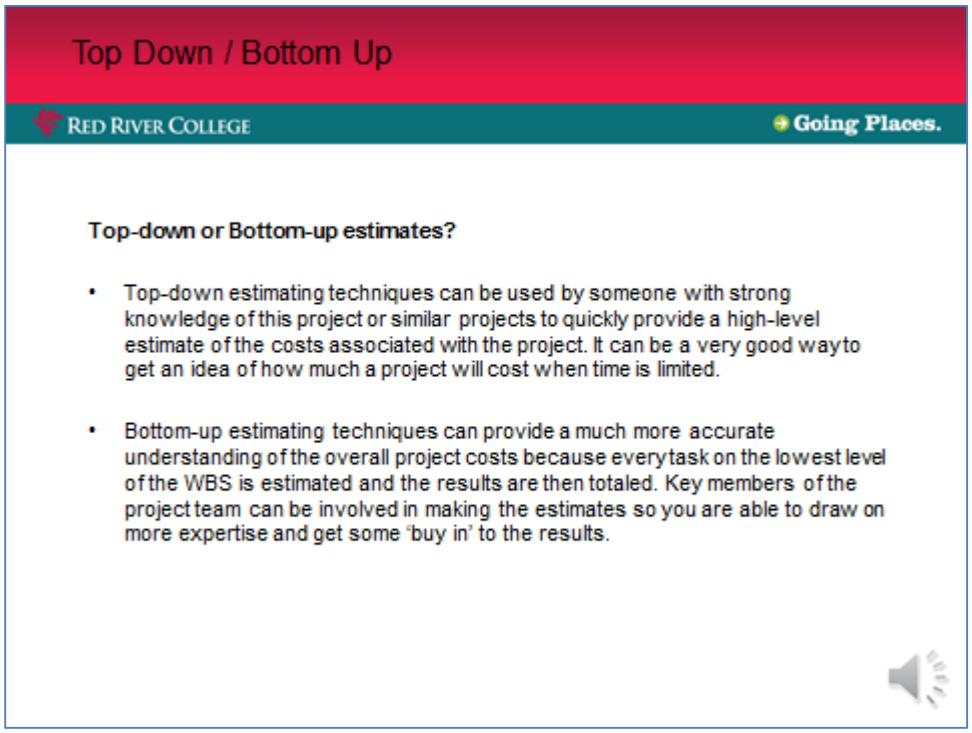

When you are estimating the project, you can start at the top of the WBS or at the bottom of the WBS. If you start at the top, it is called a top-down estimate. If you start at the bottom, it is called a bottom-up estimate.

Top-down estimating starts with a high-level estimate and then decomposes that estimate into smaller and smaller pieces sufficient to estimate the costs overall.

Top-down estimating techniques can be used by someone with strong knowledge of this project or similar projects to quickly provide a high-level estimate of the costs associated with the project. It can be a very good way to get an idea of how much a project will cost when time is limited.

Bottom-up estimating looks at all of the work packages in the WBS and estimates the cost for each. The estimates are consolidated up through the WBS to come up with an overall project cost.

Bottom-up estimating techniques can provide a much more accurate understanding of the overall project costs because every task on the lowest level of the WBS is estimated and the results are then totaled. Key members of the project team can be involved in making the estimates so you are able to draw on more expertise and get some 'buy in' to the results.

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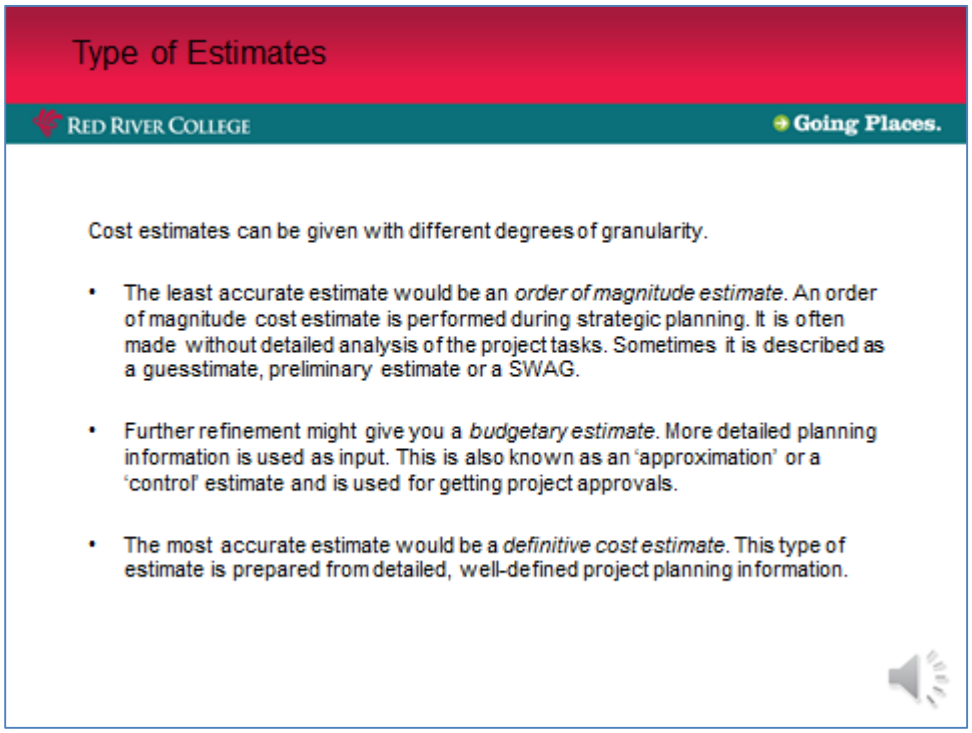

