

# Cost-benefit analysis

Weighing the benefits and costs of a project | City of Kingston

## What is cost-benefit analysis?

Cost-benefit analysis (also referred to as benefit-cost analysis) is a process of **identifying, calculating and comparing** the benefits and costs of a project. It was developed from investment appraisal techniques for application in the public sector and has become a widely used, proven tool for analysis providing a framework for the economic appraisal of proposed public projects from a public perspective.

*The public perspective is from a community perspective rather than any one particular interest group or individual.*

## Why do we use cost-benefit analysis?

Cost-benefit analysis assists in determining whether a proposed project should be undertaken, an existing project should be continued or choosing between alternative projects. It provides guidance on the efficient allocation of resources where there is no existing market to understand the costs and benefits of a project. It allows for a wider set of considerations outside of financial costs. For example, traffic congestion, emergency response times and road safety do not have private markets that dictate the potential cost to the public.

## How is cost-benefit analysis used?

Cost-benefit analysis organizes information to aid decisions about the allocation of resources by:

- Valuing costs and benefits in monetary terms to enable an “apples-to-apples” comparison;
- Provides supporting information for any costs and benefits that could not be quantified (monetized); and
- Examines these costs and benefits in terms of where they accrue from a public perspective.

*Cost-benefit analysis is not intended to supplant the decision-making process but supplement it.*

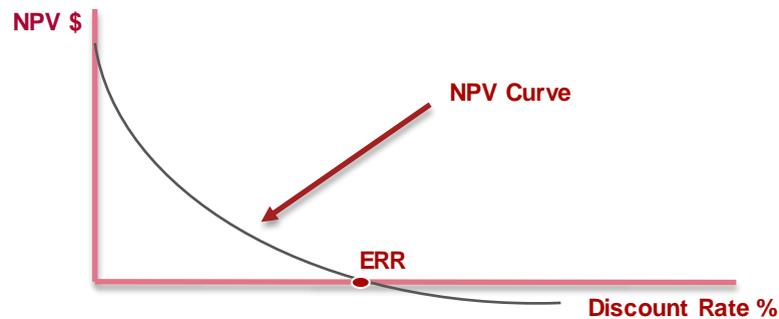


## How is the cost-benefit analysis calculated?

The costs and benefits of a project are generally spread out over time. It is critical that the valuation of costs and benefits takes account of when these costs and benefits occur. To compare costs and benefits over time we use “discounting” because a “dollar today is worth more than a dollar tomorrow”. The standard approach to discounting reduces a time stream of costs or benefits to an equivalent amount of today’s dollars. That single amount is known as the present value of the future stream of costs and benefits.

## What is the result of the cost-benefit analysis?

The output consists of the project Net Present Value (NPV) and Economic Rate of Return (ERR) and the Cost/Benefit Ratio. A positive NPV and ERR indicate that the project is viable and the Cost/Benefit Ratio identifies the magnitude of benefits to costs.



*Cost-benefit analysis enables the decision-maker to make an informed decision whether to undertake the project*

## What types of projects can cost-benefit analysis be used for?

This type of analysis is widely used globally and within Canada, generally for public projects but can be used for private projects. Cost-benefit analysis has been used for evaluating projects particularly in infrastructure, such as roads, power stations, airports or programs which may include changes or new public policies with regards to the labour market, education or research. It is used by government bodies like the Treasury Board and US Department of Transport. Cost-benefit analysis is a widely accepted tool for comparing the costs and benefits of major infrastructure projects to enable more informed decision making.

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