Cost estimates can be given with different degrees of granularity.

1. The least accurate estimate would be an **order of magnitude estimate**. An order of magnitude cost estimate is performed during strategic planning. It is often made without detailed analysis of the project tasks. Sometimes it is described as a guesstimate, preliminary estimate or a SWAG. It is quick, but not very accurate.

2. Further refinement might give you a **budgetary estimate**. More detailed planning information is used as input. This is also known as an 'approximation' or a 'control' estimate and is used for getting project approvals.

3. The most accurate estimate would be a **definitive cost estimate**. This type of estimate is prepared from detailed, well-defined project planning information. It is used most commonly to produce the project budget.

The granularity you will use depends upon how much time and money you have to commit to the estimating effort.

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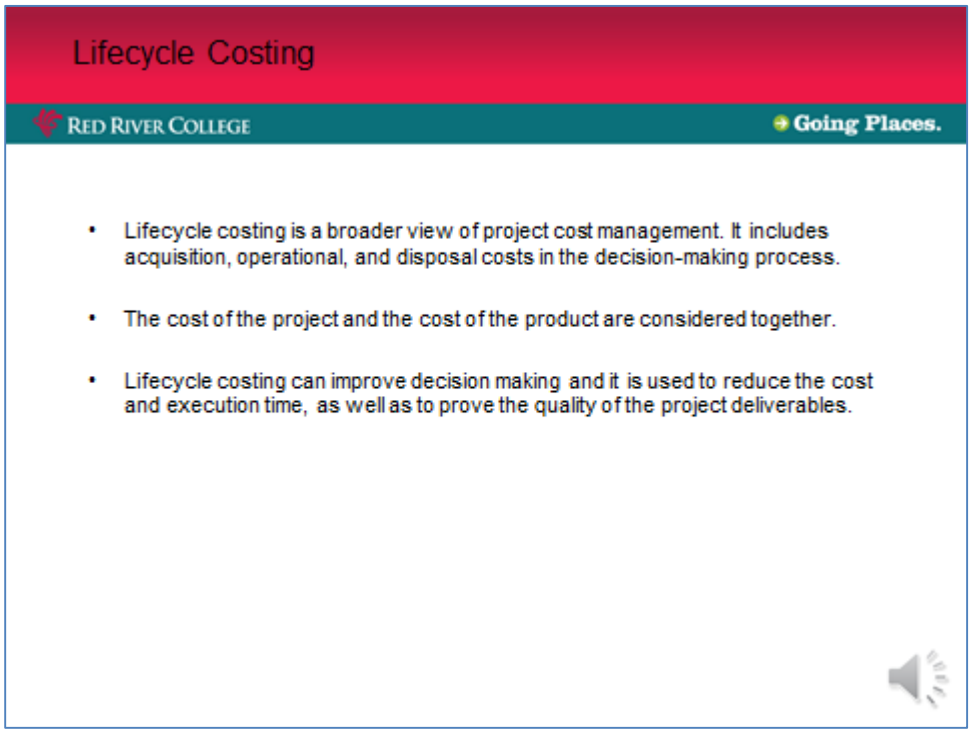

Lifecycle costing is a broader view of project cost management. It includes acquisition, operational, and disposal costs in the decision-making process.

The cost of the project and the cost of the product are considered together.

Lifecycle costing can improve decision making and it is used to reduce the cost and execution time, as well as to prove the quality of the project deliverables.

This type of costing usually applies to very large projects that span multiple years and that are developing a significant capital asset. Examples could include a jet, a bridge, and a large building.

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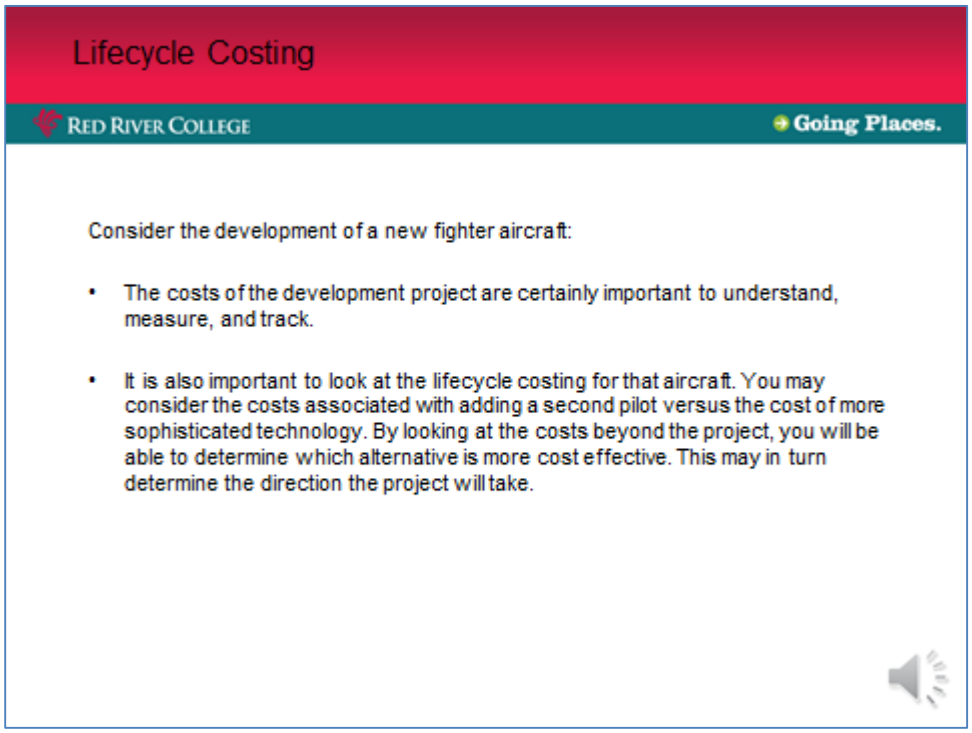

For example, consider the development of a new fighter aircraft. The costs of the development project are certainly important to understand, measure, and track. It is also important to look at the lifecycle costing for that aircraft. You may consider the costs associated with adding a second pilot versus the cost of more sophisticated technology.

By looking at the costs beyond the project, you will be able to determine which alternative is more cost effective. This may in turn determine the direction the project will take. Looking at the lifecycle costing may determine a different direction for the individual project to take.

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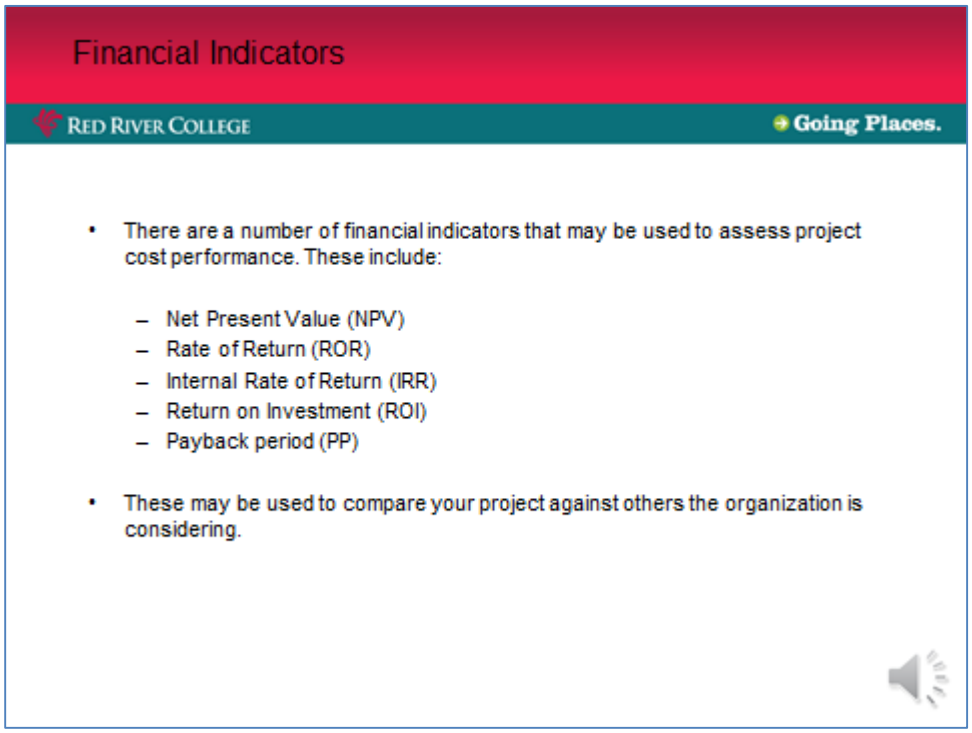

There are a number of financial indicators that may be used to assess project cost performance. These include:

- Net Present Value (NPV)
- Rate of Return (ROR)
- Internal Rate of Return (IRR)
- Return on Investment (ROI)
- Payback period (PP)

These may be used to compare your project against others the organization is considering.

The organization must determine the most cost-effective and valuable projects to deliver.

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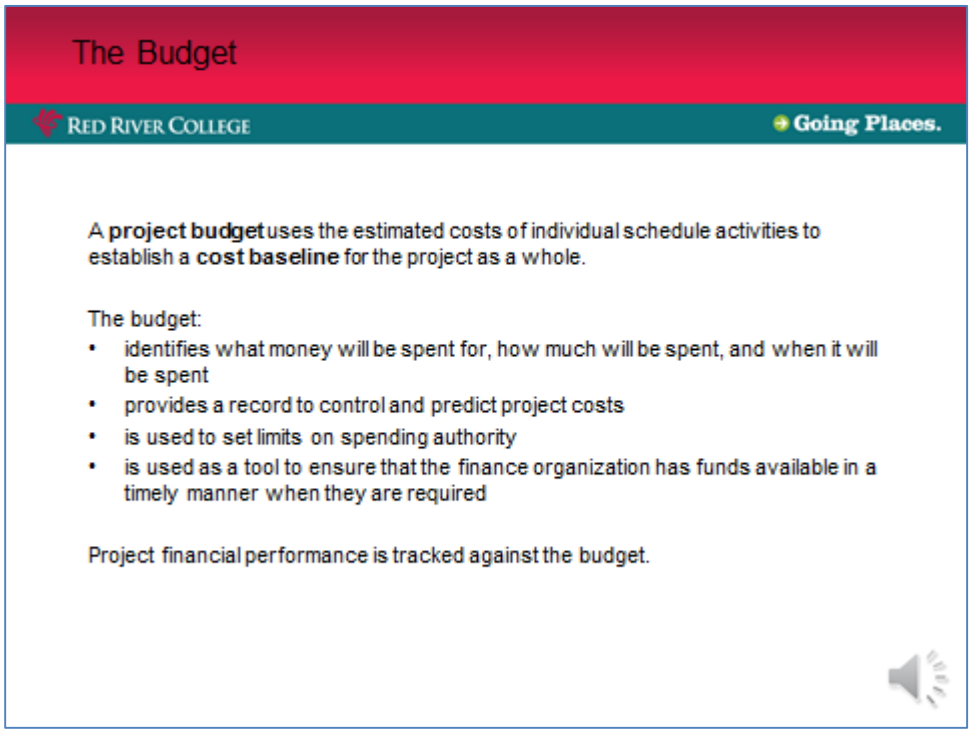

A **project budget** uses the estimated costs of individual schedule activities to establish a **cost baseline** for the project as a whole.

The budget identifies what money will be spent for, how much will be spent, and when it will be required to be spent. It provides a record to control and predict project costs, and may be used to set limits on spending authority. It is also used as a tool to ensure that the finance organization has funds available in a timely manner when they are required.

Project financial performance is tracked against the budget.

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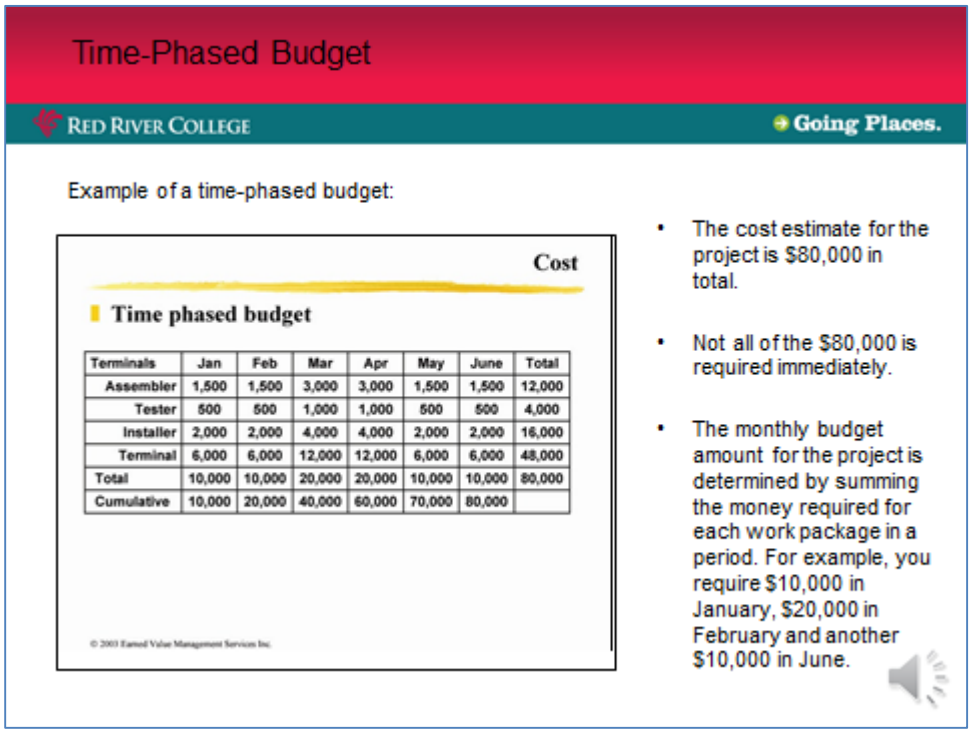

This is an example of a time-phased budget. In a time-phased budget, you spread the costs needed to complete the project work across a period of time during the lifecycle of your project. This gives you a more accurate view of when the costs will be incurred and when you require the money in hand to be able to deliver the work.

In this example:

- The cost estimate for the project is $80,000 in total.
- Not all of the $80,000 is required immediately. Each month has a different requirement.
- The monthly budget amount for the project is determined by summing the money required for each work package in a period.
- You require $10,000 in January, $20,000 in February, and another $10,000 in June.

By looking at the total of each row, you can also come up with a total estimated cost for each resource required to deliver the work.

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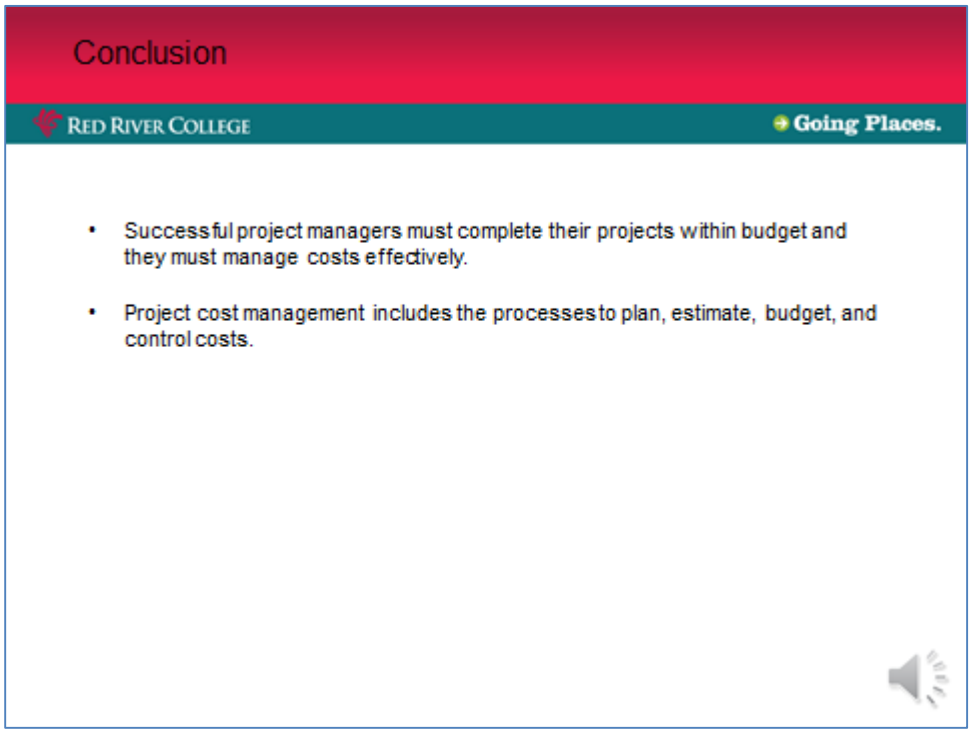

In conclusion remember that successful project managers must complete their projects within budget and manage costs effectively.

Project Cost Management includes the processes to plan, estimate, budget, and control costs.

Make sure you understand the principles. Apply them effectively and you will increase your chances of having a successful project.